Date of Report: 08/20/2020

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: Upper Provo

B. Fire Number: UWF-615

C. State: Utah

D. County: Wasatch

E. Region: 04

F. Forest: Uinta-Wasatch-Cache

G. District: Heber Kamas RD

H. Fire Incident Job Code: P4NCP3 (0419)

I. Date Fire Started: 07/31/2020

J. Date Fire Contained: Estimated 9/30/2020

K. Suppression Cost: $2,300,000 on 8/20/2020

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

1. **Fireline repaired (miles):** Approximately 1.25 miles
2. **Other (identify):** None noted

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
160202030102	Spring Canyon-Provo River	25,098	368	1.5%
140600030105	Little Deer Creek-Duchesne River	17,309	112	0.6%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	480
OTHER FEDERAL (LIST AGENCY AND ACRES)	0
STATE	0
PRIVATE	0
TOTAL	480

O. Vegetation Types: Lodgepole Pine, Beetle-killed Spruce

P. Dominant Soils: There are 10 soil map units within the Upper Provo Fire perimeter. Four of the map units comprise approximately 74% of the burned area. These include: 24-MIRROR LAKE-DUCHESNE VERY STONY SANDY LOAM SOILS COMPLEX (30% of the area); 28-MIRROR LAKE-DUCHESNE COMPLEX (17% of the area), 81-ROCK OUTCROP-MIRROR LAKE STONY-DUCHESNE STONY COMPLEX (15% of the area), 26-28--MIRROR LAKE-DUCHESNE-ANIMAS FAMILY COMPLEX (12% of the area).

Q. Geologic Types: Qtp: Till of Pinedale age. Poorly sorted bouldery till. As mapped, may include some colluvium, talus, and landslide deposit.

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	0.6
INTERMITTENT	0
EPHEMERAL	0
OTHER (DEFINE)	0

S. Transportation System:
Trails: *National Forest (miles):* 1.8 *Other (miles):* 0
Roads: *National Forest (miles):* 0.8 *Other (miles):* 0

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/Very Low	144	0	0	0	0	30%
Low	191	0	0	0	0	40%
Moderate	145	0	0	0	0	30%
High	0	0	0	0	0	0
Total	480	0	0	0	0	100%

B. Water-Repellent Soil (acres): 145 acres.

C. Soil Erosion Hazard Rating: Classified as moderate within the 4 dominant soil map units listed above.

D. Erosion Potential: 0.125 tons/acre. The areas of the fire that would be most susceptible to increased erosion were burned at moderate severity, have gentile slopes that average 10-15% over relatively short

hillslope lengths of 200-400', and high rock content. Increased post-fire hillslope erosion is expected to be minimal.

E. Sediment Potential: Not assessed due to expected lack of significant hillslope erosion**.**

F. Estimated Vegetative Recovery Period (years): 3-5 years for understory vegetation, 15-20 years for lodgepole pine.

G. Estimated Hydrologic Response (brief description): Post fire runoff is expected to be minimal due to the lack of high soil burn severity (SBS) and minor amounts of moderate SBS within each drainage that was burned. Hillslopes within the burned area are relatively low gradient. Slopes in the most severely burned area, located to the west of the Broadhead Meadow road, average 10-15%. Hydrophobicity on these slopes was found to be moderate, with water droplets infiltrating in 20-30 seconds on average. Short duration, high intensity monsoonal thunderstorms are not common in this landscape position as storms tend to build in this area before moving to the N/NE where intense rainfall is more common on the lower elevations of the North slope of the Uinta Mountains. While possible, spring rain on snow events are not common in the burned area which has an average elevation of 9500'.

PART V - SUMMARY OF ANALYSIS

Introduction/Background: The human caused Upper Provo wildfire was reported on the afternoon of July 31, 2020. The point of origin was located near a dispersed camping area in the SW corner of the burnscar. The fire then spread to the E/NE burning in an increasingly spotty manner as it moved through the lodgepole pine stands and talus slopes near Pyramid Lake. Containment was achieved by constructing handlines, hose lays, helicopter water drops, fixed wing airtanker retardant drops, and terrain features. Burned Area Reflectance Classification (BARC) imagery was obtained from satellite imagery that was processed by the USFS Geospatial Technology and Applications Center in Salt Lake City, UT on August 11, 2020. The BAER assessment team visited the burnscar to validate the BARC imagery and conduct a resource assessment on August 15, 2020. The results of that assessment are presented below.

A. Describe Critical Values/Resources and Threats (narrative): Critical values within and downstream/downslope of the burnscar were identified and risk to those values was assessed using the matrix in Table 5. See discussion below for detailed analysis of each critical value.

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):

1.1 Human life and safety of Forest visitors and employees traveling on NFS roads and motorized trails in the burnscar is threatened due to the potential for injury or loss of life from hazard tree strikes. The probability of damage or loss is **unlikely** as fire crews have assessed and dropped many hazard trees along the travel routes within the burn scar. Many burned trees remain, however sawyers did not identify them as hazard trees that are likely to hit the road. The magnitude of consequence is **major** since a tree strike could result in serious injury or loss of life. The risk level is **intermediate**. Treatments are recommended. See treatment PS01.

1.2 Human life and safety of Forest visitors and employees traveling cross-country on foot or horseback through the burned area (not on system roads or trails) is threatened due to the

potential for injury or loss of life from hazard tree strikes. The probability of damage or loss is **unlikely** as cross country travel through the burned area is rare. The magnitude of consequence is **major** since a tree strike could result in serious injury or loss of life. The risk level is **intermediate**. Treatments are recommended. See treatment PS01.

2. Property (P):

2.1 NFSR 416 (Broadhead Meadows Rd) is threatened due to increased postfire runoff resulting in erosion of the road prism. The probability of damage or loss is **unlikely** as damaging runoff from moderate SBS areas is expected to be minimal due to the low angle of the burned slopes and short slope lengths. The magnitude of consequence is **minor** because this route is a rough, high clearance ML2 road within minimal constructed features and economic value. Any damage would be minor in scope. The risk level is **very low**. Treatments are not recommended.

2.2 NFSR 137 (Murdock Basin Rd) is threatened due to increased postfire runoff resulting in flooding of the unnamed stream that drains Broadhead Meadow. NFSR 137 crosses this channel just west of the Murdock Basin TH/OHV Staging Area. The probability of damage or loss is **unlikely** because damaging runoff from moderate SBS areas is expected to minimal due to the low angle of the burned slopes and short slope lengths. The current crossing structure consists of two 24" pipes and one 36" pipe. All 3 pipes have been cleaned recently and have 100% of the design capacity available. The magnitude of consequence is **moderate**. If culvert plugging and overtopping does occur at the stream crossing, loss of road fill and damage to the road would result in moderate damage to the road prism. Diversion potential is low as evidenced by existing damage from previous overtopping events when the culverts were plugged with floatable debris. The risk level is **low**. Emergency treatments are not recommended, however inspection of the existing structure following storm and snowmelt events for the next 2-3 years is advised.

2.3 NFSTs 3306A (Broadhead Loop 2), 3306 (Broadhead Loop) 3303 (Brid's EYE) are threatened due to increased postfire runoff from areas of moderate SBS that could damage trail prisms. The probability of damage or loss is **unlikely** because damaging runoff from moderate SBS areas is expected to be minimal due to the low angle of the burned slopes and short slope lengths. The magnitude of consequence is **minor** because these routes is are well-armored, OHV routes with minimal constructed features and economic value. Any damage would be minor in scope. The risk level is **very low**. Treatments are not recommended.

3. Natural Resources (NR):

3.1 Water within and downstream of the burnscar that is used for municipal and agriculture supply is threatened due to potential water quality impacts from increased sediment and nutrient loading following runoff producing events. The probability of damage or loss is **possible** because some minor erosion and transport of sediment, ash, and nutrients is expected to occur for the next few years. The magnitude of consequence is **minor** because intact, unburned or lightly burned riparian buffers are expected to filter out the majority of any pollutants transported from the burned areas and the points of diversion are located a significant distance away from the location where any pollutants would enter the water. The risk rating is **low**. Treatments are not recommended.

3.2 Soil productivity and hydrologic function on NFS lands within and downslope of the burnscar are threatened due to the potential for increased runoff and erosion of soil horizons. The probability of damage or loss is **unlikely** as hillslopes within the burned area are relatively low gradient and have a high rock content made of or larger particle classes. Soil burn severity for much of the burned area was low or on the lower end of the moderate SBS class. Surface and subsurface indicators show minimal fire effects to the soil horizons below the upper portion of the A horizon.

The magnitude of consequence is **minor**. Any damage to the soil resource is expected to be recoverable and localized. The risk rating is **very low**. Treatments are not recommended.

3.3 Native plant communities in areas of moderate SBS where invasive species or noxious weeds are absent are threatened because noxious and invasive plant species have been documented to occur along motorized routes within 0.6 miles of the burned area. These NNIS are expected to spread into the burned area. The probability of damage or loss is **likely**. The burned area is within a highly used recreation travel corridor. Spread of NNIS into the burned area may occur by vehicle transport. NNIS in proximity of burned area are spread via wind as well. The burned area now lacks desired vegetation that could normally compete with NNIS. The magnitude of consequence is **moderate** since NNIS establishment in burned area will create a long term weed management issue and will degrade the existing intact native plant community. The risk rating is **high**. Treatments are recommended. See treatments L01 and L02.

3.4 Native plant communities in areas where invasive species or noxious weeds are absent or present in only minor amounts are threatened by the potential introduction of NNIS into areas that were disturbed by unmitigated fire suppression activities. The probability of damage or loss is **very likely**. During initial attack and the operational period that immediately followed, READs were not assigned to the fire. NNIS mitigation tactics were not implemented during this time. Firefighting equipment is assumed to be a vector for introduction of NNIS. The magnitude of consequence is **moderate**. NNIS establishment in the burned area will create a long term weed management issue and will degrade the existing intact native plant community. The risk rating is **very high**. Treatments are recommended. See treatment L03.

4. **Cultural and Heritage Resources:** The burned area has been recently surveyed for a previous project analysis. No sites have been recorded in the burned area. Two eligible sites are in proximity to the burned area but are not at risk of damage from post fire effects.

B. Emergency Treatment Objectives: Raise awareness and minimize the threats of post-fire hazard trees and minimize the spread of NNIS into the burned area and areas that were disturbed by suppression resources.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: 90%
Channel: N/A
Roads/Trails: N/A
Protection/Safety: 95%

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	85%	90%	95%
Channel	N/A	N/A	N/A
Roads/Trails	N/A	N/A	N/A
Protection/Safety	90%	80%	70%

E. Cost of No-Action (Including Loss): $37,328 for ongoing weeds treatment based on the assumption that the 82.95 acres that have been identified as threatened need to be treated for 3 years at current contractor rates of $150/acre.

F. Cost of Selected Alternative (Including Loss): $7,625 which includes BAER funding of $600 for warning signs, $3,025 for EDRR, and an additional $2,000 per year for 2 years in non-BAER funded follow up weed survey and treatment.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Brendan Waterman
Email: brendan.waterman@usda.gov **Phone(s)** 385-377-4338

Forest BAER Coordinator: Brendan Waterman
Email: brendan.waterman@usda.gov **Phone(s):** 385-377-4338

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

Skill	Team Member Name
Team Lead(s)	Brendan Waterman
Soils	
Hydrology	
Engineering	
GIS	
Archaeology	
Weeds	Patricia Winn, Jana Leinbach
Recreation	
Other	Upper Provo Fire REAF – Justin Robinson

H. **Treatment Narrative:** The following narratives summarize the response actions recommended to decrease risks to BAER Critical Values. Detailed specifications and maps identifying the spatial location for the treatments are located in the Upper Provo BAER Assessment project record. The documents can be obtained by contacting the Uinta-Wasatch-Cache National Forest BAER Coordinator.

Land Treatments:

L01-Early Detection Rapid Response (EDRR) BAER adjacent to Transportation System: Survey and treatment for new or previously undocumented expanding invasive plant/noxious weed infestations associated with fire disturbance will be conducted during Spring/Summer 2021. EDRR implementation will be completed within one year of fire containment. EDRR activities that extend beyond the first year will be accomplished through non-BAER funding sources. This treatment will focus on a buffered corridor around the roads and motorized trails that are located within areas of moderate burn severity. These areas are highly susceptible to new infestation as they are located along designated travel corridors within the burned area. Motorized equipment and vehicle operators have been identified as a likely vector for invasive plant and noxious weed spread. In this area, a traditional EDRR survey will be conducted where implementation personal will survey and treat any newly detected invasive plants or noxious weeds immediately upon detection.

L02-Early Detection BAER in other moderate burn severity areas: Survey for new or previously undocumented expanding invasive plant/noxious weed infestations associated with fire disturbance will be conducted during Spring/Summer 2021. Implementation will be completed within one year of fire containment. Activities that extend beyond the first year will be accomplished through non-BAER funding sources. This treatment will focus on areas with moderate burn severity, outside of those areas identified in treatment L01. To focus the treatment in the moderate burn severity areas that are most susceptible to new populations of invasive plants and noxious weeds, survey areas have been prioritized based on the field validated BARC data. The survey will be limited to areas where the BARC dataset identified a change detection grid code value of 150 or greater. These areas were found to be most at risk

during the field review of the burned area. If new infestations are found in the first year following containment of the fire, an interim request for additional treatment funding would be submitted.

L03-EDRR Suppression: Surveys and treatments for new or expanding invasive plant and noxious weed infestations associated with fire suppression activities will be conducted by during Spring/Summer 2021. EDRR activities that extend beyond the first year will be accomplished through non-BAER funding sources. EDRR Suppression efforts will be focused along areas that were disturbed by unmitigated suppression activities, including areas of handline construction and one improved helicopter sling site.

Channel Treatments: None proposed.

Roads and Trail Treatments: None proposed.

Protection/Safety Treatments:

PS01-Burned Area Warning Sign Purchase and Installation: Burned area warning signs are recommended to reduce the risks to human life and safety by informing Forest visitors of potential hazards that are present within the burned area. The primary hazards within the burned area are fire-killed trees and the potential for falling trees and limbs. It is necessary to inform the public of burned-area hazards that are a direct result of wildfire; hazards which are substantially different compared to undisturbed forest setting and with which many forest visitors may be unfamiliar.

Two locations have been identified for warning signs at entry points to the burned area. These are located at the beginning and end of the Broadhead Meadow road.

This treatment will include the design, purchase of signs/posts/hardware, and installation.

I. Monitoring Narrative:

Monitoring of areas identified for EDRR treatments is recommended annually for at least 3 years or until newly detected populations have been successfully eradicated.

District personal will periodically monitor warning signs for any vandalism, damage, or removal.

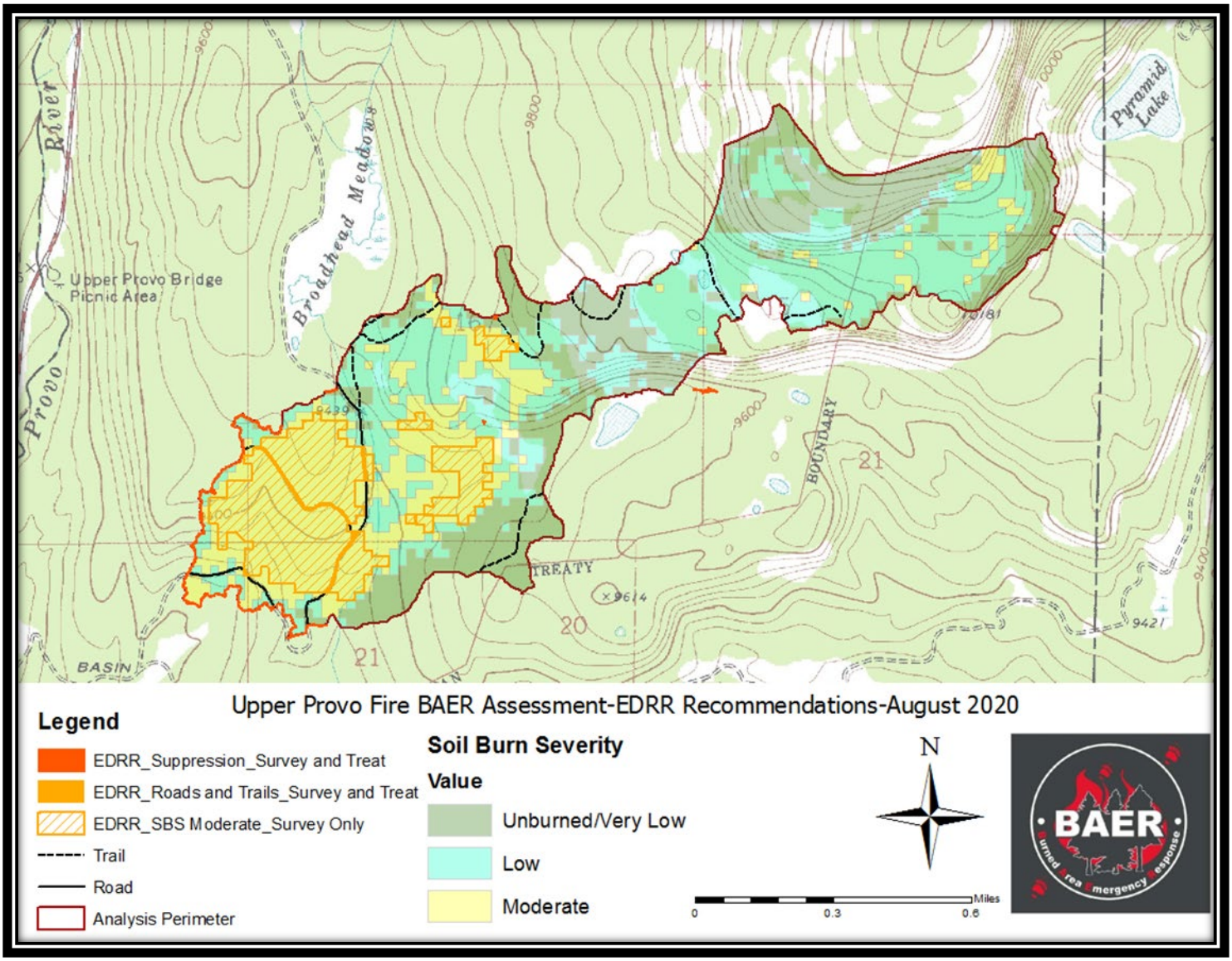
PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			NFS Lands				Other Lands				All
		Unit	# of		Other		Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	# of units	$	Units	$	$
A. Land Treatments										
L01 EDRR Trans System	acre	150	3.46	$519	$0		$0		$0	$519
L02 ED BAER	acre	25	75.34	$1,884	$0		$0		$0	$1,884
L03 EDRR Suppression	acre	150	4.15	$623	$0		$0		$0	$623
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$3,025	$0		$0		$0	$3,025
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										
PS01 Warning Signs	Sign	300	2	$600	$0		$0		$0	$600
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$600	$0		$0		$0	$600
E. BAER Evaluation										
Initial Assessment	Report	$5,797		---	$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				$3,625	$0		**$0**		**$0**	**$3,625**
Previously approved										

PART VII - APPROVALS

1. DAVID WHITTEKIEND Digitally signed by DAVID WHITTEKIEND Date: 2020.08.21 10:09:14 -06'00'

Forest Supervisor Date


Upper Provo Bridge Picnic Area
Broadhead Meadows
Pyramid Lake
BOUNDARY
TREATY
BASIN
Upper Provo Fire BAER Assessment-EDRR Recommendations-August 2020
Legend
EDRR_Suppression_Survey and Treat
EDRR_Roads and Trails_Survey and Treat
EDRR_SBS Moderate_Survey Only
Trail
Road
Analysis Perimeter
Soil Burn Severity
Value
Unburned/Very Low
Low
Moderate
N
0
0.3
0.6
Miles
BAER