

Date of Report: 9/30/2020**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:** Superstition**B. Fire Number:** AZ-TNF-002658**C. State:** AZ**D. County:** Pinal**E. Region:** Southwestern**F. Forest:** Tonto NF**G. District:** Mesa RD**H. Fire Incident Job Code:** P3NGU0**I. Date Fire Started:** 8/20/2020**J. Date Fire Contained:** 9/6/2020**K. Suppression Cost:** 2 M estimated**L. Fire Suppression Damages Repaired with Suppression Funds (estimates):**

1. Fireline repaired (miles): 0
2. Other (identify):

M. Watershed Numbers:

Table 1: Acres Burned by Watershed (note: these acres do not include unburned acres within the burn perimeter)

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
150601060107	La Barge Creek	27,367	3,053	11%
150601060108	Salt River – Canyon Lake	18,188	2,193	12%
150501000802	Weekes Wash	8,015	1,091	14%
150501000803	Siphon Draw	27,611	95	< 1 %
150501000808	Dinosaur Mountain-Roosevelt Canal	35,183	28	< 1 %
150501000805	Peralta Canyon	16,688	19	< 1 %

N. Total Acres Burned: 9,586**Table 1: Total Acres Burned by Ownership**

OWNERSHIP	ACRES
NFS	9,586
OTHER FEDERAL (LIST AGENCY AND ACRES)	
STATE	
PRIVATE	
TOTAL	9,586

O. Vegetation Types: Sonoran Desert – 9,236 acres or 96%; Semi-Desert Grassland – 346 acres or 4%; Chaparral – 4 acres or <0.5%

P. Dominant Soils: Lithic Ustic Haplargids (~80 percent of burned area) and Ustic Haplargids (~10% of burned area)

Q. Geologic Types: Primarily rhyolitic and andesitic tuffs with some inclusions of alluvial deposits derived from granite and quartzite

R. Miles of Stream Channels by Order or Class:*Table 2: Miles of Stream Channels by Order or Class*

STREAM TYPE	MILES OF STREAM
PERENNIAL	0.0
INTERMITTENT	4.4
EPHEMERAL	7.5
OTHER (DEFINE)	

S. Transportation System:

Trails: National Forest (miles): 7.5

Other (miles):

Roads: National Forest (miles): .6

Other (miles):

PART III - WATERSHED CONDITION**A. Burn Severity (acres): (Figure 1 is a map displaying the Soil Burn Severity)***Table 3: Burn Severity Acres by Ownership*

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	3,128				3,128	33
Low	5,510				5,510	57
Moderate	915				915	10
High	33				33	< 1
Total	9,586					100

B. Water-Repellent Soil (acres): ~500

C. Soil Erosion Hazard Rating: Slight = 346 acres or 4%; Moderate = 594 acres or 6%; Severe = 8,645 acres or 90%

D. Erosion Potential: 13 tons per acre

E. Sediment Potential: 700 cubic yards per square mile

F. Estimated Vegetative Recovery Period (years): 5-10 years

G. Estimated Hydrologic Response (brief description):

Hydrologic computer modeling using Wildcat5 and HEC-HMS was completed to assess the impacts of post-fire watershed conditions on peak flows at locations identified critical values at risk. Smaller catchments were modeled with Wildcat5 (Hawkins, R.H. and Barreto-Munoz, 2016), a precipitation runoff model applicable to watersheds of less than about 5 square miles in size. Three catchments (Crosscut Trail, Siphon draw, and First Water Creek) were modeled with Wildcat5. Catchments larger than five square miles were modeled with HEC-HMS, a precipitation-runoff model developed by the US Army Corps of Engineers. This model was used for two catchments (La Barge Creek and Canyon Lake West). The results of modeling effort using the Wildcat5 and HEC-HMS are displayed on Tables 4 and 5, respectively. Figure 2 and 3 shows where each model was utilized for the analysis. The range in percent change of peak flow discharges from pre- to post-fire are shown in Figure 3 for each modeled catchment drain point (pour point).

Catchment	Size (sq. mi.)	Soil Burn Severity				1-hour frequency storm				
		Unburned	Low	Moderate	High	2 yr	5 yr	10 yr	25 yr	100 yr
Siphon Draw ¹	0.76	87%	12%	1%	0%	3%	2%	2%	2%	1%
Crosscut ²	3.7	54%	44%	2%	0%	9%	7%	7%	6%	5%
First Water Creek ³	3.44	42.7%	50%	7%	0.3%	15%	12%	11%	9%	8%

Table 4: Wildcat5 Modeled Catchment Soil Burn Severity Distributions and Peak Flow Increases (%) for 2, 5, 10, 15 and 100 year, one-hour storm events. Pour point locations at: ¹ at forest service/residential area boundary, ²near Crosscut Trailhead at Weekes Wash ³east of First Water Creek Trailhead

Catchment	Size (sq. mi.)	Soil Burn Severity				1-hour frequency storm				
		Unburned	Low	Moderate	High	2 yr	5 yr	10 yr	25yr	100 yr
La Barge Creek ¹	40.7	88.9%	9%	2%	< 1%	13%	16%	13%	11%	8%
Canyon Lake West ²	9.4	64%	32%	4%	< 1%	1.2%	10%	10%	10%	6%

Table 5: HEC- HMS Modeled Catchment Soil Burn Severity Distributions and Peak Flow Increases (%) for 2, 5, 10, 25, and 100 -year one-hour storm events. Pour point locations at: ¹ located at confluence of La Barge Creek and Canyon Lake, ² located at confluence of First Water Creek and Canyon Lake

Watershed conditions that increase the magnitude, timing, and volume of stormwater runoff and the volume of sediment and ash that these flows can transport can cause aggradation, down cutting, and/or widening of stream channels that can significantly reduce the hydrologic functioning of these channels. The increased peak flows can pose a threat to life, property and resources within and below the burned area. Based on the modeling results for this assessment, peak flow increase were relatively modest. The peak flow discharge increases at the confluence of La Barge Creek and Canyon Lake ranged from 8 to 16% for the simulated storm events. These are similar results to those for the catchment outlet on First Water Creek. The range of peak flow increases for the remainder of the modeled critical values at risk were all below 10%.

Post- fire peak flows often begin with an initial flush of water, sediment, ash, and entrained post-burn debris that are sometimes characterized as hyper-concentrated flows. These first post- fire flows can be substantially higher than post- fire peak flows predicted with typical rainfall – runoff models (i.e., Wildcat5 and HEC HMS).

They have greater energy to scour channels and transport material than do typical rainfall runoff events on unburned landscapes. These flows can cause substantial damage to channels and structures and are a threat to life and property. The magnitude of these flows should decline as ash and debris are transported from the watershed. Once the initial flush of burned material has been washed from the watershed, peak flows are governed more by watershed condition than by post fire ash, sediment, and post burn debris. Due to the low amount of moderate and high soil burn severity for the Superstition fire, the hyper-concentrated flow formula is not applicable for this burned area. Yet, it could still be expected that a storm even has the potential to transport material, such as ash, through some of the channels downstream.

The US Geological Survey has estimated the probability and magnitude of debris flows within and from the burned area and developed a debris flow hazard rating from the combination of these factors for various rainfall intensities for watersheds within the burned area. They have developed debris flow hazard ratings for both basins (catchments) and stream channels. The ratings are displayed on a public website that can be found at: [USGS Superstition Debris Flow Modeling](#). This site assesses debris flow hazard for a storm with a peak 15- minute intensity of 24 mm/hour (approximately one inch per hour). They have also developed hazard estimates for storms ranging from 15- minute intensities of 12 to 40 mm/hr in 4 mm increments. Shapefiles of basin and segment debris flow can be downloaded from the site. Figure 3 displays the predicted basin (catchment) debris flow hazard ratings for a storm with a 15-minute intensity of 20 mm/hour, which is approximate to an annual storm. Most of the burn area is estimated to have a relatively low to moderate level of debris-flow hazard at the modeled rainfall intensities. Figures 4 and 5 show the modeling results at the basin and stream segment scale, respectively, for a design storm with a peak 15-minute rainfall intensity of 24 mm/h. Some watersheds and stream reaches with moderate hazard are situated in the Old West Boulder Canyon and in the very southeastern portion of the burn area. Debris-flow magnitude in these moderate hazard watersheds are estimated to be in the range of 12,000 m³ or less.

The maximum drainage area size for calculation the predictions is 8 square kilometers, the largest basin area the USGS has identified as producing a debris flow in their empirical database. Flooding is far more of a concern in drainage basins exceeding 8 square kilometers in contributing area. Streams that exceed an upslope area of 8 square kilometers yet are still susceptible to flood and possibly debris-flow hazards, are included in the geodatabase as “watch streams.” Boulder Creek and La Barge Creek have been identified as watch streams.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Superstition Fire, located east of State Highway 88 and northeast of the Apache Junction, is located on the Mesa Ranger District of the Tonto National Forest. The Superstition Fire was started by a lightning strike on August 20, 2020. Due to the close proximity to Apache Junction and Gold Canyon, a Type 1 team (Southwest Area Incident Management Team 2) was brought in. The fire was completely contained on September 9th. The perimeter of the fire covered approximately 9,600 acres all of which are on Forest Service managed lands. Canyon Lake and the Lost Dutchman trail system are currently under a closure order. The burned area is located in mostly wilderness which receives a lot of hiking use during the cooler months of the year. The geology of the area is relatively stable with outcrops of sedimentary and volcanic lithologies. Vegetation in the uplands is mostly Sonoran Desert with a small amount of Semi-Desert Grassland.

A. Describe Critical Values/Resources and Threats (narrative):

Table 6: 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): The following were identified as HLS VARs: Roads, Trails, Trail Heads, and the Canyon Lake Recreational Area

Human Life and Safety Assessment and VARs

Risk Assessment – Threats to Recreation Users on Roads, Trails, and Canyon Lake

The trails affected by the Superstition fire are very high use in the winter months and on busy weekends. While most users are day hikers, there is still a significant amount of multi-day trips into the wilderness area. The Siphon Draw trail is also very highly used and is in the bottom of the drainage in some places. On busy weekends, hundreds of people per day go past the end of the trail to hike cross country up to The Flat Iron.

Two trailheads of potential concern for flash flooding include Crosscut and First Water. The First Water Trailhead can see over 200 cars per day, which provides for hundreds of hikers and equestrian users. The trailhead is located on an elevated saddle-like feature and has very little watershed area above it. Crosscut is located immediately adjacent to Weekes Wash, which must be crossed in order to access the trails system. Peak flow increases at Weekes Wash just downstream of the Crosscut Trailhead ranged from 5 to 9 percent with a total contributing (catchment area) of 3.4 square miles. Forest Service Roads (FSR) 78 and 1455 are used to access the Trailheads and have low water crossing where they intersect Weekes Wash.

Canyon Lake is a high use recreation area located downstream of the burned area. The lake is a popular fishing and boating area for the Phoenix Metro Area. La Barge cove, located on the south side of the lake, is an inlet of La Barge Creek. La Barge Creek is fed by the tributary Boulder Creek, which drains runoff from steep, burned, upper slopes of the watershed. Overall, the Superstition fire burned a relatively small portion of the contributing area (catchment) of 40.7 square miles; however, the catchment area of the Woodbury Fire burn scar from 2019. Peak flow increases ranged from 8 to 16 percent for the modeled storms. An additional potentially affected cove area is located on the south side of the lake at the confluence of First Water Creek, where peak flow increases ranged from 1 to 10%. The catchment area for First Water Creek was 9.4 square miles.

Probability of Damage or Loss: Trailheads: First Water and Crosscut- *Unlikely*
Magnitude of Consequence: *Major*
Risk Level: *Intermediate*

Probability of Damage or Loss: Trails: 104, 136, 241, and 53- *Possible*
Magnitude of Consequence: *Major*
Risk Level: *High*

Probability of Damage or Loss: open Forest Service roads: FSR 78 and 1455- *Unlikely*
Magnitude of Consequence: *Major*
Risk Level: *Intermediate*

Probability of Damage or Loss: Canyon Lake Boating areas (boulder Recreation site and west side): *Possible*
Magnitude of Consequence: *Major*
Risk Level: *Intermediate: High*

Human Life and Safety Recommended Emergency Response Actions:

Response actions to be considered should include the installation of flood and debris warning signs at the following locations.

- Firstwater Trailhead
- Crosscut Trailhead
- On Dutchman Trail # 104 before junction with Boulder Trail # 103
- On Cavalry Trail # 239 before junction with Boulder Trail #103
- Termination point on Dutchman Trail #104 at Canyon Lake
- Termination point of FSH 1455
- Four parking lot and parking area locations at Canyon Lake
- Along Forest Road 78 on both sides of Weekes Wash crossing

2. Property (P):

Recreation Trails Prism Condition Assessment and VARs

This assessment consisted of evaluating current damage to trails and other VAR's within the fire perimeter and potential future damage to the trails and other VAR's both within and outside of the fire perimeter following subsequent storms and runoff events. Approximately 7.25 miles of trails were directly impacted by the Superstition Fire as shown in Table 7. Of those, only .2 miles of trail were within the moderate soil burn severity classes. None of the trails were in high soil burn severity areas.

Table 7.

Trail Number	Unburned	Low	Moderate	High	Total Miles
104	1.25	1.00	0.00	0.00	
136	1.00	2.30	0.20	0.00	
241	0.50	1.00	0.00	0.00	
MILES	2.75	4.30	0.20	0.00	7.25

In addition to approximately 7.25 miles of trail impacted within the fire perimeter, and additional 1.25 miles of trail (Table 8.) located outside of the fire perimeter have potential to be impacted by future runoff events. This trail is located in drainages down slope of the fire area resulting in risk of flooding and debris flow occurrences within the drainage that the trail is in.

Table 8.

Trail Name	Miles
53	1.25
TOTAL MILES	1.25

Risk Assessment – Threats to Recreation Trail Prisms: Trail # 104, 136, 241, and 53

The probability of loss/failure for the trails currently impacted by the Superstition Fire and those that have the potential to be impacted by future runoff events will vary. Trail prisms located down slope from high burn severity areas have a higher probability of failure compared to the trail prisms that are up slope from high burn severity areas or are located within the low burn severity areas. Trails located outside of the fire perimeter area will also vary in the degree of risk of failure depending on the post fire weather and runoff events. The overall risk for portions of the trails listed above to fail is low.

Probability of Damage or Loss: *Unlikely*
 Magnitude of Consequence: *Minor*
 Risk Level: *Very Low*

Recreation Trail Prism Recommended Emergency Response Actions:

None. Emergency detection and rapid activities to evaluate the conditions of trails listed in Figure 1 and Figure 2 will not be needed due to the presence of mostly low soil burn severity upslope of the trails. The no parking signs already acquired by the Mesa District should be used along Firstwater Road (FSR 78) where appropriate.

Recreation Trailhead Infrastructure Condition Assessment and VARs

Two trailheads, First Water and Crosscut, are located within the burn perimeter and located in primarily low soil burn severity areas. First Water trailhead also has a vault toilet and a helispot located nearby. This Trailhead is located on a flat saddle area with virtually no watershed area above it and no drainage features running directly through it. Crosscut trailhead is located between Forest Road 78 and immediately adjacent to Weekes Wash. The overall flows peak flow increase in Weekes was at this location (Crosscut catchment) ranging from 5-9%.

Risk Assessment – Threats to Recreation Trailhead Infrastructures: Crosscut and First Water

Probability of Damage or Loss: *Unlikely*
 Magnitude of Consequence: *Moderate*
 Risk Level: *Low*

Recreation Trailhead Recommended Emergency Response Actions:

None

Road Prism Condition Assessment and VARs

Four forest service roads are located within the burned area for the Superstition Fire. FSR 78 is a ML 3 road and is a high use road. FSR 1455 is a ML 2 road is accessed via FSR 78. FSR 1890 and FSR 28 are currently maintained as ML 1 (closed roads) that are proposed for decommissioning under travel management.

Risk Assessment –Road Resources

Probability of Damage or Loss: FSR 78, 1455, 1890, 28 - *Unlikely*
 Magnitude of Consequence: *FSR 78 and 1455 – Moderate; FSR 1455 and FSR 180 – Minor*
 Risk Level: *FSR 78 and 1455 – Low, FSR 1455 and 180 – Very Low*

Roads Recommended Emergency Response Actions:

None

3. Natural Resources (NR):

Soil Productivity Resource Condition Assessment and VARs

Due to safety precautions that were being taken related to COVID-19, fieldwork by BAER soil specialists was not permitted unless absolutely necessary. Therefore, for BARC verification, the soils team intended to utilize WorldView imagery (in conjunction with other GIS products) to support any changes or adjustments that may have been needed to produce the final soil burn severity product. However, WorldView imagery was not available for this fire within the timeframe needed to complete the assessment. So, the team relied upon professional knowledge and experience from working on fires of similar complexity and ecosystem types to make the determination that the BARC image was adequate enough to move forward with becoming the final soil burn severity product.

Soil erosion modeling across the entire burned area showed an increase in total erosion potential from approximately 0.5 tons per acre pre-fire to 12.9 tons per acre post-fire with the major drivers of that increase being moderate and high burn severity areas on steep slopes. To provide some context, about 150 tons per acre is the equivalent of one cubic inch per acre. So, while high and moderate severity fire locations do generally experience some impacts to long-term site productivity from soil erosion via loss of vegetative canopy / ground cover and soil hydrophobicity, only approximately 10 percent of the entire burned area experienced high and moderate burn severity. The remaining extent of the burned area experienced low severity and unburned conditions which exhibit soil loss rates similar to that of pre-fire conditions.

In addition to high/moderate burn severity extent and the results from soil loss modeling, a few other factors were involved in the decision to not recommend a hillslope treatment to mitigate potential soil loss for preserving soil productivity as a BAER critical value. Over 95 percent of the burned area is Sonoran desert. It is well documented in this region that the success rate of an erosion control application in this ecological type is relatively low given climatic restraints and ultimately doesn't justify the treatment cost, time, and resources needed to implement the treatment. This is especially true across the landscape of this burned area as the vast majority of soils are shallow, rocky and occur on relatively steep slopes. A large portion of this area also occurs within Wilderness which is not a land management area typically deemed appropriate to aerially apply erosion control specifically for the purposes of attempting to protect soil productivity.

Overall, it is anticipated that the majority of the high and moderate burn severity areas across the fire should naturally recover vegetation adequately enough to help stabilize accelerated soil loss within the first 5-10 years post-fire. It was ultimately deemed that the magnitude of consequence for soil productivity as a BAER critical value is minor and the probability of damage or loss is likely which rates as a **Low** risk.

Soils Recommended Emergency Response Actions:

None

Wildlife Resource Condition Assessment and VARs

The primary focal species for this management focus area plan within Game Management Unit 24B (Unit) are mule deer and desert bighorn sheep. Other game species include: Coues white-tailed deer, mountain lion, bear, javelina, bobcat, coyotes, fox, and a variety of small game species. Special status species such as Sonoran desert tortoise, golden eagle, lowland leopard frog, Mexican spotted owl, Gila longfin dace, American peregrine falcon, wintering bald eagle, southwestern willow flycatcher, Western yellow-billed cuckoo, Gila topminnow, Maricopa tiger beetle, Arizona toad and desert sucker also occur within the Unit. For BAER assessment purposes, wildlife and botany critical values are limited to critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal, or plant species on NFS lands. The Sonoran desert tortoise is a Forest Service sensitive species and a candidate for a conservation agreement. For individuals that survived the direct effects of the fire, indirect impacts such as loss of cover and forage species may temporarily have a negative affect tortoise throughout the burn area. It is anticipated that areas that have a soil burn severity of low to moderate, should begin to see growth of warm season grasses and forbs with a mixture of invasive grasses. Over 95% of potential tortoise habitat was burned in this fire.

Risk Assessment – Threats to T&E Terrestrial Species habitat: Sonoran Desert Tortoise (*Gopherus morafkai*)

Probability of Damage or Loss: *Likely*
Magnitude of Consequence: *Possible*
Risk Level: *Intermediate*

Wildlife Recommended Emergency Response Actions:

None

Noxious Weeds Condition Assessment and VARs

Much work has been around this fire scar prior to the Superstition fire of 2020. Many of these trails and portions of the wilderness has been highly managed as buffelgrass and fountain grass free zones. Much of this work has been conducted by the friends of the Tonto Group and surrounding members of the community. As fire would serve as a catalyst to such invasive species vectors. Vectors are the transfer mechanisms responsible for the introduction of invasive species; in this case it would be fire personnel and equipment spreading weed material from one place to another, by means of roads and trails and the fire boundary. Due to the high increase and fire activity of the Tonto National Forest at the time of this fire, they did not have a weeds washing station for a considerable amount of time for this fire. The Tonto National Forest Invasive Species Ecologist analyzed the relative importance of each vector according to: 1) the severity of the potential impact of transportable species, 2) the difficulty of controlling these species, and 3) the volume of transportable propagules.

Invasive Weeds Recommended Emergency Response Actions:

As a matter of the Invasive Species Curve and work previous conducted specifically in this area involving Buffelgrass and Fountain almost at a means of eradication, a higher level of Emergency Detection and Rapid Response (EDRR) is recommended. The potential for buffelgrass and fountain grass intruding this fire is very likely.

4. Cultural and Heritage Resource VARs:

Garden Valley was evaluated for the risks posed by increased looting activities and increased cross country OHV travel from the denuding of vegetation following the fire. Because the natural vegetation ground cover was very light prior to the fire only some scorching was observed. In addition, the densities of artifacts adjacent to the hiking trails were sparse.

Risk Assessment – Threats to Cultural Resources in Garden Valley Area:

Probability of Damage or Loss: *Possible*
Magnitude of Consequence: *Minor*
Risk Level: *Low*

Cultural and Heritage Recommended Emergency Response Actions:

None

- B. **Emergency Treatment Objectives:** Reduce risk to public health and safety particularly Superstition Wilderness and Canyon Lake recreators through communicative means including signing and information posts on Forest Service websites, press releases, use of social media, and contacting cooperating agencies directly regarding post-wildfire hazards. Funding is being requested for installation of warning signs to place near roads, trails, trailheads and the Canyon Lake recreational area where unacceptable risks are present.

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

Land: NA

Channel: NA

Roads/Trails: NA

Protection/Safety: 99%

D. Probability of Treatment Success

Table 4: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land			
Channel			
Roads/Trails			
Protection/Safety	95	100	100

E. Cost of No-Action (Including Loss):**F. Cost of Selected Alternative (Including Loss):****G. Skills Represented on Burned-Area Survey Team:**

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

Team Leader: Paul Brown**Email:** paul.a.brown@usda.gov**Phone(s)** (928) 333-6308**Forest BAER Coordinator:** Mike Martinez**Email:** michael.a.martinez@usda.gov**Phone(s):** (602) 225-5252**Team Members:** Table 5: BAER Team Members by Skill

Skill	Team Member Name
Team Lead(s)	Paul Brown
Soils	Robert Ballard, Eric Robertson, Mike Kasten (trainee)
Hydrology	Alex Makic, Edgar Martinez (trainee)
Engineering	Michelle Tom
GIS	Frank Williams
Archaeology	Clinton Dalton
Weeds	Ryan Nickolas
Recreation	Jason Scow
Wildlife	Kelly Kessler
Cooperators	Kelly Wolf - AZGF
AD	Grant Loomis

H. Treatment Narrative:**Land Treatments:**

This fire resulted in a fairly low proportion of combined high and moderate soil burn severity (10%) within the fire perimeter. This in addition to the soil and vegetation types precluded consideration of aerial treatments such as seeding and mulching.

Because of the high potential for proliferation of noxious weeds including buffelgrass and fountain grass, and difficulty in treatment once established, funding for Emergency Detection and Rapid Response is being requested in the amount of \$8,500.

Channel Treatments: None

Roads and Trail Treatments: None

Protection/Safety Treatments:

Sign Installation

12 signs @ 225 each = \$2,400

Labor (2 people at \$600 per day x 3 days) = \$2,400

Total = \$5,100

I. Monitoring Narrative: None

DRAFT

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											
Noxious Weeds EDRR	1	8,500	1	\$8,500	\$0			\$0		\$0	\$8,500
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Land Treatments				\$8,500	\$0			\$0		\$0	\$8,500
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											
Warning/Hazard Signs	12	425	12	\$5,100	\$0			\$0		\$0	\$5,100
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				\$0	\$0			\$0		\$0	\$0
Subtotal Protection/Safety				\$5,100	\$0			\$0		\$0	\$5,100
E. BAER Evaluation											
Initial Assessment	1	\$12,000	1	---	\$12,000			\$0		\$0	\$12,000
				\$0	\$0			\$0		\$0	\$0
Insert new items above this line!				---	\$0			\$0		\$0	\$0
Subtotal Evaluation				\$0	\$12,000			\$0		\$0	\$12,000
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											
				\$13,600	\$12,000			\$0		\$0	\$25,600
Previously approved											
Total for this request				\$13,600							

PART VII - APPROVALS

1. _____
 Forest Supervisor Date

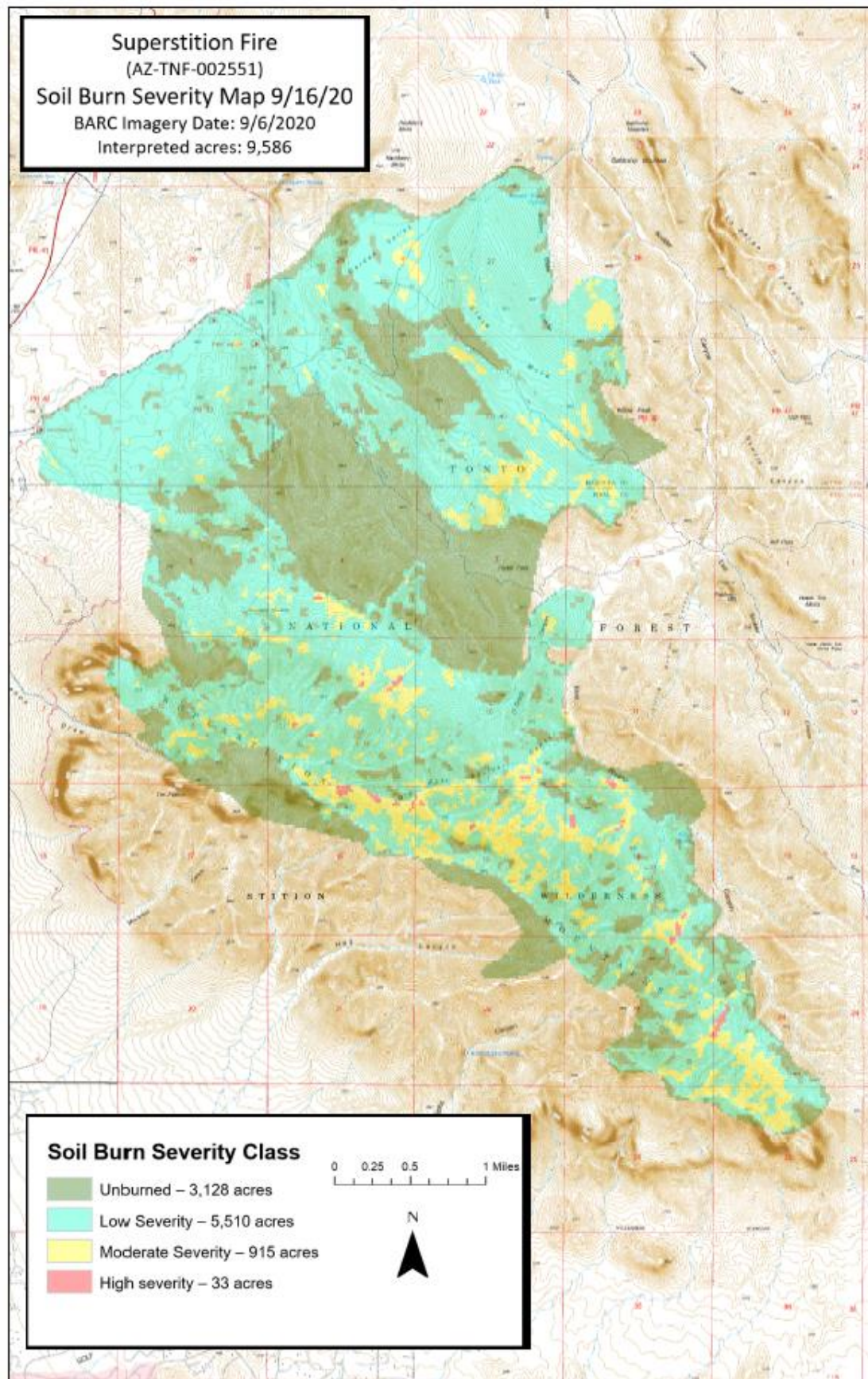


Figure 1. Soil Burn Severity Map.

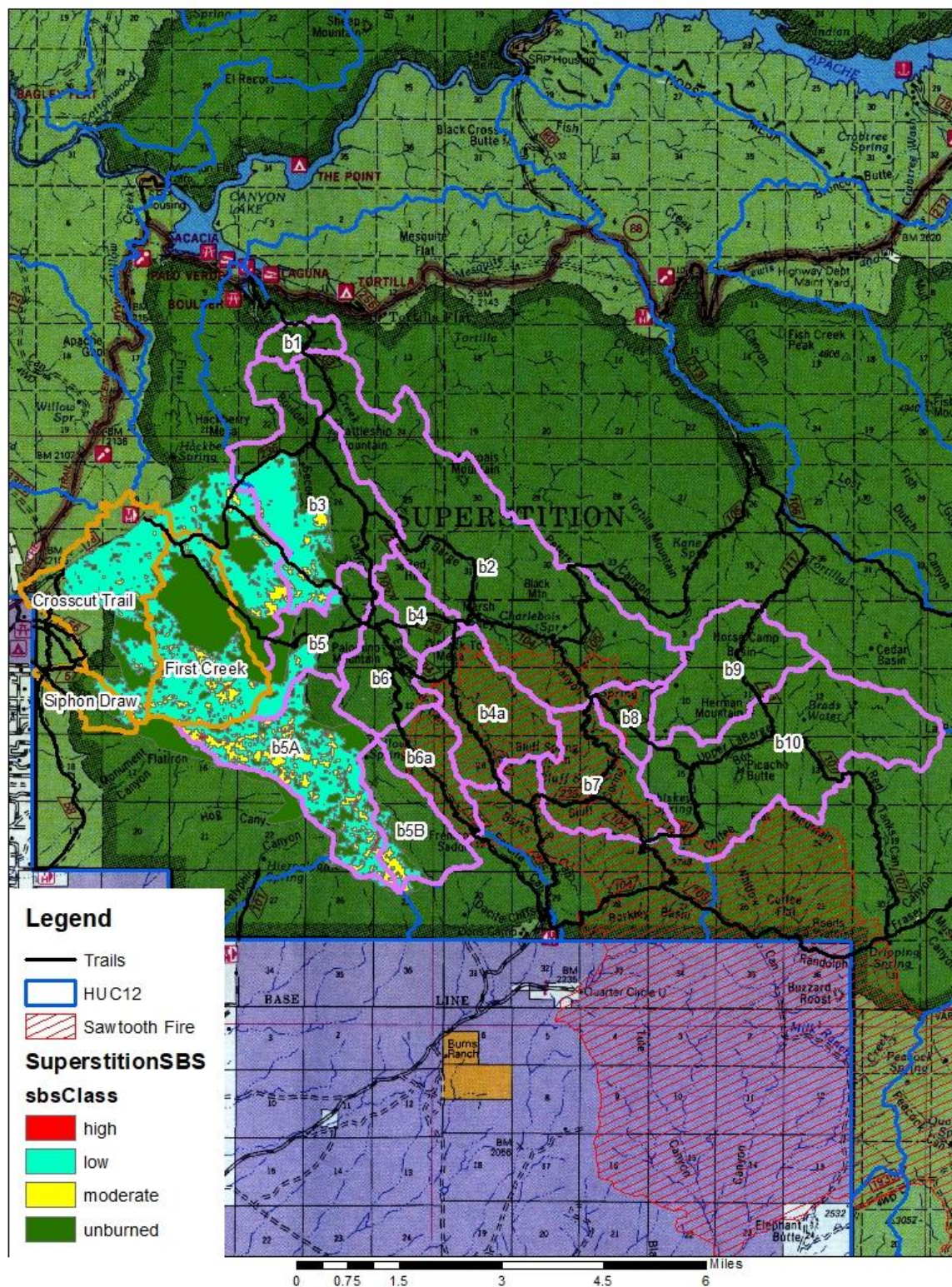


Figure 2. showing the soil burn severity, subwatershed boundaries, in addition to the catchments that were hydrologic modelling was completed.

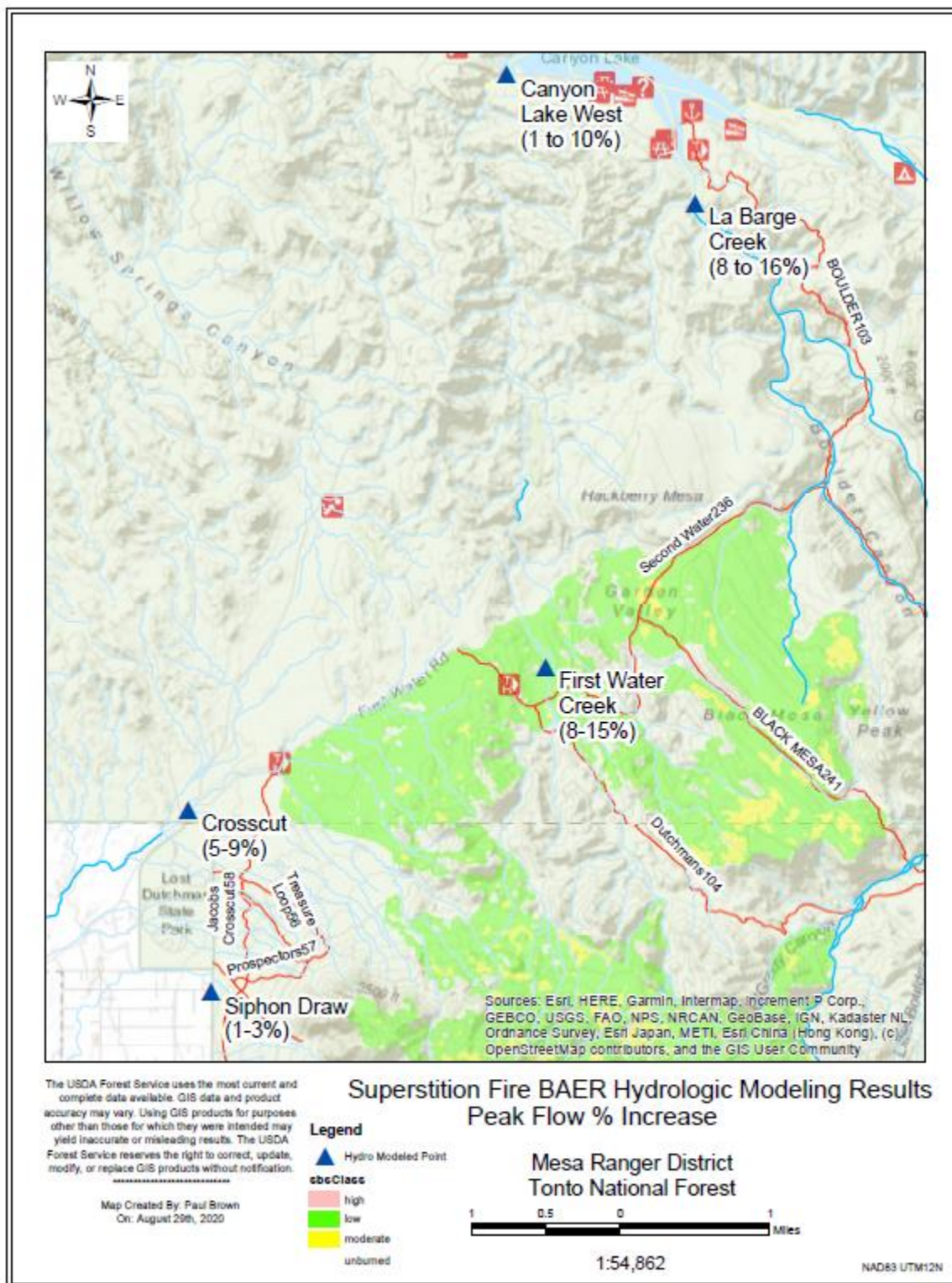


Figure 3. showing the range of percent increases in peak flow discharges from pre- to post-fire.

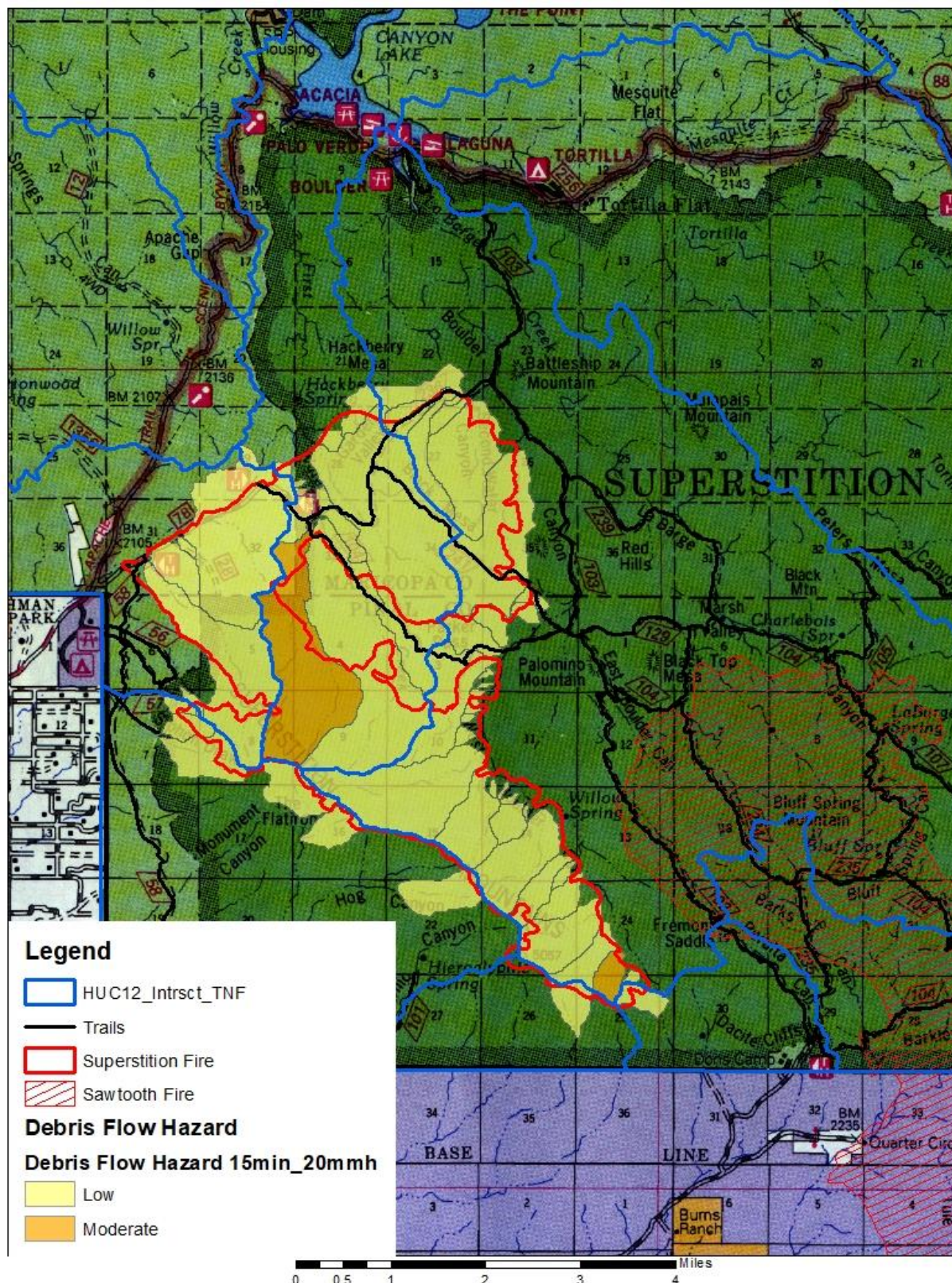


Figure 4. USGS Debris-flow hazard modeling results in at the basin scale for a design storm with a peak 15-minute rainfall intensity of 24 mm/h.

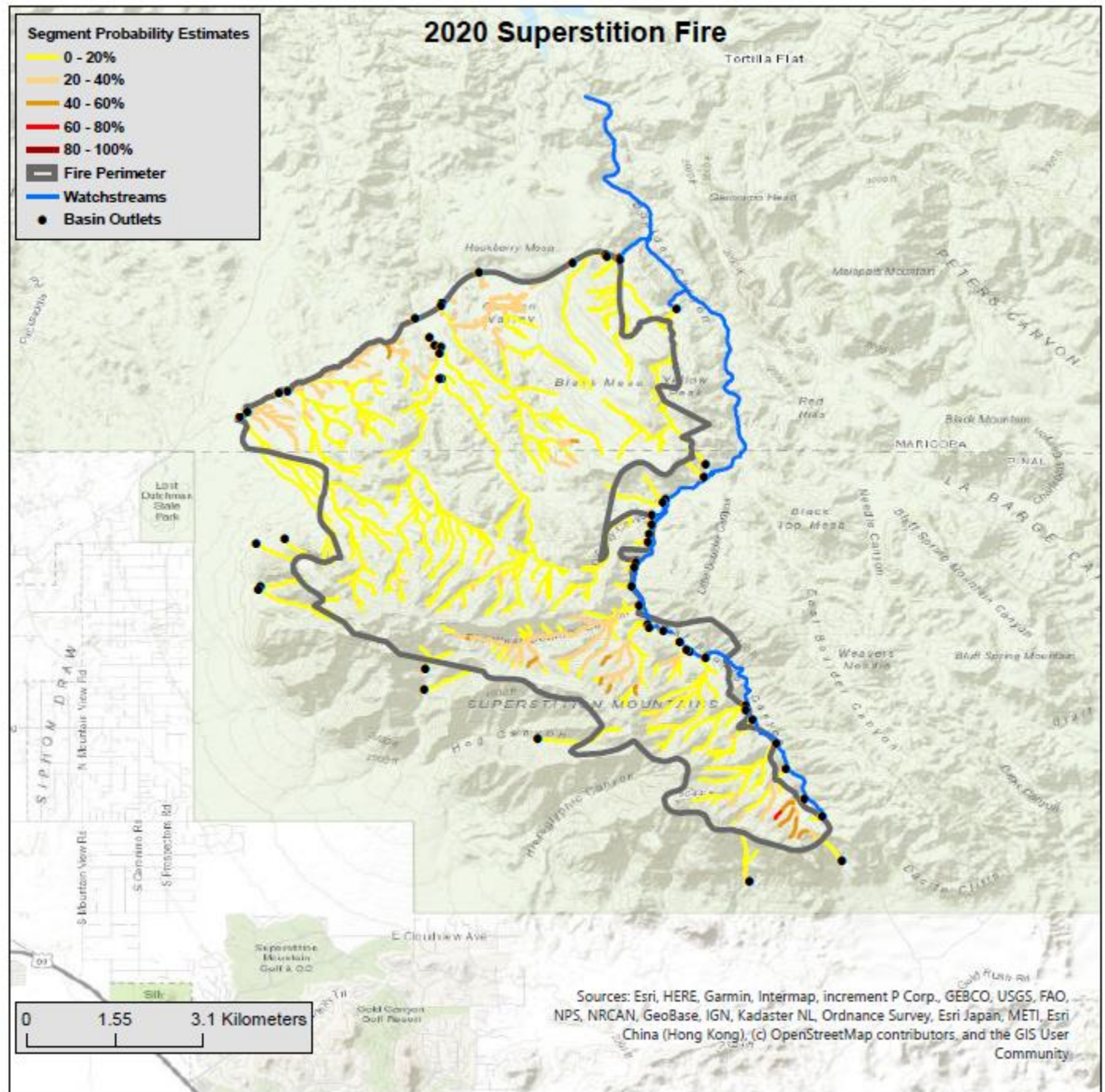


Figure 5. USGS Debris-flow hazard modeling results at the stream segment scale for a design storm with a peak 15-minute rainfall intensity of 24 mm/h.

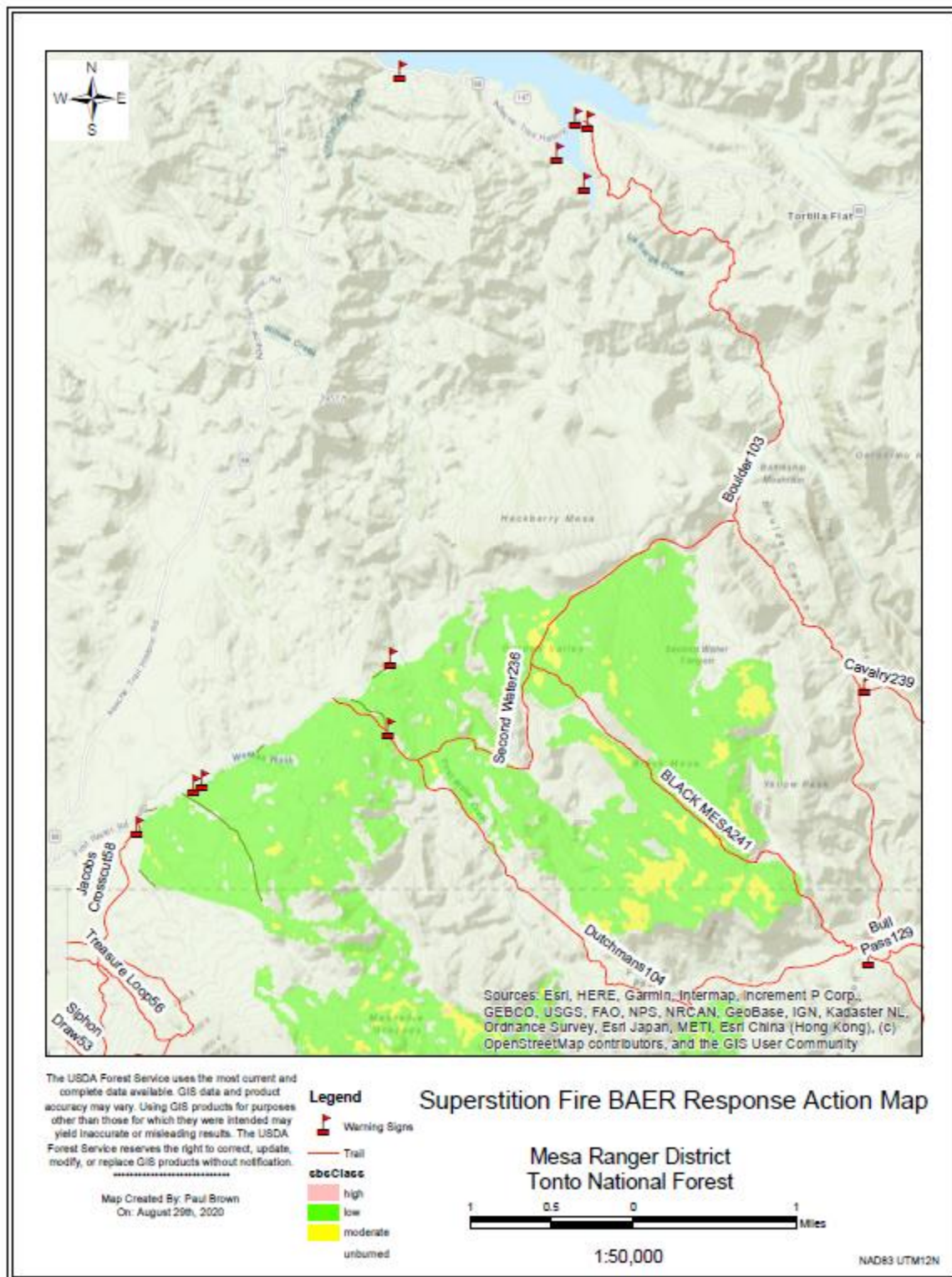


Figure 6. Superstition Fire BAER Response Action Map.