September 12, 2018

EXECUTIVE SUMMARY

The Cabin Lake Fire, located 16 miles east of Meeker, CO, started on July 29, 2018. The cause is unknown and is under investigation. The fire has affected Private and BLM lands as well as the White River National Forest. As of this initial assessment, the fire is 95% contained with a projected containment date of October 3, 2018. A Burned Area Emergency Response (BAER) assessment was initiated on September 7, 2018 as summer thunderstorms could pose significant threats to values at risk within and downstream of the fire. This initial BAER assessment covers approximately 4,222 acres on Forest Service Lands (Fire perimeter totals 5,975 acres: 4,222 ac. NFS, 588 ac. BLM, and 1,195 ac. private) and identifies risks to public safety and infrastructure prior to the first damaging storm.

Modelling estimates for erosion, flood flows, and debris flow potential represent the lower end of expected watershed response. This initial BAER assessment is based on available BARC data from August 30, 2018. Of the burned acres assessed, 21% were unburned, 22% were of low burn severity, 47% were moderate burn severity, and 10% were of high burn severity.

Burn Severity By Ownership as of September 10, 2018:

Soil Burn Severity for the Cabin Lake Fire				
Soil Burn Severity	**Acres by Severity on NFS Lands**	**Acres by Severity on BLM Lands**	**Acres of Severity on State Lands**	**Acres of Severity on Private Lands**
High	437	139	0	250
Moderate	2002	251	0	586
Low	915	78	0	196
Unburned	900	102	0	198
Total	**4,254**	**568**	**0**	**1,144**

The USFS is responsible for addressing risks on NFS lands. This report focuses on risks and proposed treatments to address threats to values at risk on NFS lands, but also provides relevant information to help identify potential threats downstream of the fire. Proposed treatments focus on inter-agency coordination and information sharing to reduce threats to life/safety and property, and minimizing the spread of noxious weeds into burned areas which could detrimentally affect native plant communities.

In this initial assessment, the BAER team identified approximately $**51,077** in potential emergency stabilization treatments to address post-fire threats from the Cabin Lake Fire.

Date:September 12, 2018

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

[X] 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: Cabin Lake

B. Fire Number: CO-WRF-000411

C. State: CO

D. County: Rio Blanco

E. Region: 02

F. Forest: White River NF

G. District: Blanco RD

H. Fire Incident Job Code: P2L17H (0215)

I. Date Fire Started: July 29, 2018

J. Date Fire Contained: 95% contained as of 09/07/2018

K. Suppression Cost: $13.9 million as of September 13, 2018

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): Waterbarring has not occurred as fire is only 0% contained
2. Fireline seeded (miles): Same as above
3. Other (identify): Safety zones, staging areas, drop points to be repaired after suppression activities are complete.

M. Watershed Number:

Sixth field sub-watersheds and named streams in the assessed burned area

WATERSHED DESCRIPTION

Sixth field sub-watersheds and named streams near burned area (7/3/2018 - 8/30/2018)

4th level watershed	6th level sub-watershed	HUC	Major named streams in the sub-watershed	Total acres	Acres burned	Percent burned
Upper White	Hill Creek – South Fork White River	140500050205	South Fork –White River	30,191	3,947	13 %
	Veach Gulch –White River	140500050305	White River-Greenstreet Creek	28,361	434	1.5 %
	North Elk Creek	140500050302	North Elk Creek-Vaughn Creek	28,376	385	1.4 %

N. Total Acres Burned:
NFS Acres (4,254) Other Federal (588) State (0) Private (1,195)

O. Vegetation Types: The dominate vegetation type present include, Aspen and mixed conifer forests, Montane Forest and Shrublands, and Subalpine Spruce-Fir Forests. Presence of these vegetation is largely controlled by elevation. Lower elevations are a mix of Montane Forests and Shrublands. As elevation increases, vegetation transitions to aspen and then becomes more dominant with Engelmann Spruce and Supapline Fir. There are extensive wetlands throughout the fire area. Figure 1 below shows vegetation types in the assessment area.

P. Dominant Soils: Angostura, Winnemucca-Clayburn, Lamphier-Tampico-Kamack, Cochetopa, Cochetopa-Adel-Hapgood, and Cowdrey-Tampico. Soils within the burn area generally have a deep to very deep, well-drained, fine loamy and loamy skeletal characteristics with clay and sand components. The clay, sand, and fine particle structure accommodates organic components concentrated at the surface layer. Ground cover, critical for soil stabilization, is lacking throughout most areas mapped as moderate and high soil burn severity. These soils are sensitive to fire effects, and soil productivity is likely impacted where heavy surface fuels were consumed. Higher rates of erosion are expected in moderate and high burn soil severity where ground cover was burned.

Q. Geologic Types: The majority of the burn scar is composed of landslide deposits and the Minturn Formation. A very small portion of the fire is composed of gravels and alluviums. The Minturn Formation is composed of sandstone, conglomerate, shale, and limestone. Landslide deposits are composed of talus, rock-glacier, and colluvial deposits.

R. Miles of Stream Channels by Order or Class: 4.73 miles perennial; 16.22 mi total Intermittent 12.94 mi total ephemeral

S. Transportation System

Trails: 1.3 miles Roads: 2.25 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Soil Burn Severity for the Cabin Lake Fire		
Severity	**Acres Burned**	**Percent**
High	739	12%
Moderate	2838	48%
Low	1189	20%
Unburned	1199	20%

Soil Burn Severity Summary

Burn Severity and Slopes for the Entire Burned Area: Burn severity and slope heavily influence potential soil erosion due to fire-induced reduction of protective ground cover combined with high runoff potential of steep slopes.

- In range and chaparral (shrub) vegetation types, the soil burn severity was influenced by the density of pre-fire vegetation. The watershed response in moderate and high burned areas in range and chaparral is expected to be high until the native vegetation recovers.
- Forested areas with moderate and high burn severity is expected to have similar post fire erosion and runoff in the first year following the fire.
- 48% of the fire burned at moderate soil severity. 12% of the burned area has high soil burn severity characteristics. Unburned and low soil burn severity comprises 40% and occurs throughout the burned area. (See Soil Burn Severity Map in the Project File.)

Soils with low burn severity still have good surface structure, contain intact fine roots and organic matter, and should recover in the short-term once re-vegetation begins and the soil surface regains cover. The moderate to high classes have evidence of severe soil heating and this is limited to isolated patches. The most severely burned slopes occur where pre-fire vegetation densities and ground fuels accumulations were higher. Water repellency is present throughout the fire area, including unburned areas like rock outcroppings, and was exacerbated by the fire. While a proportion of eroded soil will remain on the hill-slope, delivery of eroded soil to stream channels is expected to occur. These eroded sediments are a primary source of material for debris flows and sediment laden stream flows.

Soil Burn Severity by Vegetation Type on National Forest			
Vegetation Type	**Soil Burn Severity**	**Acres**	**Percent**
Forest	Unburned/Low	228	5%
	Moderate	709	15%
	High	62	1%
Range/Shrub	Unburned/Low	1749	38%
	Moderate	1389	30%
	High	500	11%

B. Water-Repellent Soil (acres): 1278 acres

The degree and extent of water repellent soils is estimated to be 1278 acres or 36% of the moderate and high burn severity areas. Areas with very fine textured surface layers, high burn severities, and/or thick ash layers commonly had strong water repellency at a depth of 1 to 2 inches. The pattern of water repellent soils is likely to be patchy and mosaic.

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):

The pre-fire erosion hazard rating (EHR) for burned area soils was obtained from existing soil erosion hazard rating information in the White River soil dataset. The EHR interpretation is based on soil properties such as soil texture, slope, aggregate stability, infiltration rate, subsoil permeability, depth to restrictive layers, and soil rock content. The rating is the maximum EHR for the soil map units. For the entire Cabin Lake Fire, the EHR is low. Actual pre and post fire erosion potential is better reflected by the ERMiT modeling runs for this project.

Pre-Fire Erosion Hazard Ratings	
Erosion Hazard Rating	**Acres**
Low	5965
Moderate	0
High	0

Acres of Low EHR by Soil Burn Severity		
Severity	**Acres Burned**	**Percent**
High	739	12%
Moderate	2838	48%
Low	1189	20%

D. Erosion Potential: 2.58 tons/acre

The following ERMiT results indicate that rates of erosion are low in low burn severity forested areas. Rates of erosion may increase to over 2 tons/acre on steep forested hillslopes that were mapped at moderate or high soil burn severity. Extensive removal of forest floor ground cover occurred in these areas. The results also show that recovery of these areas is likely to occur within 3-5 years following the burn. In shrub/range dominated areas, the results are similar but slightly higher for the first 2 years following the fire. In high and moderate soil burn severity areas, it is highly likely that increased rates of soil erosion and sediment delivery to stream channels will occur, in the first and second year following the fire, particularly on steep slopes.

Erosion in Tons/Acre by Soil Burn Severity for Sandy Loam				
Vegetation Type	**Soil Burn Severity**	**Percent Slope**		
		< 20 %	20 - 40 %	40 - 60 %
Forest	Low	≤ 0.11	0.34	1.51
	Moderate	≤ 0.28	0.58	2.88
	High	≤ 1.07	1.83	2.29
Range/Shrub	Low	≤ 0.26	0.61	0.77
	Moderate	≤ 0.45	0.91	1.39
	High	≤ 0.5	1.36	2.5

Erosion in Tons/Acre by Soil Burn Severity for Clay Loam				
Vegetation Type	**Soil Burn Severity**	**Percent Slope**		
		< 20 %	20 - 40 %	40 - 60 %
Forest	Low	≤ 0.21	0.44	0.66
	Moderate	≤ 0.51	0.68	1.42
	High	≤ 1.09	1.58	2.28
Range/Shrub	Low	≤ 0.63	1.51	1.89
	Moderate	≤ 1.09	2.07	2.58
	High	≤ 1.42	2.81	3.62

E. Sediment Potential: 2345 cubic yards / square mile

Geologic Response: Debris flows are probable in the Cabin Lake 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/

Throughout the burned area, the combined hazard ratings for debris-flow in first order tributaries to the main stem stream channels are low to moderate. At the fire perimeter exiting the burned area, the hazard ratings are moderate and low for all stream channels. At the burned area perimeter, volumes are predicted to be >10,000m3.

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.

Treatable percent of each watershed

Percent of HUC 12 Watersheds with Mod-High Severity and 20-60 Percent Slopes			
Watershed	**Watershed Acres**	**Acres Mod and High SBS and 20-40% Slopes**	**Total Percent**
Hill Creek – South Fork White River	30,191	1144	>4%
North Elk Creek	28,376	99	>1%
Veatch Gulch – White River	28,361	25	>0.1%

Supporting information regarding these estimates is available in the soils specialsit report. The final soil burn severity map is displayed in Appendix A.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5 years

B. Design Chance of Success, (percent): 80%

C. Equivalent Design Recurrence Interval, (years): 10 year

D. Design Storm Duration, (hours): 1 hour

E. Design Storm Magnitude, (inches): 0.90 inches

F. Design Flow, (cubic feet / second/ square mile): See Table 2 below

G. Estimated Reduction in Infiltration, (percent): See Table 1 below

H. Adjusted Design Flow, (cfs per square mile): See Table 2 below

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

Sub-watershed	Total Acres	Acres of Soil Burn Severity				Percent of Sub-watershed			
		High	Moderate	Low	Unburned	High	Moderate	Low	Unburned
Bear Gulch	402	12	88	19	283	3	22	5	70
Beckman Creek	852	23	142	27	660	3	17	3	77
Cabin Lake	3261	15	260	98	2888	>1	8	3	89
Greenstreet Creek	1869	13	231	168	1457	1	12	9	78
Hazard Creek	943	14	73	51	805	1	8	5	85
Langlas Draw	685	122	253	82	228	18	37	12	33
Missoo Gulch	665	87	283	98	197	13	43	15	30
Sawmill Creek	1829	20	300	263	1246	1	16	14	68
Smith Gulch	1483	14	391	184	894	1	26	12	60
Swede Creek I	311	37	192	37	45	12	62	12	14
Swede Creek II	283	125	149	7	2	44	53	2	1

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

Sub-Watershed Number	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)
Cabin Lake	15.88	83.92	92.31	5.3	67.8	37.2
Greenstreet Creek	1.44	27.34	30.10	19.0	72.0	40.2
Sawmill Creek	5.23	33.53	36.88	6.4	66.6	42.0
Smith Gulch	1.28	41.50	45.65	32.4	69.6	38.4
Swede Creek I	0.15	41.44	51.8*	276.3	70.8	36.6
Swede Creek II	0.0	31.15	38.94*	311.5	69.6	37.8
Langlas Draw	0.86	128.31	160.39*	149.2	69.6	34.8
Missoo Gulch	0.72	123.24	154.05*	171.2	70.2	35.4
Hazzard Creek	3.42	24.26	26.67	7.1	66.0	37.2
Beckman Creek	0.78	56.53	62.18	72.5	67.8	34.8
Bear Gulch	0.24	30.56	33.62	5.3	69.6	34.8

The hydrologic modeling results indicate an increase in flows and faster timing during intense thunderstorms. The post-fire peak flow estimates may be conservative due to factors such as high infiltration rates in limestone and similar underlying sedimentary geology types, undulating topography with a high degree of depressions and other low gradient areas, reservoirs and diversions, and the very low density and disjoint stream network. Additional information pertaining to the hydrology modeling is available in the hydrology specialist report.

PART V - SUMMARY OF ANALYSIS

A. **Describe Critical Values/Resources and Threats**: Threats to critical values and determination of risk was based on the following matrix from FSH 2523.

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**

Critical Value: Human life/safety

Hazard Trees: Threats to life and safety, exist within the burned area as Forest users will be exposed to significantly increased risk of hazard trees. The burned area is popular with recreationists due to its close proximity to Meeker and other communities.

Debris Flow Hazard: The debris flow hazard will increase in the years following the fire. The USGS debris flow model was used to estimate debris flow potential. Debris flows may still occur and causing life/safety concerns and damage to property, but the degree of threat is difficult to discern.

Emergency Determination: The probability of loss is Possible and the magnitude of consequence is Major for threats to life/safety on Forest Service lands from hazard trees**; the BAER risk is High.**

Critical Value: Property

Roads

There are 2.2 total miles of NFS Roads within the burn perimeter. The Buford-New Castle Road (NFSR 245.1) is a highly traveled maintenance level 4 road. Strerry Lake Road (NFSR 240.1) is a mainenance level 2 road, These were the only roads analyzed in this assessement. The possibility for sediment and debris crossing the roads will be of concern for the first several years anfter the fire.

Trails

There are 1.3 miles of trail within the burn area. Trails are at risk of erosion and loss of trail tread where they traverse steep slopes in areas of high and moderate SBS. Loss of the trail tread would be a loss of property that would require substantial investment to rebuild.

Emergency Determination: An emergency was determined for Property. For roads and trails, the probability of loss is Possible and the magnitude of consequence would be Moderate/Major**.** The BAER risk is **Intermediate/High.**

Critical Value: Natural Resources

Soil productivity: While wildfire will have a negative effect on soil productivity and vegetative recovery, over time it is expected that natural processes will result in the most effective revegetation of these soils. However the burned soils are prone to the spread of noxious weeds which do not provide as effect groundcover as native vegetation for protection from raindrop impact during summer thunderstorms. For this reason threat of loss of native plant communities is also considered a threat to soil productivity.

Emergency Determination: The probability of loss is Possible, and the magnitude of consequence is Moderate; the risk is Intermediate. With an intermediate risk BAER treatments would not be warranted for soil productivity alone, but treatments to maintain native plant communities would also address soil productivity threats.

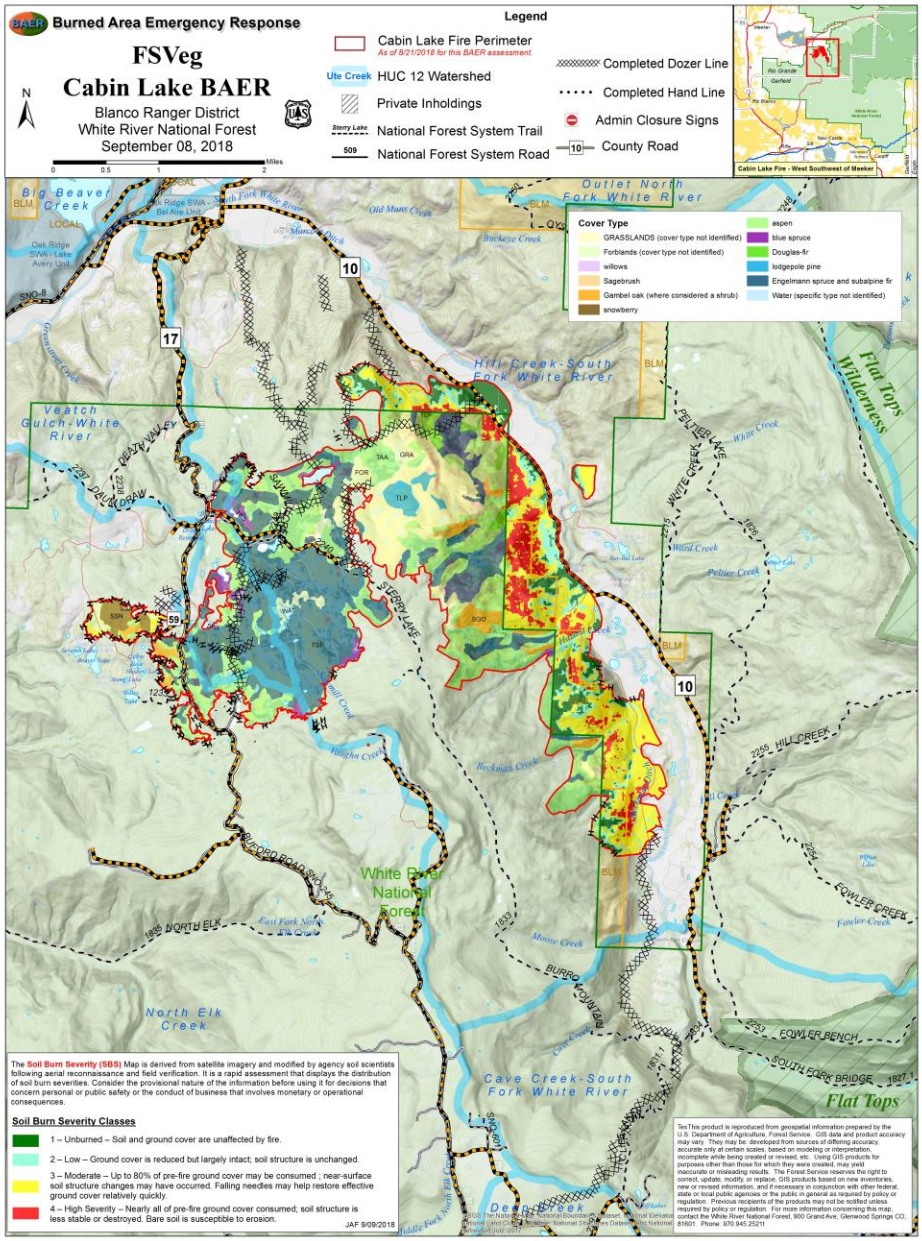
Water Quality:
Soil erosion and subsequent sediment increases are predicted throughout and downstream of the burn area. The cumulative effect of increased peak flows and sediment laden flows from the burned areas increases the risk of degraded water quality on the Forest and various downstream values at risk, particularly effects on the South Fork White River. An effort to inform the local agencies and water users about water quality degradation the following has been initiated. Effects to water quality will be of short term duration, recovering to pre-fire conditions over time with the worst impacts occurring in the first year, and declining over subsequent years. During this time there is likely potential for degradation of water quality downstream of moderate and high soil burn severity areas.

Emergency Determination: The probability of loss is Possible and the magnitude of consequence is Moderate on NFS lands. The risk is Moderate; therefore no BAER emergency exists on NFS lands.

Native or Naturalized Plant Communities

Fire is known to enhance the establishment of all weed species present, especially throughout established road and trails systems. The noxious weed populations have a high probably of spreading in burn areas.

Figure 1: vegetation types in the assessment area.



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 property to prevent and treat weed infestations from occurring.

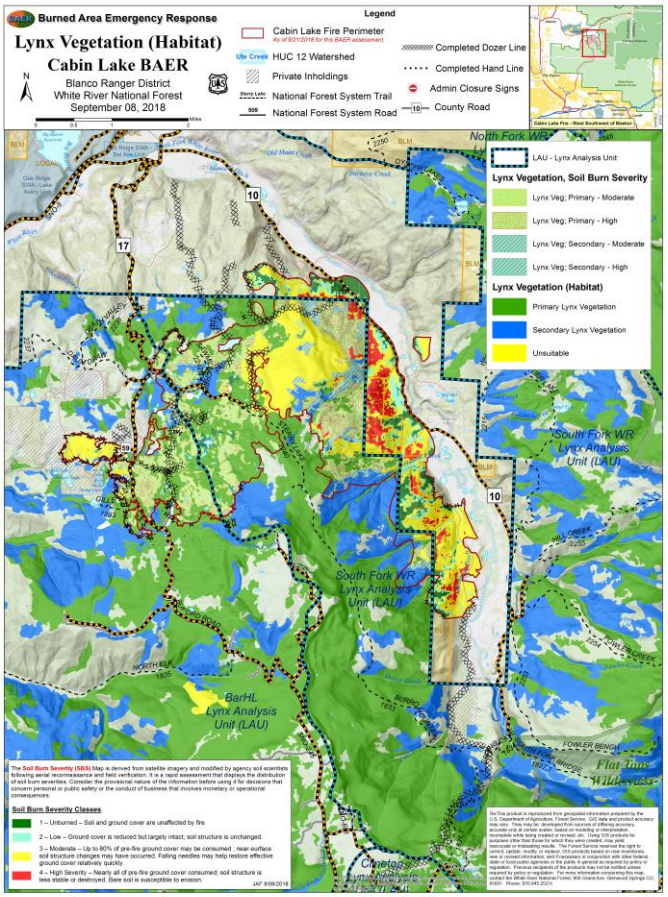
Emergency Determination: The probability of loss of native plant communities is Very Likely and the magnitude of consequence is Major; the BAER risk is **Very High.**

Wildlife and Fish: Critical TES Habitat or Suitable Occupied Habitat

An official species list from the U.S. Fish and Wildlife Service was used to determine federally listed species that may be present in the Cabin Lake Fire perimeter. After evaluation of the species included on the USFWS

list, it was determined that no habitat is present in the Cabin Lake fire perimeter for the Mexican Spotted owl or Yellow-billed Cuckoo. Bonytail Cub, Colorado Pikeminnow, Humpback Chub, and Razorback Sucker were included within the fire area, however effects to these fish are determined from water depletions from the Colorado River and there were no depletions documented, therefore, the species was not evaluated. Consequently, Canada lynx is the only T&E wildlife species evaluated. The species list and additional information is available in the project file.

Canada Lynx



The Cabin Lake Fire impacted suitable lynx habitat within the South Fork WR and BarHL Lynx Analysis Units (LAUs). The fire burned at various intensities and in an overall mosaic pattern. Canada lynx have been known to pass through the both LAUs, however no resident lynx have been documented in the fire area.

Based on the burn severity type in Canada lynx habitat, the Cabin Lake fire will likely create a mosaic of successional stages that will be beneficial for providing foraging and denning habitat for Canada lynx. There may however be short term effects to foraging habitat and understory shelter for prey species. In time, it is expected that as succession progresses, the amount of vegetation will increase providing the necessary cover and forage for snowshoe hares, resulting in an increase in the quality of primary and secondary habitat.

Emergency Determination –The probability is Likely and the consequences are Moderate; the risk is Low; no emergency exists pertaining to federally listed or Forest Service Sensitive wildlife species or their habitats.

Critical Value: Cultural Resources

There are no known cultural resources values at risk on FS lands.

Emergency Determination: None

Summary of BAER Risk Assesment

Values at Risk	VAR Category: *life-safety, property, natural resource, cultural resource*	Probability of Damage or Loss	Magnitude of Consequences	Risk	
Values at Risk	VAR Category: *life-safety, property,natural resource,cultural resource*	Probability of Damage or Loss	Magnitude of Consequences	Risk	Treatment
Wetlands (fencing)	Natural Resources	Very Likely	Major	**Very High**	Replace burnt fencing
Weeds	Natural Resources	Very Likely	Major	**Very High**	Noxious weed treatments
Buford - New Castle Road (NFSR 245.1)	Property, life/safety	Likely	Major	**High**	Storm Patrol, signage
Sterry Lake road (NFSR 240.1)	Property, life/safety	Possible	Moderate	**Intermediate**	Storm Patrol, signage
Sterry Lake Trail	Property, life/safety	Possible	Moderate	**Intermediate**	Storm Patrol, signage
Gilley Lake Trail	Property, life/safety	Possible	Moderate	**Intermediate**	Storm Patrol, signage
Water Quality	Natural Resources	Possible	Moderate	**Intermediate**	Monitor
Air Quality Station	Property, life/safety	Possible	Moderate	**Intermediate**	Storm Patrol
Big River Fish	Natural Resources	Unlikely	Moderate	**Low**	
Lynx	Natural Resources	Unlikely	Moderate	**Low**	

B. Emergency Treatment Objectives: The proposed treatments on National Forest System lands can help to reduce the impacts of the fire from storm events, but treatments cannot fully mitigate the post-fire effects of the fire. Detailed information of the treatments summarized below can be found in the specialist reports prepared in support of this funding request. The treatments listed below are those that are considered to be the most effective on National Forest System lands to minimize threats to identified values at risk.

Proposed Land Treatments:

The objective of the land treatments are to:

1. Promote and protect native and naturalized vegetative recovery by reducing the spread of noxious weeds (L1); this would also maintain long-term soil productivity.

Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

1. Protect road and trail investments from becoming impassible and damaged due to increased post-fire runoff.

Proposed Protection/Safety Treatments:

The objective of the protection/safety treatments are to:

1. Protect human life and safety by raising awareness through posting entering burned area signs at recreation sites, trailheads, and when entering the burn area.
2. Protect life/safety through an area closure. The closure will be lifted as soon as safe to do so. There will be no prolonged closure on the Cabin Lake Fire after containment.
3. Protect life/safety and property through storm patrols where the level of risk does not support more intensive treatments.

Proposed Channel Treatments: There are no proposed channel treatments.

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

Land **NA 70** % Channel **NA- none proposed** % Roads/Trails **90** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	75	80
Channel	NA	NA	NA
Roads/Trails	85	90	90
Protection/Safety	90	95	95

E. Cost of No-Action (Including Loss): $154,500 This cost only reflects monetary loss of roads and trails, it does not reflect loss of life or native plant communities.

F. Cost of Selected Alternative (Including Loss): $ 10,000

Extensive repair or reconstruction of roads and at increased risk of post-fire effects is estimated to be $60,000 per mile, and trails are $15,000 per miles according to the White River Forest Engineer. It was assumed that 50% of the roads and trail travesing through high and moderate soil burn severity would need to be rebuilt if no treatments are implemented. There is a threat to life and safety as well as natural resources that have non-monetary value. As described in this report, increased risk for impacts to life/safety and non- ecological values exists throughout the burned area. These values were not considered in the benefit/cost ratio.

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[ ] Geology	[X] Range
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering
[ ] Contracting	[X] Ecology	[X] Botany	[X] Archaeology
[ ] Fisheries	[X] Recreation	[ ] Landscape Arch	[X] GIS

Team Leads: Steve Hunter; sjhunter@fs.fed.us; 970.945.3308, Liz Roberts Co-lead; ekroberts@fs.fed.us; 970.945.3239

Team members:

Steve Hunter - Engineering,Hydrology	Leah Shipstead - Soils
Liz Roberts - Fish/wildlife/weeds/ecology	Jane Frambach - GIS
Bret Conant - Roads	Tom Fuller - Archaeology
Rebekah Sease - Archaeology	Kate Jerman - Public Information
Kay Hopkins - Recreation	

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 Detection and Treatment: Invasive weed detection and treatment along the Forest Service road and trails, that were of high to moderate burn severity and where non-native invasive plants are absent or present in small amounts, would be necessary to prevent spread and dispersal of non-native invasive plants into newly burned and disturbed areas. Although moderate burned areas may have some intact vegetation or may experience needle fall, it is not sufficient to prohibit the spread and establishment of invasive plants. The focus will be on locations adjacent to known weed sites, where fire suppression may have introduced invasive plants and road systems that have been previously disturbed and will have a greater potential for invasive plants to establish. The road and trail systems are primary vectors for weed spread and Early Detection/Rapid

Response (EDRR) will allow treatments to occur before these species are able to spread. An estimated 700 acres will be surveyed and 25-30 percent will be treated.

Protection/Safety Treatments:

Road & Trail Signs

This treatment will design and 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 closure signs, 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. This treatment will keep Forest users out of the burn area during major storm events and inform users of the dangers associated with entering/driving within a burned area. Ditch cleaning, hazard tree removal (only the small amount of trees included in this request), trail surface and drainage improvements. See Engineering Road & Trail Report for details.

GS-07 (for Sign/post Installation)	day	200	3	$600
GS-5 (for Sign/post Installation)	day	160	3	$480
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	700	3	$2,100
Burned Area Trail Signs	each	200	2	$400
Sign Posts and Hardware	lump	500	1	$500

Storm Patrol: Storm inspection/response will keep road culverts and trail drainage features functional by cleaning sediment and debris from in and around features between or during storms. This work will be accomplished through Forest Service Road Crew, equipment rental, and Forest personnel. The BAER assessment team feels that there is a low probability of damage occurring, so additional treatments are not warranted at this time.

Storm Patrol (GS-11, Roads)	each	380	4	$1,520	$0
Mileage @$0.55/mile	mile	0.55	400	$220	$0
Storm Patrol (GS-07, Roads)	each	220	4	$880	$0
Mileage @$0.55/mile	mile	0.55	400	$220	$0

Road Stabilization:

GS-11 Engineering Tech.	day	350	1	$350	$0
Mileage @$0.55/mile	mile	0.55	100	$55	$0
Ditch Cleaning	mile	300	0.05	$15	$0
Hazard Tree Removal	each	25	19	$475	$0
Backhoe (one day)	day	800	1	$800	$0
Dump Truck (one day)	day	624	1	$624	$0

Treatments considered, but not carried forward at this time

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.)

Storm patrol will monitor the effectiveness of road and trail treatments and identify additional maintenance needs. EDRR will monitor weed establlishment and identify if additional treatment is warranted within the first year.

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										
GS-9 Natural Resource Spe	Day	242	5	$1,210	$0		$0		$0	$1,210
Material / Supplies	each	1	7110	$7,110	$0		$0		$0	$7,110
Fleet 3/4 ton 4x4 (.55 per	days	1	109	$109	$0		$0		$0	$109
Contact Cost	acre	167	177.75	$29,684	$0		$0		$0	$29,684
Monitoring GS 9&11		1	3280	$3,280			$0		$0	
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$41,393	$0		$0		$0	$38,113
B. Channel Treatments										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Road Stablilization		1844	1	$1,844	$0		$0		$0	$1,844
Hazard tree Removal		25	19	$475	$0		$0		$0	$475
Storm Patrol		380	7.5	$2,850	$0		$0		$0	$2,850
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$5,169	$0		$0		$0	$5,169
D. Protection/Safety										
Signs		4515	1	$4,515	$0		$0		$0	$4,515
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$4,515	$0		$0		$0	$4,515
E. BAER Evaluation										
					$13,248		$0		$0	$13,248
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$13,248		$0		$0	$13,248
F. Monitoring										
				$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				$51,077	$13,248		**$0**		**$0**	**$61,045**
Previously approved										
Total for this request				**$51,077**						

PART VII - APPROVALS

1. _____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date

Appendix A: Maps

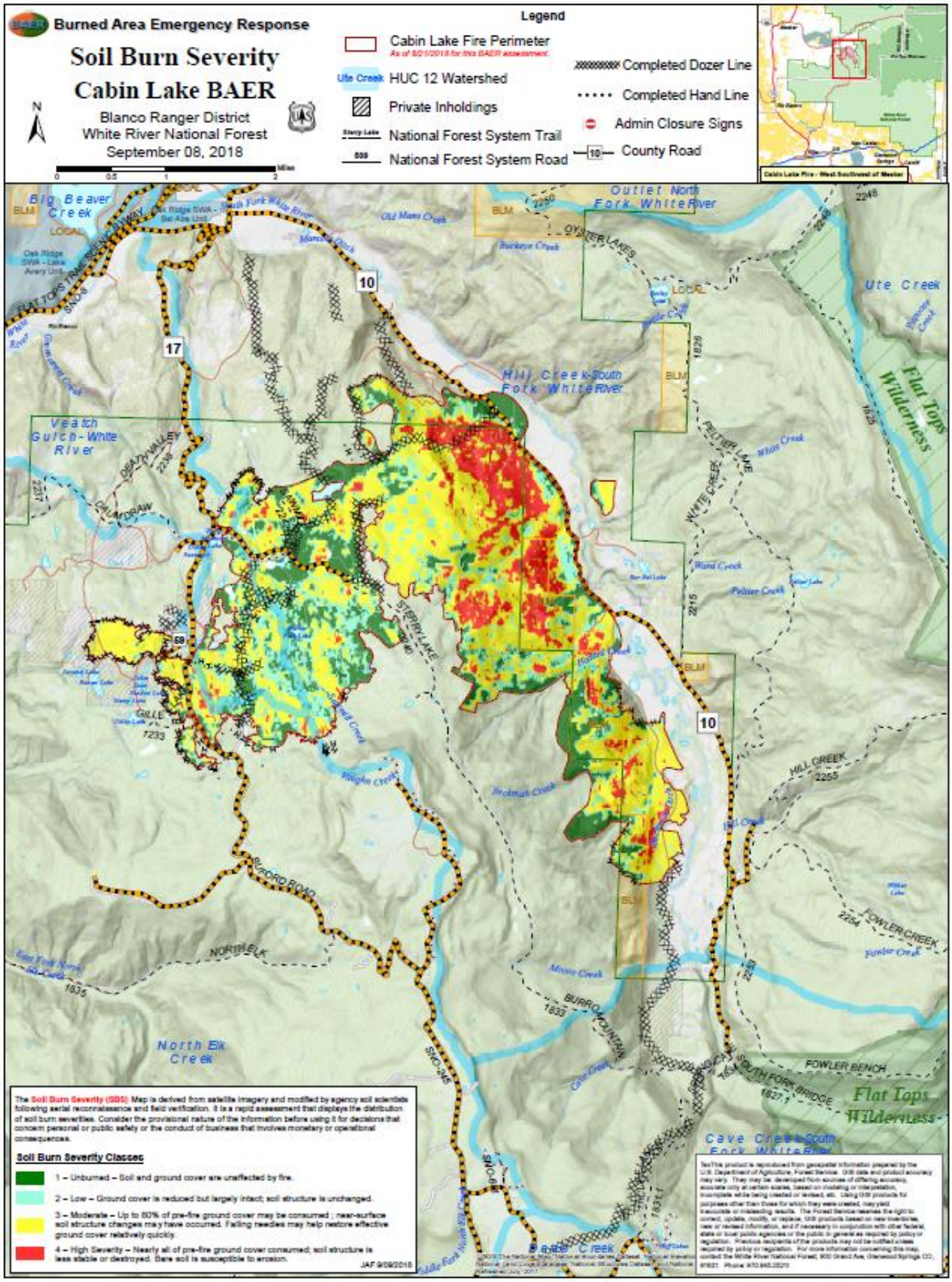


Figure 1: Final Soil Burn Severity Map

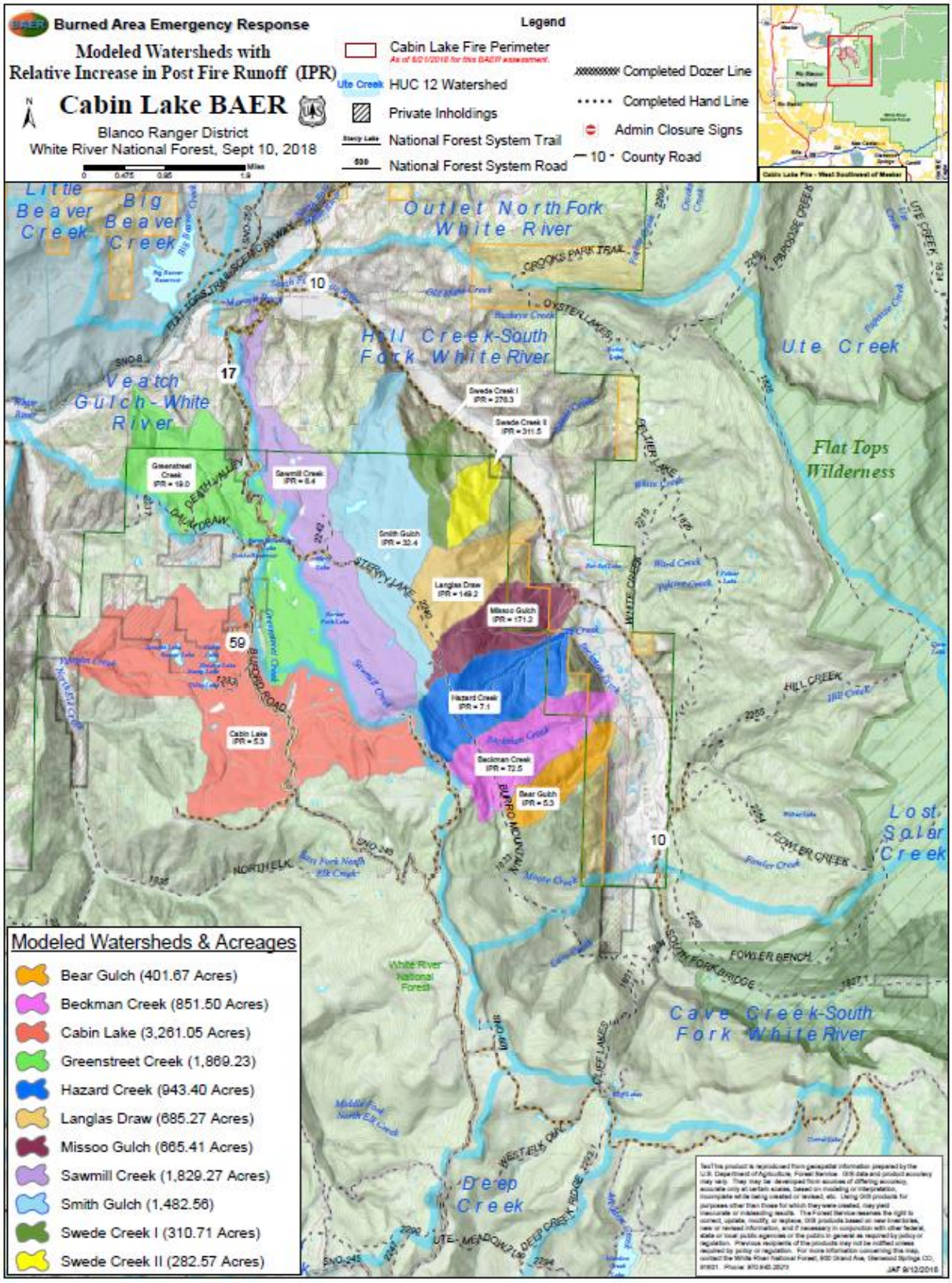


Figure 2: Relative increases in post-fire summer thunderstorm flood flows.

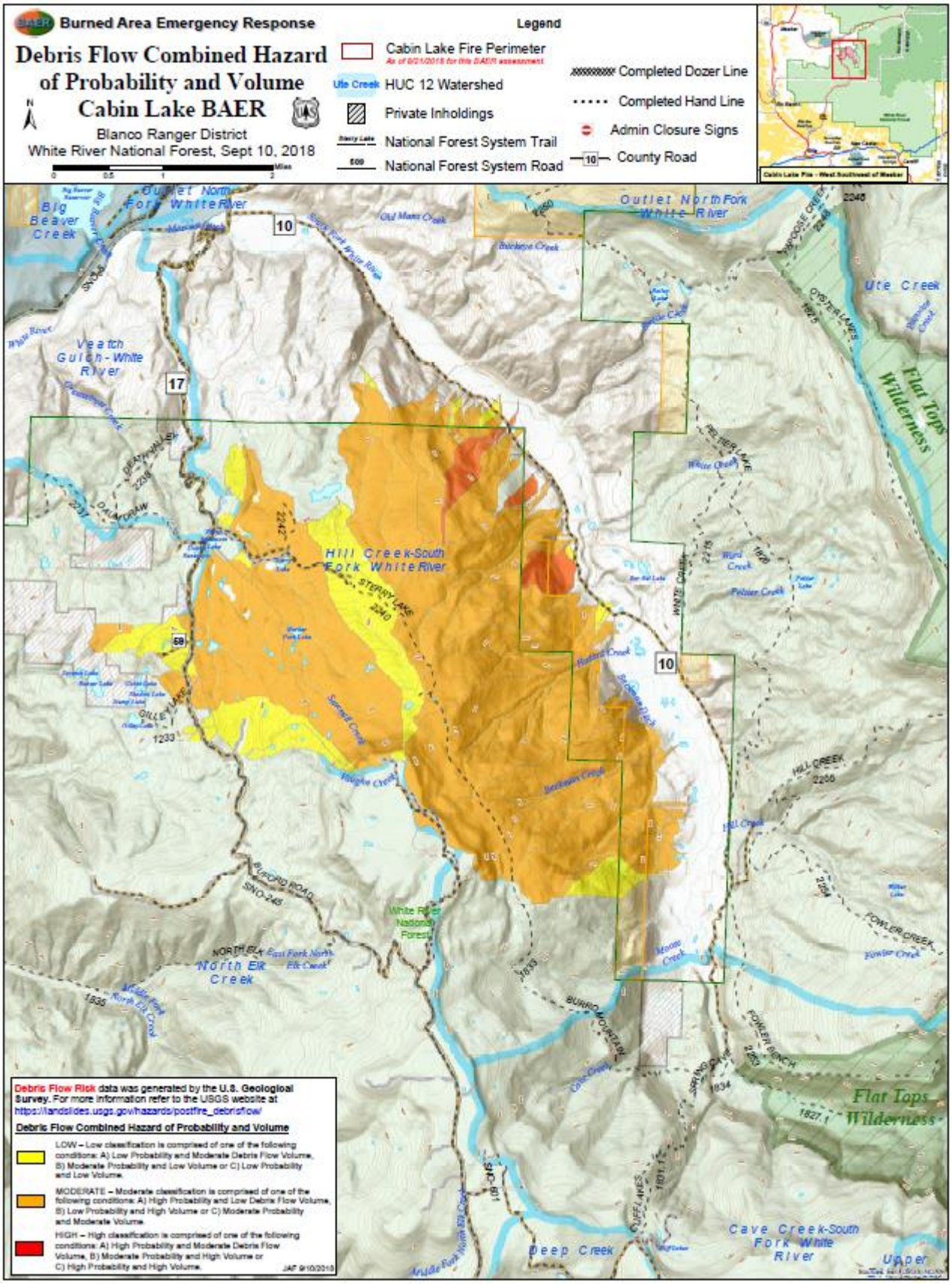


Figure 3: USGS Combined Hazard for Debris Flow Potential

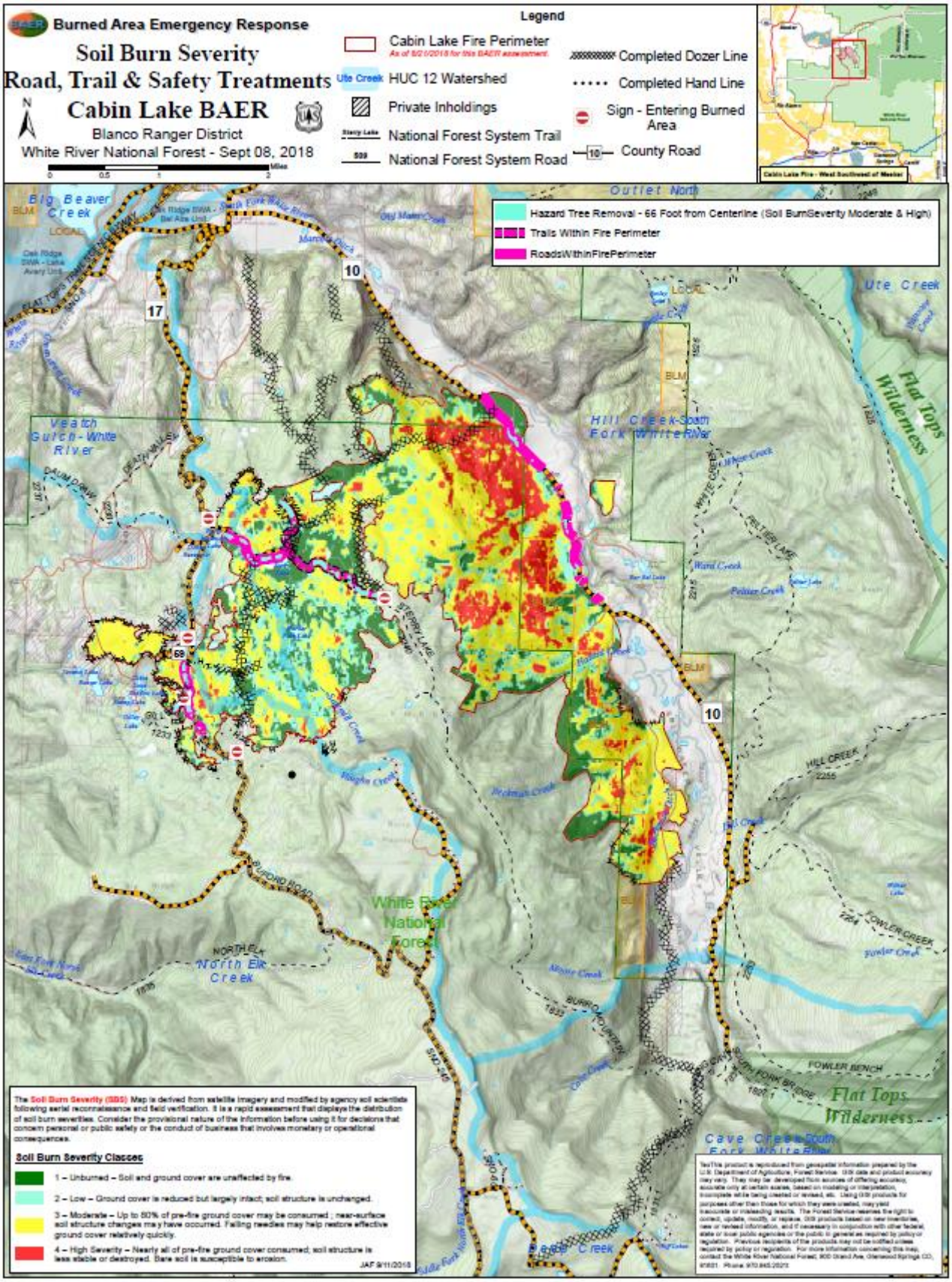


Figure 4: BAER Treatments

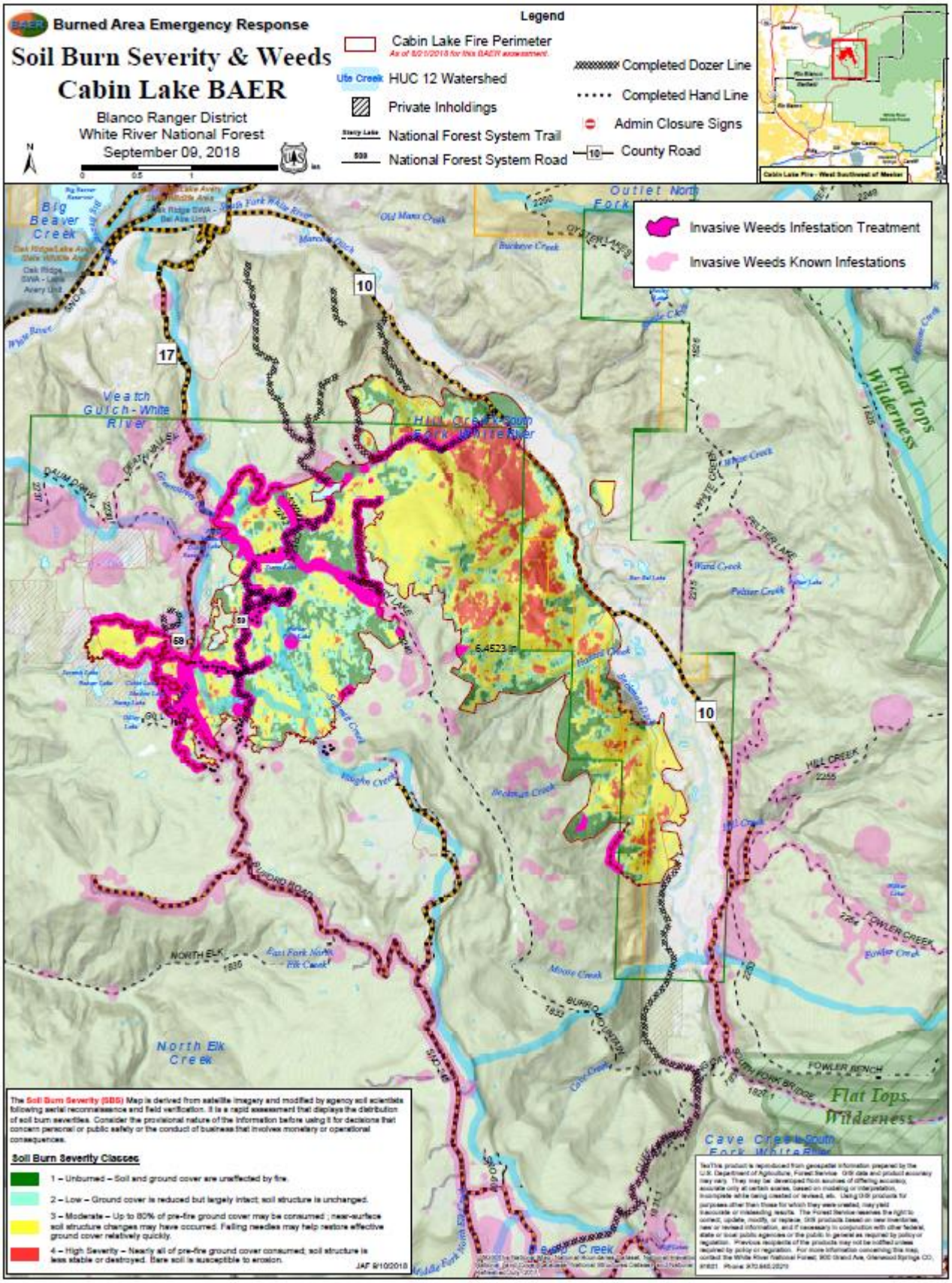


Figure 5: EDRR Survey Areas

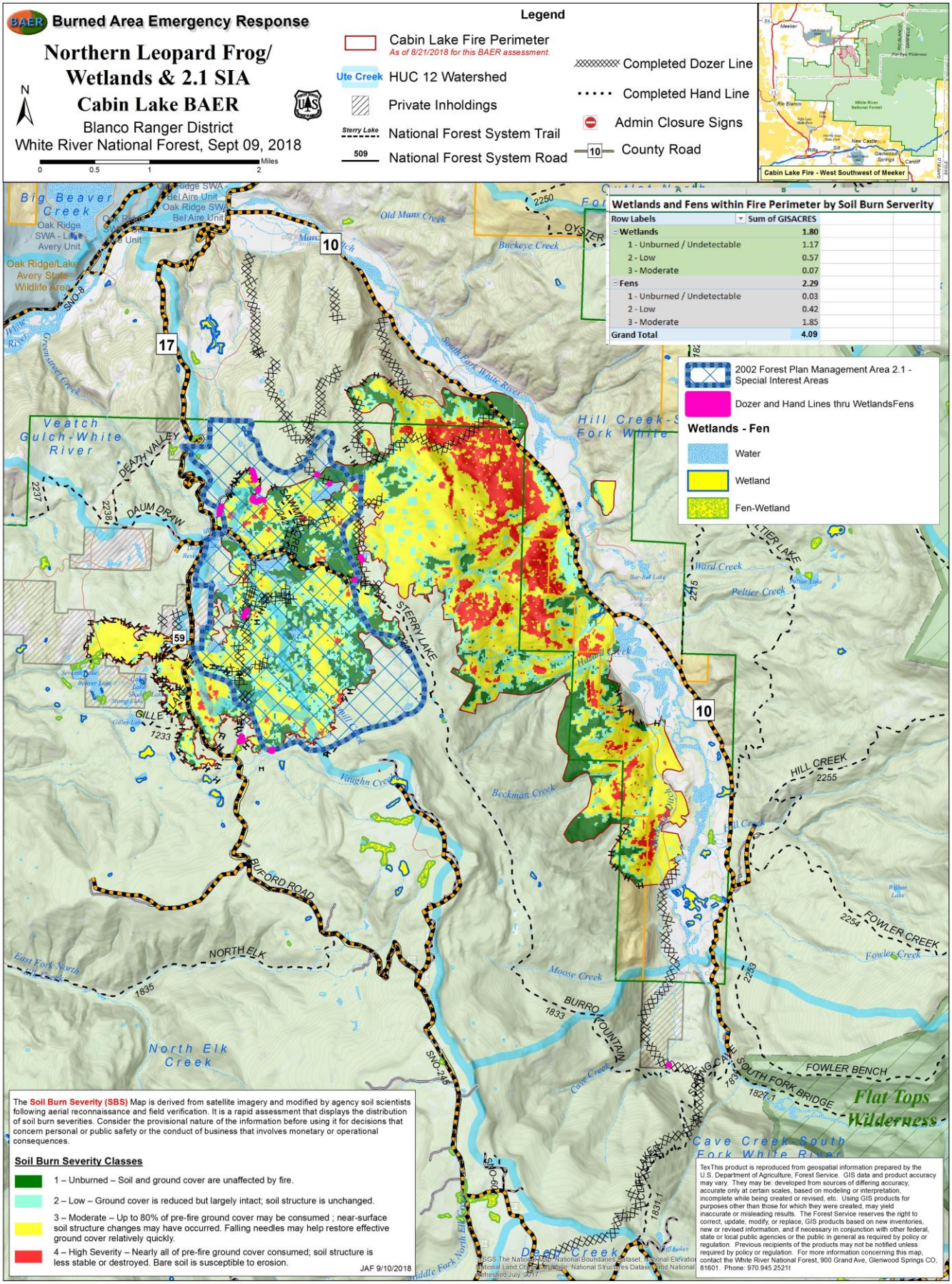


Figure 6. 2.1 Special Interest Area – Northen Leopard Frogs and Wetlands