Date of Report:

06/24/2021

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: Mammoth

B. Fire Number: UT-DIF-000270

C. State: UT

D. County: Garfield

E. Region: 04

F. Forest: 07

G. District: 02

H. Fire Incident Job Code: P4N172

I. Date Fire Started: 06/04/2021

J. Date Fire Contained: 06/16/2021

K. Suppression Cost: ~ 4.1 million (as of 06/21/21)

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

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
160300010202	Tommy Creek	14,239	654	<5

N. Total Acres Burned: 706 according to fire perimeter with 13 of those acres showing as unburned

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	702
PRIVATE	4
TOTAL	706

O. Vegetation Types (on NFS lands):

	Soil Burn Severity				
VCMQ Vegetation Type	**High**	**Low**	**Moderate**	**Unburned**	**Grand Total**
Douglas-fir Mix		9	1		**10**
Mountain Mahogany		2	6		**8**
Pinyon-Juniper		15	2	0	**16**
Ponderosa Pine	6	98	130	3	**238**
Ponderosa Pine Mix	0	209	129	9	**347**
Ponderosa Pine/Woodland		17	8	0	**26**
White Fir Mix	0	33	28	0	**61**
Grand Total	**6**	**383**	**305**	**13**	**706**

If 0 is displayed that indicates that it is less than 0.5 acres.

P. Dominant Soils (on NFS lands:

MU-ID	Description
220	Hesperus - Zillion families complex, 0 to 15 percent slopes
277	Zillion - Hesperus families complex, 15 to 40 percent slopes
234	Syrett - Paunsaugunt - Ustorthents families complex, 30 to 65 percent slopes

Q. **Geologic Types:** Soils were formed primarily in place from residual Claron formation or basalt which is still present in the form of rock outcrops.

R. Miles of Stream Channels by Order or Class (on NFS lands):

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	0
INTERMITTENT	1.5
EPHEMERAL	2.4
OTHER (DEFINE)	

S. **Transportation System (on NFS lands):**
Trails: *National Forest (miles):* 0
Roads: *National Forest (miles):* 2.6 (level 2 or Admin roads)

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres

Soil Burn Severity	NFS
Unburned	13
Low	378
Moderate	305
High	6
Total	702

B. Water-Repellent Soil (acres): 0

C. Soil Erosion Hazard Rating: N/A

D. Erosion Potential: N/A

E. Sediment Potential: N/A

F. Estimated Vegetative Recovery Period (years): 2

G. Estimated Hydrologic Response (brief description): Field sampling of soil burn severity in moderate, high, and low burn locations verified that the BARC data was accurate for this fire. Although some of the moderate/high soil burn severity sites are on steeper slopes, for the most part they are in drainages without well defined channels that open up with low gradients toward the base of the main Tommy Creek canyon. This will allow for some attenuation of exacerbated streamflow from overland flow during precipitation events. Hydrophobicity was measured as generally low and although overland flow will undoubtedly increase during precipitation events compared to before the fire, this increase would not be as much as what is expected with moderate and severely burned soils with high hydrophobicity or in a watershed that had substantial amounts of down woody debris and vegetative ground cover prior to the fire (this area was predominantly ponderosa pine and had lesser amounts of vegetative ground cover when compared to other forested vegetation community types).

Photo of a moderate soil burn severity site on the Mammoth Fire.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Mammoth Fire was lightning caused and was discovered on June 04, 2021. The fire burned most of its acres within the first few days. Full supression efforts were employed and a large amount of fire retardent was dropped early on in the fire to protect the adjacent Mammoth Creek subdivsion. A type II resource team took command over supression efforts and brought in equipment from multiple states.

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):** Low
2. **Property (P):**Roads – Low: After suppression damage repair to the roads is made, the risk to roads from post fire runoff will likely by low.
3. **Natural Resources (NR):**Water and Soil Productivity – Intermediate to Low. See estimated hydrologic response section above.
    b. Native or naturalized plant communities-high risk: The risk is due to the conditions created by the fire that will allow invasive and no-native plants to readily establish.

B. **Emergency Treatment Objectives:** To protect and preserve native vegetation communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: EDRR - >90%
Channel:
Roads/Trails:
Protection/Safety(for Cultural Resources):

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	***3 years after treatment***	***5 years after treatment***
Land	>90%	90%	90%
Channel			
Roads/Trails			
Protection/Safety (for Cultural Resources)			

E. Cost of No-Action (Including Loss): Increase over 300 acres of noxious/invasive weeds with an estimated cost of $30,000 (100$/acre) to treat after infestation

F. Cost of Selected Alternative (Including Loss): $2,100 plus $3,000 for potential loss

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Brooke Shakespeare
Email: brooke.shakespeare@usda.gov **Phone(s)**: 435-690-9277

Forest BAER Coordinator: Brooke Shakespeare
Email: brooke.shakespeare@usda.gov **Phone(s):** 435-690-9277

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

Skill	Team Member Name
Team Lead(s)	Brooke Shakespeare
Soils	Vaughn Thacker
Hydrology	Brooke Shakespeare
Engineering	Jake Dodds
GIS	Laurie Parry
Archaeology	
Weeds	Mark Madsen / Ethan Hooper
Recreation	
Other	Mark Bigelow (resource specialist trainee)

H. Treatment Narrative:

Land Treatments: There are very few invasive weed sites on the Cedar City ranger district. In the area of the fire suppression efforts, there are no documented invasive sites. Preserving the weed free nature of the Cedar City Ranger district retains a high level of priority. There are nine recorded species of Invasive weeds on the Dixie National Forest. White Top, Spotted Knapweed, Dalmatian Toadflax, Bull Thistle, Scotch Cotton Thistle, Canada Thistle, Nodding Plumeless Thistle, Gypsyflower, and Heardheads. The ponderosa pine, mixed conifer, and Bristlecone Pine communities that were impacted by the fire were largely free of invasive and noxious weeds prior to the fire. There is a recorded Bull Thistle site three miles to the North of the fire where we had staged resources in order to help in suppressing the fire that could cause issues. The area receives high recreational use from the Mammoth Creek subdivision. Post-fire use along established routes within the fire may proliferate invasive and noxious weed spread. Fire suppression activities on roads, trails, hand lines, dozer lines, staging areas, slurry drops, and helispots need to be monitored over the next year to determine if invasives and noxious weeds were introduced into the area. Introduced noxious weeds and invasive plants would impact post-fire recovery of this native plant community and possibly threaten permanent alteration of the burned native plant community. For invasive Weed management the only way to prevent new populations from becoming established is to find it and eradicate it before it has a chance to set seed and establish a seed source through early detection and rapid response/treatment (EDRR). For example a Bull Thistle can reproduce by spreading 100 to 300 seeds per flower head, and Whitetop can spread 1,200 to 4,800 seeds from each plant. By early detection rapid response we can stop the establishment of a seed source and population if left unchecked. Therefore, the most effective treatment would be EDRR (Early Detection Rapid Response) Monitoring of the fire suppression disturbances and those areas of the fire scar that were most disturbed by moderate and high soil burn severity for one year following containment of the Mammoth fire to detect noxious weeds and invasive plant response along the aforementioned routes and disturbance areas within the burn.

Channel Treatments:

Roads and Trail Treatments:

Protection/Safety Treatments (for Cultural Resources):

I. Monitoring Narrative:

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										
T01- EDRR Weeds Suppres	Acres	7	11	$74	$0		$0		$0	$74
T01- EDRR Weeds BAER		7	300	$2,026	$0		$0		$0	$2,026
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$2,100	$0		$0		$0	$2,100
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										
				$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	$2,330	1	$2,330	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$2,330	$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				$2,100	$0		**$0**		**$0**	**$2,100**
Previously approved										
Total for this request				**$2,100**						

PART VII - APPROVALS

1. KEVIN WRIGHT

Digitally signed by KEVIN WRIGHT
Date: 2021.06.24 11:33:15 -06'00'

Forest Supervisor Date