

Date of Report: 10/5/2018

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- 1. Funding request for estimated emergency stabilization funds
- 2. Accomplishment Report
- 3. No Treatment Recommendation

B. Type of Action

- 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
- 2. Interim Report # _____
 - Updating the initial funding request based on more accurate site data or design analysis
 - Status of accomplishments to date
- 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

- | | |
|---|--|
| A. Fire Name: <u>Cache Creek</u> | B. Fire Number: <u>CO-WRF-000409</u> |
| C. State: <u>CO</u> | D. County: <u>Garfield</u> |
| E. Region: <u>R2</u> | F. Forest: <u>White River NF</u> |
| G. District: <u>Rifle Ranger District</u> | H. Fire Incident Job Code: _____ |
| I. Date Fire Started: <u>Saturday July 28th, 2018</u> | J. Date Fire Contained: <u>55% at the time of assessment</u> |
| K. Suppression Cost: <u>6.3 million</u> | |
| L. Fire Suppression Damages Repaired with Suppression Funds <ul style="list-style-type: none"> 1. Fireline waterbarred (miles): _____ 2. Fireline seeded (miles): _____ 3. Other (identify): _____ | |
| M. Watershed Number: | |

Sixth field sub-watersheds and named streams near burned area (9/22/2018)

4 th level watershed	6 th level sub-watershed	HUC	Major named streams in the sub-watershed	Total acres	Acres burned	Percent burned
Upper Colorado	Cache Creek – Colorado River	140100050702	Cache Creek – Colorado River	45,678	2,704	6 %

N. Total Acres Burned:
NFS Acres(2,040) Other Federal (0) State (0) Private (665)

O. Vegetation Types:

The dominate vegetation type present include; riparian/wetlands, Montane Forest and Shrublands, mixed conifer, Aspen and Subalpine Spruce-Fir Forests. Spruce-Fir forest are found at 9,500 to 11,500 ft. in elevation. This ecosystem consists of cool, moist spruce-fir with some intermixed aspen and lodgepole pine near the montane transition zone. Common shrubs found in this plant community include bilberry (*Vaccinium myrtillus*), common juniper (*Juniperus communis*), red raspberry (*Rubus idaeus*), shrubby cinquefoil (*Potentilla fruticosa*) and wild rose (*Rosa woodsia*). Montane forest and Shrublands are found at 7,000 to 9,500 ft. in elevation. Throughout the montane plant zone the communities change structure and species base on aspect and moisture. Riparian and wetlands ecosystems occur within the montane and subalpine zones. Their common feature is the occurrence of plants that require saturated soils for optimal growth.

P. Dominant Soils:

Dominant soil types within the fire perimeter include Scout, Leighcan, Peeler, Seitz, Leadville, Echemoor, Douhspon and Wetopa series. The Scout series consists of a very deep, somewhat excessively drained soils that formed in till, colluvium and slope alluvium. This soil has a slow to medium runoff. The Doughspon series consists of a deep, moderately well drained soils that formed in glacial till derived from basalt. The Leadville Series consists of very deep, well drained soils that formed in thick colluvium, or glacial derived debris. The Echemoor series consists of well drained soils that are moderately deep to bedrock. Formed in residuum and colluvial slopewash derived from sedimentary rock. The Leighcan series consists of very deep, well drained soils formed in in till, slope alluvium or colluvium from acid igneous rocks. The Wetopa series consists of deep, well drained soils that formed in residuum derived from interbedded sandstone and shale with surface basalt. The Peeler series consists of very deep, well drained soils that formed in slope alluvium, and colluvium derived from granite and granitic gneiss. And the Seitz series consists of very deep, well drained soils that formed in noncalcareous colluvium or slope alluvium derived from granite, gneiss, mica schist, rhyolite, andesite, trachyte, interbedded sandstone/shale and basalt.

Q. Geologic Types:

The geology of the Cache Creek Fire is primarily landslide deposits. Locally includes talus, rock-glacier, and thick colluvial deposits. Geologic age: Quaternary (Cenozoic Era).

R. Miles of Stream Channels by Order or Class:

Class	FS	Private
Perrenial	1.48	0.24
Intermittent	3.75	3.04
Ephemeral	1.20	0.46
Totals	6.43	3.74

S. Transportation System

Trails: 1.0 miles Roads: 0.5 miles

PART III - WATERSHED CONDITION

A.

Soil Burn Severity for the Cache Creek Fire			
Soil Burn Severity	Acres by Severity on NFS Lands	Acres by Severity on Private Lands	Acres by Severity Total
High	261 (13%)	111 (17%)	372 (14%)
Moderate	437 (21%)	282 (42%)	718 (27%)
Low	550 (27%)	170 (26%)	720 (14%)
Unburned	792 (39%)	102 (15%)	895 (14%)
Total	2040	665	2705

B. Water-Repellent Soil (acres):

Increased runoff due to hydrophobic conditions is reflected in the peak flow analysis contained in the Hydrology Report. Increased overland flow due to the hydrophobic conditions may increase hill-slope rill and sheet erosion. Hydrophobic layers will usually take six months to two years to break down. Plant root development, soil microbial activity, and freeze-thaw cycling all contribute to the degradation of hydrophobic conditions.

C. Soil Erosion Hazard Rating (acres):

Erosion Hazard Ratings for the Cache Creek Fire, interim	
Erosion Hazard Rating	NFS Acres
No Rating	2.8
Slight	2.1
Low	39.5
Moderately Low	2,201.4
Moderately High	342.2
High	14.9
Severe	102.3

D. Erosion Potential: 2.9 tons/acre

E. Sediment Potential: 1,210 cubic yards / square mile

Geologic Response: Debris flows are probable in the Cache Creek Fire area but not likely. Steep slopes with high and moderate soil burn severities increase debris flow probability and down-stream debris migration. Moderate slopes with lower soil burn severities will likely have nominal post-fire geologic responses.

Debris Flow: The United States Geological Survey (USGS)-Geologic Hazards Division provided predictive debris flow model results with quantitative and qualitative results. Analysis show predictions for channel and basin probability, volume, and hazard for a design storm with a 15 minute intensity of 24 millimeters per hour. The channel segment probability model is particularly informative for comparison analysis and to extrapolate results by comparing hydrologic modeling predictions. More information on the USGS model and processes used can be found at the following website. http://landslides.usgs.gov/hazards/postfire_debrisflow/

Pre-fire slope stability and recovery of watershed hydrologic response is dependent on many factors and typically occurs within 3-5 years following the fire. Recovery of high burn severity areas is slower because little or no vegetative ground cover remains, the potential for needle cast is low and soils may be impacted by fire effects. Potential debris flows produced by the burn scar is low to moderate. Debris flows will likely deposit in locations of lower gradient but, during higher intensity and subsequent storm events, can migrate farther downstream.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	<u>3-5</u>
B. Design Chance of Success, (percent):	<u>80%</u>
C. Equivalent Design Recurrence Interval, (years):	<u>10</u>
D. Design Storm Duration, (hours):	<u>1</u>
E. Design Storm Magnitude, (inches):	<u>0.993</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>See Table 2 below</u>
G. Estimated Reduction in Infiltration, (percent):	<u>17</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>See Table 2 below</u>

WILDCAT5 MODELING RESULTS

Table 1: The soil burn severity acres and percentages by modeled watershed

Modeled Sub-Watershed	Unburned acres	UB %	Low acres	Low %	Moderate acres	Mod %	High acres	High %
Cache Creek	3787	70	637	12	652	12	331	6
Cottonwood Creek	746	87	36	4	40	5	39	4
Western	411	87	35	7	24	5	1	0.2

Table 2: Wildcat5 modeled pre- and post- fire peak flows (Q) by watershed

Sub-Watershed Name	Pre-fire Q (cfs)	Post-fire Q (cfs)	Bulked post-fire Q (cfs)	Relative Increase Post-fire Q (Post Q /Pre Q)	Pre-fire time to peak (min)	Post-fire time to peak (min)
Cache Creek	4.9	271	298	55.4	1.17	0.61
Cottonwood Creek	0.9	18.4	20.2	21.7	1.13	0.62
Western	0.7	7.0	7.7	10.0	1.10	0.60

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

BAER Risk Assessment

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

Values at Risk	VAR Category: <i>life-safety, property, natural resource, cultural resource</i>	Probability of Damage or Loss	Magnitude of Consequences	Risk	Treatment
Cutthroat Trout - Cache Creek (green lin. TES)	Natural Resources	Likely	Moderate	High	Monitor
Weeds	Natural Resources	Very Likely	Major	Very High	Noxious weed treatments
Water Quality	Natural Resources	Possible	Moderate	Intermediate	Monitor
Big River Fish	Natural Resources	Unlikely	Moderate	Low	
Battlement Road	Property, life/safety	Unlikely	Moderate	Low	
Lynx	Natural Resources	Unlikely	Moderate	Low	

B. Emergency Treatment Objectives:

The emergency treatment objectives include the treatment of invasive weeds species that populate newly burned areas. Monitoring stream health in Cache creek will dictate any future emergency treatments for Colorado River Cutthroat Trout – green lineage.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land 75% Channel N/A % Roads/Trails N/A % Protection/Safety 95 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	75%	80%	90%
Channel	N/A	N/A	N/A
Roads/Trails	N/A	N/A	N/A
Protection/Safety	95%	95%	95%

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

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Fisheries	<input checked="" type="checkbox"/> Recreation	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Steve Hunter, White River National Forest

Email: sjhunter@fs.fed.us

Phone: 970-945-3308

FAX: 970-945-3266

H. Treatment Narrative:

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments: Invasive Weed Treatments

BAER emergency repair

There is a total of 44.78 acres of potential noxious weed infestation due to the Cache Creek

Fire suppression activities could also be a vector for the spread of invasive weeds in the areas where bare soil was exposed. These areas include dozer lines, hand lines, helispots, and fire camps. There is a total of 51 acres of disturbed area due to fire suppression, and portion of those acres should be treated for invasive weed spread.

Due to suppression activities noxious weeds have the potential to spread throughout all roads, trails, dozer line, hand line and drop points or staging areas within representative native plants communities.

Due to fire activity areas of moderate to high burn severity could have new and aggressive noxious weed invasions and are considered highest priority for treatment. Areas with lower burn severity where noxious weeds are present will also be treated and monitored.

Areas surround all wetlands and fens are the highest priority to prevent and treat weed infestations from occurring.

In conclusion, the probability of damage from noxious weeds is very likely, the magnitude of consequences is major and the risk is **considered very high** for the Cache Creek Fire.

Channel Treatments: N/A (see hydrology report)

Roads and Trail Treatments: No treatments are being requested (see engineering report)

Protection/Safety Treatments: Road & Trail Signs

This treatment will install burned area signs to inform the public and to caution forest visitors recreating and administrative users about the potential hazards that exist within the burned area. This treatment will place hazard signs and information signs at key entry points or trail junctions, and recreation trailheads. It will inform users of the potential dangers associated with entering/recreating within a burned area.

The purchase and installation of signs at each of the identified locations consistent would be consistent with Forest Engineering Standards at these locations. A Forest Service employee will inspect the signs for visibility, damage, or loss and replace as needed. See Engineering Road & Trail Report for details.

GS-07 (for Sign/post Installation)	day	200	2	\$400
GS-11@ \$380/day X 1 day	day	380	1	\$380
Mileage @ \$0.55/mile	mile	0.55	100	\$55
Burned Area Road Signs	each	500	2	\$1,000
Burned Area Trail Signs	each	100	4	\$400
Sign Posts and Hardware	lump	250	1	\$250

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Colorado River Cutthroat Trout – green lineage

It is recommended that the Forest monitor both Cutthroat trout (Green lineage) and macroinvertebrate site along Cache Creek. This information can indicated stream health and productivity for Colorado River Cutthroat trout population. Monitoring frequency should be increased and should occur post rain event/ increased debris flow. The probability of damage to Cache Creek is considered likely, magnitude of consequences is considered moderate, and **the risk is high** from increased sediment and debris flows in the creek for Colorado River Cutthroat trout – green lineage.

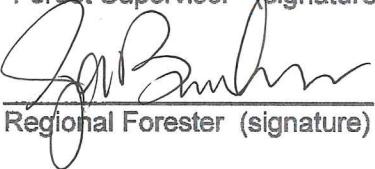
Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

NFS Lands				Other Lands				All	
Line Items	Unit	# of Units	BAER \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
A. Land Treatments									
Weed Treatment BAER			\$10,076	\$0		\$0		\$0	\$10,076
Weed Treatment Suppression			\$5,141	\$0		\$0		\$0	\$5,141
Weed Treatment Monitoring			\$1,724	\$0		\$0		\$0	\$1,724
<i>Insert new items above this line!</i>			\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments			\$16,940	\$0		\$0		\$0	\$16,940
B. Channel Treatments									
			\$0	\$0		\$0		\$0	\$0
			\$0	\$0		\$0		\$0	\$0
			\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>			\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.			\$0	\$0		\$0		\$0	\$0
C. Road and Trails									
			\$0	\$0		\$0		\$0	\$0
			\$0	\$0		\$0		\$0	\$0
			\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>			\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails			\$0	\$0		\$0		\$0	\$0
D. Protection/Safety									
Safety Signs	1	2,485	\$2,485	\$0		\$0		\$0	\$2,485
			\$0	\$0		\$0		\$0	\$0
			\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>			\$0	\$0		\$0		\$0	\$0
Subtotal Structures			\$2,485	\$0		\$0		\$0	\$2,485
E. BAER Evaluation									
			\$8,353	\$8,353		\$0		\$0	\$8,353
<i>Insert new items above this line!</i>			—	\$0		\$0		\$0	\$0
Subtotal Evaluation			\$8,353	\$8,353		\$0		\$0	\$8,353
F. Monitoring									
Cutthroat Monitoring			\$1,819	\$0		\$0		\$0	\$1,819
<i>Insert new items above this line!</i>			\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring			\$1,819	\$0		\$0		\$0	\$1,819
G. Totals			\$21,244	\$8,353		\$0		\$0	\$21,244
Previously approved									
Total for this request			\$21,244						

PART VII - APPROVALS

1. 
Scott Fitzwilliams
Forest Supervisor (signature)

10/15/18
Date

2. 
Regional Forester (signature)

10/30/18
Date

Figure 1: Final Soil Burn Severity

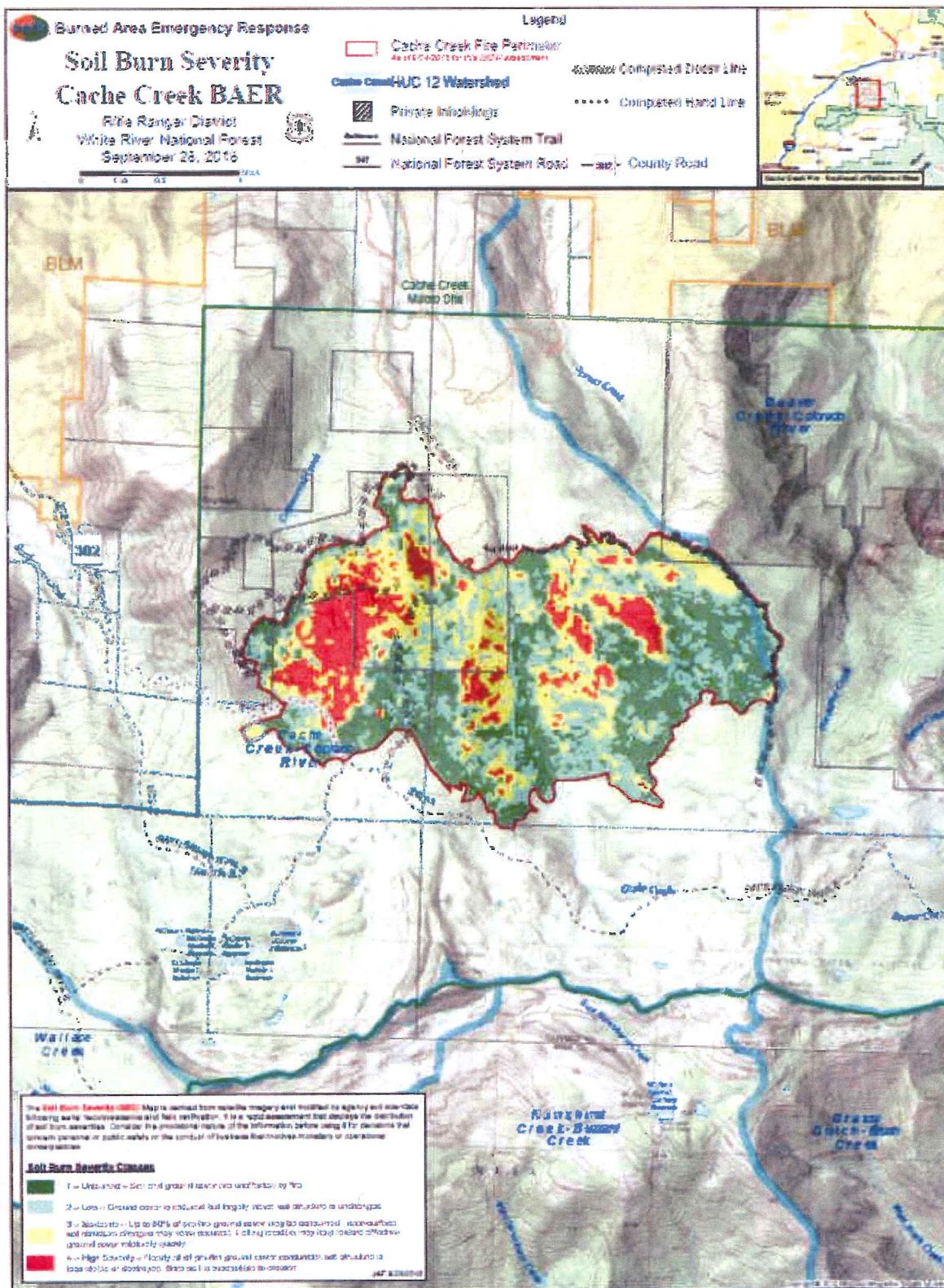
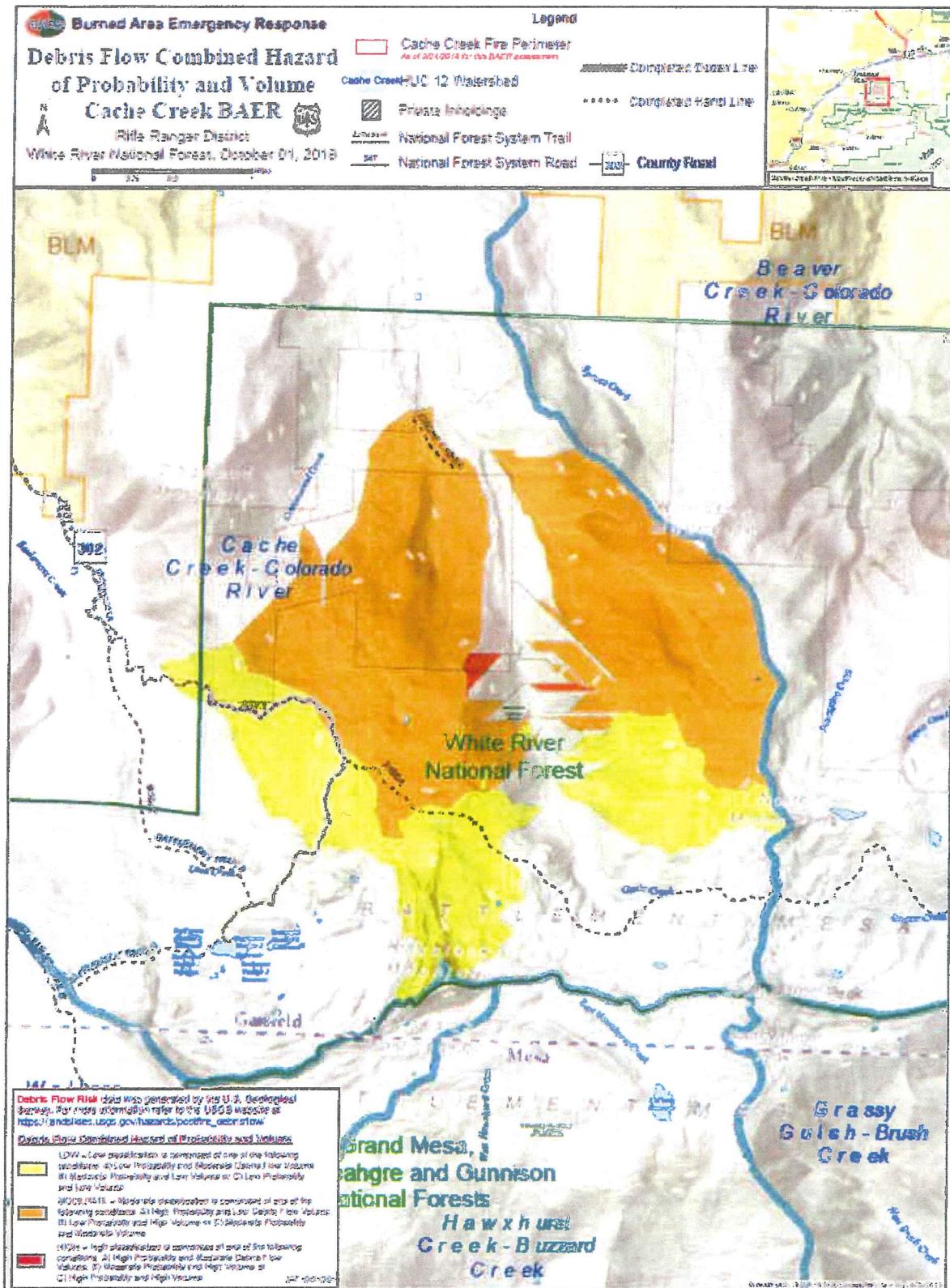


Figure 2: Debris Flow Combined Hazard of Probability and Volume



 Burned Area Emergency Response

Invasive Plants (Weeds)

Cache Creek BAER

Rifle Ranger District
White River National Forest
September 28, 2018

