Date of Report: 4/13/2021

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: Mill Creek

B. Fire Number: 2021-TNCNF-000147

C. State: TN

D. County: Cocke

E. Region: 08

F. Forest: Cherokee

G. District: 02 (Unaka)

H. Fire Incident Job Code: P8NY78

I. Date Fire Started: 04/22/2021

J. Date Fire Contained: 05/06/2021

K. Suppression Cost: $800,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):
1. **Fireline repaired (miles): 4.47 mi. dozer line, 0.7 mi. hand line**
2. **Other (identify): N/A**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
060101060402	Cripple Creek – Pigeon River	24,405	628	2.57

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	616
OTHER FEDERAL (LIST AGENCY AND ACRES)	
STATE	12
PRIVATE	

OWNERSHIP	ACRES
TOTAL	628

O. Vegetation Types: Mixed hardwood and pine

P. Dominant Soils:

Map Unit Symbol	Map Unit Name	Acres	Percent of Burned Area
CaG	Cataska channery silt loam, 50 to 80 percent slopes	150.2	23.9%
CaE	Cataska channery silt loam, 20 to 35 percent slopes	90.2	14.4%
NoG	Northcove stony sandy loam, 50 to 80 percent slopes, bouldery	84.8	13.5%
CaF	Cataska channery silt loam, 35 to 50 percent slopes	60.0	9.6%
UnG	Unicoi-Rock outcrop complex, 50 to 80 percent slopes	52.2	8.3%
SoF	Soco fine sandy loam, 35 to 50 percent slopes, stony	51.6	8.2%
SoE	Soco fine sandy loam, 20 to 35 percent slopes, stony	39.6	6.3%
NoF	Northcove stony sandy loam, 35 to 50 percent slopes, bouldery	39.0	6.2%
NoE	Northcove stony sandy loam, 20 to 35 percent slopes, bouldery	28.0	4.5%
NoD	Northcove stony sandy loam, 5 to 20 percent slopes, bouldery	13.2	2.1%
BtG	Brasstown loam, 50 to 80 percent slopes	7.0	1.1%
Cr	Craigsville gravelly fine sandy loam, 1 to 5 percent slopes, bouldery, occasionally flooded	4.7	0.8%
MaE	Maymead loam, 20 to 35 percent slopes	3.4	0.5%
KfC	Keener loam, 5 to 12 percent slopes, stony	3.2	0.5%
KfD	Keener loam, 12 to 20 percent slopes, stony	1.0	0.2%

Q. Geologic Types: Cambrian shale and sandstone and Cambrian quartzite

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	2.78
INTERMITTENT	4.59
EPHEMERAL	0.84
OTHER (DEFINE)	

S. **Transportation System:**
Trails: *National Forest (miles):* O *Other (miles):*

Roads: *National Forest (miles):* 0.14 (FSR 110) *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						
Low	324					
Moderate	156		6			
High	136		6			
Total	616		12			

B. Water-Repellent Soil (acres): 223

C. Soil Erosion Hazard Rating: Slight (396.3 ac.), Moderate (13.2 ac.). Severe (218.5 ac.)

D. Erosion Potential: 20.9 tons per ac. in high burn severity areas on steep slopes

E. Sediment Potential: 4,500 cu. yds per sq. mi.

F. Estimated Vegetative Recovery Period (years): 1 to 3 years

G. Estimated Hydrologic Response (brief description): Storm runoff could be as high as 3.1 inches based on a 1 hr. storm even (10-yr. return interval). A typical 5-yr. storm return interval could produce as much as 2.7 in. of runoff based on a 1 hr. storm event. A 2-yr. storm return interval would produce runoff as high as 1.37 in. based on a 1 hr. storm event.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

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):** Probability of loss of human life is possible and the magniture of consequences would be major, resulting in a high risk to human life and safety. Increased runoff from the burned area could increase storm flows downstream of the burned area, in low-lying areas below the burned area and in the Pigeon River or in Richtop Branch or other unnamed tributaries within the fire scar. Forest visitors and adjacent landowners should be made aware of risks of increased stormflows and flooding within and proximal to the burned area.

2. **Property (P):** The probability of damage or loss of property is possible and the and the magnitude of consequences would be moderate, resulting in an intermediate risk to property. A large storm event (e.g., 10-yr return interval or hurricane) could increase overland flooding, resulting in flood

damage to structures in low lying areas. There is risk of culverts along Mill Creek Rd. becoming obstructed by debris, resulting in stormflows damaging road infrastructure.

3. **Natural Resources (NR):** The probability of damage or loss of natural resources is likely and the magniture of consequences would be moderate, resulting in a high risk to natural resources. There are non-native invasive plant species that could now propagage readily within the burned area, increasing the risk of invasion of species such as kudzu.
4. **Cultural and Heritage Resources:** The probability of damage or loss of cultural resources is possible, with the magnitude of consequences being moderate, resulting in an intermediate risk of damage or loss of cultural resources. The risk is that resources could be mobilized and carried away in stormwater runoff or displaced from their current locations, resulting in difficulty in understanding and interpreting patterns of occupancy and use by prehistoric indigenous people or understanding occupancy and use by post-European settlers.

B. **Emergency Treatment Objectives:** 1) Protect human life and safety by informing the public about post-wildfire watershed response, burned trees that could fall on visitors, etc. 2) Prevent undesirable loss of native vegetation communities through early detection and rapid response of non-native invasive plant species (NNIS). 3) Conduct storm patrols following significant storm events to monitor post-wildfire effect to Forest Service road infrastructure.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: The damaging event for non-native invasive plants is seed set or root propagation. Surveying for the presence of, and treating infestations of NNIS species has proven to be a successful mitigation strategy to prevent adverse effects of NNIS species to native plant communities.

Channel: None recommended
Roads/Trails: None recommended
Protection/Safety: Storm patrols have proven very effective in rapidly detecting post-storm response to Forest Service transportation infrastructure. Storm patrol for first few storm events is recommended.

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	75	85	90
Channel			
Roads/Trails			
Protection/Safety	80	85	95

E. Cost of No-Action (Including Loss): In the absence of treatment of NNIS species within and adjacent to the burned area, it is reasonable to expect populations of NNIS to grow and invade existing native plant communities. It is therefore reasonable to expect that the cost of NNIS treatments would increase over time as evidenced by National Forests throughout the U.S. that have very active and costly NNIS programs. The cost of future NNIS mitigation within and adjacent to the Mill Creek Fire burned area cannot be predicted with certainty, but a cost of $50.00 per acre to survey and treat infestations (a reasonable cost) would be greater than $30,000.

F. Cost of Selected Alternative (Including Loss): $ $14,000

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Christopher “Kit” MacDonald

Email: christopher.macdonald@usda.gov **Phone(s)** 540-589-8973

Forest BAER Coordinator: Ali Reddington
Email: allison.l.reddington@usda.gov Phone(s):423-476-9742

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

Skill	Team Member Name
Team Lead(s)	Kit MacDonald
Soils	Kit MacDonald
Hydrology	Kit MacDonald
Engineering	Brett Yaw
GIS	Kit MacDonald
Archaeology	
Weeds	Mark Pistrang
Recreation	
Other	

H. **Treatment Narrative:** Invasive plants are harmful non-native plants that are able to establish on many types of sites, grow and expand quickly, and whose introduction or expansion causes or is likely to cause harm to human health, economic or environmental harm, such as disrupting plant communities or ecosystems. Another category of unwanted plants, which may include native plants, are plants that appear on the Federal and/or State Noxious Weed Lists. The recommendation is to survey for the presence of, and treat any infestations found in accordance with the BAER Guidance Paper on Invasive Plant Threats.

Land Treatments: Survey and treat NNIS species within and adjacent to the burned area to prevent spread of infestations (i.e., Early Detection and Rapid Response)

Channel Treatments: None

Roads and Trail Treatments: None

Protection/Safety Treatments: Storm Patrol following significant precipitation events for the first year.

I. Monitoring Narrative: Monitoring vegetation recovery and stream and watershed condition for the next calendar year is recommended. Natural recovery, for the most part will be sufficient to mitigate adverse effects to forest resources. Consider stream stabilization measures if instability is observed and forest restoration treatments if needed. Road stream crossings should be monitored as part of the storm patrol and any culvert or stream crossing obstructions should be addressed immediately.

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										
NNIS EDRR	ac	40	250	$10,000	$0		$0		$0	$10,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$10,000	$0		$0		$0	$10,000
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										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
Storm Patrol	event	500	8	$4,000	$0		$0		$0	$4,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$4,000	$0		$0		$0	$4,000
E. BAER Evaluation										
Initial Assessment	Report	$723	1	---	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$0		$0		$0	$0
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				$14,000	$0		**$0**		**$0**	**$14,000**
Previously approved										
Total for this request				**$14,000**						

PART VII - APPROVALS

1. _____ 5/24/2021

Forest Supervisor Date