

Date of Report: 03/2022

**BURNED-AREA REPORT**

(Reference FSH 2509.13)

**Introduction:**

The US Forest Service Burned Area Emergency Response (BAER) team arrived on March 10, 2022, to evaluate the Jim Fire burn scar post-fire watershed response to rainfall. The BAER team determines the risks to life, property, and critical cultural and natural resources on Forest Service lands by identifying specific values at risk and the threats to them from erosion, sedimentation, rock fall, flooding, and debris flows. All this information is shared with cooperating agencies so that all affected land managers can determine what mitigation measures may be needed. The Cleveland National Forest can only treat the values at risk that are on USFS managed land. Owners and managers of values at risk outside the USFS boundary may desire to apply treatments on USFS lands to protect their values; they are responsible for planning, financing, and implementing those treatments if they have an agreement with the Cleveland National Forest.

This report is a synopsis of BAER findings and the Forest Service's internal request for implementation funding **on Forest Service lands only**. Specialist reports are available on the Cleveland National Forest website at: <https://www.fs.usda.gov/main/cleveland/home>

Forest Service lands that burned are very steep and remote with critical values such as roads, trails, impacts to native plant assemblages and recreation residences.

**Cooperators include (partial list):**

USGS

National Weather Service – San Diego Office

Orange County Fire Authority

## **PART I - TYPE OF REQUEST**

### A. Type of Report

- ☒ 1. Funding request for estimated WFSU-SULT funds
- ☐ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

### B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Jim Fire

B. Fire Number: CA-CNF- 000406

C. State: California

D. County: Riverside and Orange County

E. Region: 05

F. Forest: Cleveland NF, 02

G. District: Trabuco Ranger District

H. Date Fire Started: March 2, 2022

I. Date Fire Contained: Unknown as of 3/16/2022

J. Suppression Cost: approx \$1,000,000

K. Fire Suppression Damages Repaired with Suppression Funds

- 1. Completed Dozer Line: 1.15 miles
- 2. Completed Hand Line: 3 miles
- 3. Drop points/Helipads: 1 spot

L. Watershed Number:

HUC 6	Name
180703010103	Arroyo Trabuco

M. Total Acres Burned: 551 Acres

NFS Acres(551) Other Federal ( ) State ( ) Private ( ) Local Gov ( )

N. Vegetation Types on National Forest System Lands: Conifer Forest, Hardwood Forest/Woodland, Mixed Conifer/Hardwood, Chaparral.

The dominant vegetation types in the burn area are chamise chaparral and mixed chaparral which will resprout in low to moderate burn areas. The ground survey showed particularly moderate burn severity in areas dominated by dense manzanita. Pine and mixed conifer forest types with non-serotinous pine species will require long-term recovery where stands occur in moderate burn severity areas.

			Soil Burn Severity					
	Grand Total		Moderate (3)		Low (2)		Unburned / Very Low (1)	
Cover Type	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Bigcone Douglas-Fir	27.6	5	1.8	0.3	17.7	3.2	8.1	1.5
Buckwheat	13.6	2.5	.9	0.2	11.3	2.1	1.4	0.25
Canyon Live Oak	42.7	7.7	11.5	2.1	20.8	3.8	10.4	1.9
Chamise	1.3	0.2	0	0	.2	0.04	1.1	0.2
Coast Live Oak	4.0	0.7	1.5	0.3	.9	0.2	1.6	0.3
Coulter Pine	1.4	0.25	0	0	.5	0.1	.9	0.2
Lower Montane Mixed Chaparral	441.9	80.2	200	36.3	201.1	36.5	40.8	7.4
Riparian Mixed Hardwood	17.3	3.1	2.3	0.4	11.4	2.1	3.6	0.65
Upper Montane Mixed Chaparral	1.0	0.2	0	0	0	0	.9	0.2
<b>Total</b>	<b>551</b>	<b>100</b>	<b>218</b>	<b>39.6</b>	<b>263.9</b>	<b>48.14</b>	<b>68.8</b>	<b>12.4</b>

#### O. Dominant Soils:

The Cieneba soils are derived from granitic residuum with coarse soil texture that is prone to increased water repellency, droughty conditions, and dry ravel. Because of the increased water repellency, erosion rates can be quite high. The Friant and Tollhouse soils are derived from metasediment residuum. These soils are finer soil textured than Cieneba and have a higher rate of potential erosion. They tend to also be slightly higher in soil productivity.

Soils SDM Map – Aggregated Data MUName	Acres	% coverage
Blasingame stony loam, 30 to 65 percent slopes	7.6	1.3
Cieneba-Rock outcrop complex, 30 to 75 percent slopes	291.1	52.6
Exchequer-Rock outcrop complex, 30 to 75 percent slopes	42.5	7.6
Friant fine sandy loam, 30 to 75 percent slopes	174.2	31.5
Laughlin gravelly loam, 30 to 50 percent slopes	2.5	0.4
Soboba cobbly loamy sand, 0 to 15 percent slopes	13.2	2.3

Tollhouse-Rock outcrop complex, 30 to 75 percent slopes	5.1	0.8
Tollhouse-Rock outcrop complex, 30 to 75 percent slopes	14.5	2.6

P. Geologic Description:

Geology: The Jim Fire occurred on the Santa Ana Mountain block, bounded by the Elsinore fault zone to the east and the Christianitos fault zone to the west. The burn area is underlain predominantly by Jurassic-aged Bedford Canyon formation, a slightly metamorphosed assemblage of marine sediments, and Cretaceous-aged heterogeneous granitic formations, and overlain by Quaternary alluvial and surficial sediments to present age (Morton and Miller, 2006). Young landslide deposits, Holocene and late Pleistocene in age, are pervasive throughout the burn area due to steep topography and highly fractured rock. These deposits are composed of displaced bedrock blocks and/or poorly sorted rubble.

Geomorphology: The burned area is dominated by extremely rugged slopes, flowing through Orange County to the Pacific Ocean to the west. The Santa Ana Mountains ridgeline has crest elevations of 1,200 to 1,700 m (3,940 to 5,580 ft). The west flank of the range is deeply dissected, with drainages extending four to six km (2.5 to 3.7 mi) into the mountains up to the ridgeline.

Q. Miles of Stream Channels by Order or Class:

Perennial: 2.1 miles      Intermittent: 0.45 miles      Ephemeral: 5.9 miles

R. Transportation System

Trails: 1.6 miles      Roads: 1.9 miles

## **PART III - WATERSHED CONDITION**

A. Burn Severity (acres):

*Table 1: Burn Severity Acres by Ownership*

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	69				69	100
Low	264				264	100
Moderate	218				218	100
High						
Total	551				551	100

- B. Water-Repellent Soil (acres): (fire induced): The soils are naturally water-repellent. Burning of chaparral species can increase water-repellency. However, this fire burned quickly in early season conditions with some moisture in the soil. Micro and macro roots just below the white ash layer indicate that little change to the soil situation occurred.



- C. Soil Erosion Hazard Rating: High (305 acres), Moderate (35 acres), Low (215 acres)
- D. Erosion Potential: 87 tons per acre (11 times normal) per ERMiT
- E. Sediment Potential: 419 cubic yards / square mile (12 times normal) per Rowe, Countryman, Storey [Click here to enter text.](#)
- F. Estimated Vegetative Recovery Period (years): 3 to 5 years. Areas of moderate and high severity are likely to recover slower than low severity areas.

G. Estimated Hydrologic Response (brief description):

The Jim Fire took place in a region that receives moist winters and dry summers. Precipitation throughout the burn area ranges from about 13 to 23 inches per year, with 78% of the precipitation occurring from October through April often in several storm events. The area also experiences monsoonal events in the summer. Stream channels in the burn area have the potential to flash flood, especially along Holy Jim Creek and near the confluence along Arroyo Trabuco which are at notably increased risk for larger, flashier flooding due to the fire. The primary watershed of the 2022 Jim Fire drains southwest into Arroyo Trabuco which enters the Pacific Ocean near Dana Point. The Jim Fire is covered by the San Diego Region Basin Plan.

The increase in peak flows is most applicable during the first year of recovery, then the hydrologic response will decrease in subsequent years. Predicted post-fire peak flows show an increase of about 2 to 7 times for the 5-year return interval storm. With the fire occurring in March 2022, there may not be many precipitation events prior to the possible monsoonal events of the summer. Generally, early, lighter precipitation events fill in available slope detention storage and create the rill and gully networks that are necessary to fully induce the expected increase in flood response from rainstorms. The results of a peak flow analysis show that pre-fire

flows, weighted according to watershed area, were on average 7 tons / acre for a 5-year storm, while post-fire weighted flows were on average 87 tons / acre for the same storm. Post-fire flows could lead to plugged culverts, flow over road surfaces, rill and gully erosion of cut and fill slopes, erosion and deposition along road surfaces and relief ditches, loss of long-term soil productivity, and threats to human safety. Some sedimentation of the ephemeral channels is likely to occur at an accelerated rate until vegetation establishes itself and provides ground cover.

Sediment is potentially increased after a fire due mostly to the loss of vegetation. After the first year of re-growth, post fire sediment also goes down dramatically but may continue to be elevated above pre-burn levels for several years depending on available precipitation and flushing flows. High and moderate soil burn severity are analyzed as one unit because they both result in a high post fire increase in flow and sediment. For the Jim Fire, the post-fire 5-year return interval storm will cause the watershed to respond as a pre-fire 10-year storm.

### **Geologic Response:**

Following the Holy Fire of 2018, the winter had a number of storms creating a wet antecedent condition prior to the February 14, 2019 storm. An analysis was conducted following this debris flow causing event. The February storm rated as a 10-15 year return interval storm within the Orange County side of the burn area. Approximately ~460 acres in the headwaters of Holy Jim Canyon burned in the Holy Fire (this is the area reference in the discussion below). The Holy Fire burn area resulted in 368 acres of high and moderate SBS with a more continuous pattern of high burn. This small watershed experienced multiple debris flows of various sizes and runouts throughout the winter. The Jim Fire, although larger in size, has fewer acres of moderate soil burn severity, no high soil burn severity, and resulted in a mosaic of low and moderate soil burn severities. A mosaic burn pattern can help attenuate watershed response to some degree; however, the steep slopes, high erosion rates, and past debris flows in the canyon lead the team to elicit help from the USGS to run debris flow modeling.

**Debris Flow Potential:** The US Geological Survey (USGS) - Landslide Hazards Program, has developed empirical models for forecasting the probability and the likely volume of post-fire debris flow events. To run their models, the USGS uses geospatial data related to basin morphometry, burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a design storm (Staley, 2016). Estimates of probability, volume, and combined hazard are based upon a design storm with a peak 15-minute rainfall intensity of 12–40 millimeters per hour (mm/h) rate. We selected a design storm of a peak 15-minute rainfall intensity of 24 millimeters (0.94 inches) per hour rate to evaluate debris flow potential and volumes since this magnitude of storm seems likely to occur in any given year. This rate coincides with the 2-year return interval storm (USGS analysis).

*“Our models estimate a low-level debris-flow hazard for most of the area burned by the **Jim fire**. Most stream reaches and drainage basins have a less than 20% likelihood of debris-flow occurrence at the modeled rainfall intensity. A few stream segments have a moderate (40-60% likelihood) to high (60-80% likelihood) level of debris flow hazard. These higher hazard areas occur in unnamed drainages near the central and northern portions of the burn areas. No obvious trails or roads occur downstream of high hazard areas. Most of the burn area requires very modest rainfall rates between greater than 24 mm/h to exceed a 50% likelihood of debris-flow occurrence. Most watersheds are estimated to produce volumes between 10,000-100,000 m<sup>3</sup> resulting in a moderate combined debris-flow hazard for most of the burn area.”*

The combined probability of this debris flow event is about 10% (2-year storm [50%] and moderate chance [20%] out the bottom). The debris flow model does not estimate runout distance in the channel. Although the main channel has lower potential for initiating debris flows, the main stem will experience both runout flows and aggradation from tributary flows.

### **Risk Determination:**

Within the burned area of the Jim Fire, some drainages / areas show a great deal of past mass wasting as debris slide, debris flows and rockfall activity that will be increased during future storms. Other watersheds areas have little evidence of recent past slope instability, but as conditions have changed due to the fire, erosion and new mass wasting might be initiated. In watersheds that experienced moderate soil burn severity,

because of the removal of vegetation by the fire, soils are exposed, and rocks on slopes have lost their supporting vegetation. Due to these post-fire new conditions, roads and trails are at risk from rolling rocks, plugged culverts, debris slides and in some cases, debris flows.

The probability of damage or loss from sediment laden water and increased peak flows is Possible (5-year storm with 20% annual chance). As there are recreational residences situated on the edge of the stream channel and in some cases the elevation of the unprotected infrastructure is lower than the predicted increase in flow height and sediment deposition height, the magnitude of consequences could be Major without treatment. Taken together, the risk from peak flow and sediment increases is HIGH.

The probability of damage or loss from Debris flow is Possible (10% chance; 2-year storm with moderate debris flow potential out the bottom of the fire). As there are recreational residences situated on the edge of the stream channel and in some cases the elevation of the unprotected infrastructure is lower than the predicted increase in debris flow height, the magnitude of consequences could be Major without treatment. Taken together, the risk from debris flow is HIGH.

Forest Service roads and trails in or below the burn are at increased risk. The Forest Road 6S13 into Trabuco canyon is located in the drainage bottom and is the sole access route to the Holy Jim and Trabuco Recreational Residence tracts and hiking trailheads up each canyon. The valley is narrow in some spots and the proximity of the road to the channel (crossing the channel multiple times) puts the road at risk for flooding and debris flow events. Crossings on the Holy Jim road (6S14) and channel capacity at a previous washout were upgraded after the 2018 Holy Fire. The BAER Team still expects post fire threats such as woody debris, post-fire sediment, and increased runoff to threaten the new crossings if crossings are not maintained before and after damaging storm events. The Holy Fire (2018) which burned 460 acres above this road, resulted in several mudflows, debris flows, and sediment laden flows that washed out the road. The 2022 Jim Fire burned 551 acres above this road and will likely cause additional damage.

The increase in peak flows is most applicable during the first year of recovery, then the hydrologic response will decrease in subsequent years. Predicted post-fire peak flows show an increase of about 2 to 7 times pre-fire values. In general, the greatest increase in peak flow values occur in subwatersheds where burn severity is moderate to high and have highly erodible soils. Early precipitation events fill in available slope detention storage and create the rill and gully networks that are necessary to fully induce the expected increase in flood response from rainstorms. In the Jim Fire, available rock and sediment on now barren slopes are plentiful. Bulking from side slopes is anticipated to increase risk of large precipitation events. Latent sediment (from Holy Fire deposits) in downstream channels are also plentiful.

Post-fire flows could lead to plugged culverts, flow over road surfaces, rill and gully erosion of cut and fill slopes, erosion and deposition along road surfaces and relief ditches, loss of long-term soil productivity, and threats to human safety. Some sedimentation of the ephemeral channels is likely to occur at an accelerated rate until vegetation establishes itself and provides ground cover.

Sediment is potentially increased after a fire due mostly to the loss of vegetation. After the first year of re-growth, post fire sediment delivery also goes down dramatically but may continue to be elevated above pre-burn levels for several years depending on available precipitation and flushing flows.

### Erosion Potential:

The soils in the burn area are shallow and highly erosive. The productivity of the soil is naturally low but downslope migration of soil during erosion is likely to reduce the thickness of soils, particularly at higher elevations and steeper slopes. Because the soils have low water-holding capacity, the removal of duff will likely reduce the natural recovery compared to more loamy soils. Reduction of soil productivity will last until shrub communities re-establish and subsequently increase duff and organic compounds within the soil. Also, the removal of duff and the high erosion rates in the area will increase the risk of flooding and debris flows due to the dramatic increase in surface flow and contribution to hydrologic bulking (increasing flow viscosity due to sediment input). Because the areas of highest erosion are too steep and rocky for effective land treatments, natural recovery will be relied upon for soil risk management.



## **PART V - SUMMARY OF ANALYSIS**

### **Introduction/Background**

#### **A. Describe Critical Values/Resources and Threats:**

##### **Values at Risk:**

*The table below is Exhibit 02 from FSM 2523.1. This matrix was used to evaluate the risk level for each value identified during this BAER assessment. See FSM 2523.1 for additional information.*

##### **Risk Determination**

<b>Probability of Damage or Loss</b>	<b>Magnitude of Consequences</b>		
	Major	Moderate	Minor
	<b>RISK</b>		
Very Likely	<b>Very High</b>	<b>Very High</b>	<b>Low</b>
Likely	<b>Very High</b>	<b>High</b>	<b>Low</b>
Possible	<b>High</b>	<b>Intermediate</b>	<b>Low</b>
Unlikely	<b>Intermediate</b>	<b>Low</b>	<b>Very Low</b>

Table A (Appendix A) "Jim Fire Forest Service Critical Values At Risk" (VARs) has a list of critical VARs that were evaluated in this assessment. The table is a summary of the values (some of which were not identified as critical per Exhibit 01 from FSM 2523.1) within and along the Jim Fire area, as well as, the threats to those values, the probability of damage or loss, magnitude of consequences and the resulting level of risk. Red shaded cells are those values that rated out as "very high" or "high" risk. Yellow shaded cells rated out as "intermediate" risk and white cells rated out as "low" or "very low".

#### **1. Human Life and Safety:**

The Jim Fire BAER Team has identified a high risk to human life and safety at several locations throughout the fire based on the threat of debris flows, landslides, flooding, rockfall, and hazard trees. Hazard trees are the most common risk to life and safety. Occupancy or use of BAER critical values such as roads, trails, and other developed recreation sites have post-fire threats to life/safety as well as to Forest Service property. Forest users, employees, and partners could be hit by falling trees, caught in a debris flow, landslide, or flood, or be injured or killed due to damaged travelways. A summary of the assessment follows; additional details are found in the resource specialist reports that address BAER critical values/threats and risks.

Human Life and Safety – Roads and Trails: Human life and safety of Forest visitors and employees traveling on NFS roads and trails, in the burn scar is threatened due to the potential for injury or loss of life from, falling rocks, flash floods, debris flows, and other burned area hazards. The probability of damage or loss is **likely** as the NFS transportation system contains many motorized and non-motorized routes adjacent to and through the burned area. With flooding and hazard trees being the largest threats. The magnitude of consequence is **major** since an overhead hazard strike, entrapment in a flood or debris flow, or motorized vehicle collision with downed trees or fallen rocks could result in serious injury or loss of life. The risk level is **very high**.

#### **2. Property:**

- Property – Forest Service Roads 6304, 6S13, 6S14: 1.9 miles of 3S04 traverse through the fire area. Approximately 0.8 miles is within moderate severity burn, where increased post-fire response is likely to occur. The eastern portion is near or at ridgetop, which will help mitigate post-fire response. 6S14 Holy



Jim and 6S13 Trabuco are outside the fire footprint but we expect post-fire impacts to continue downstream to these roads and pose a **high** risk to sections of the roads.

Due to the post-fire conditions, there is an increased risk to road improvements and lost access to forest service roads which serve permittees, forest users and Forest administrative uses. Level of risk varies depending on burn severity and location. There is an elevated risk of loss of road surfaces and road prisms due to increased storm water runoff erosion damage. Secondary consequences to the road system are to increase the adverse effects and decrease control of storm water runoff to adjacent watersheds. Road failure in the upper watershed or upslope can also contribute to failure of infrastructure downstream. Culverts and overside drains associated with these roads are at risk of plugging from debris carried down channels from burned watersheds. A detailed assessment of NFS roads within the burned area was performed and minimum treatment prescriptions were developed to help reduce the risk of road failures to a more acceptable level.

Probability of damage was determined through a combination of soil burn severity mapping, on the ground, engineering analysis, and communication/coordination with the BAER assessment team. Roads that were determined to have a **high risk** were recommended for treatments to mitigate the hazard or lower the risk to an acceptable level. See the Jim Fire BAER Critical Values Table and for details on roads risk assessments.

**FS System Trail (6W03):** After field assessments, it was determined the upper Holy Jim (6W03) portion of the Holy Jim Trail will experience accelerated hillslope runoff potentially impacting trail tread and fillslope stability . Approximately, 1.6 miles of the trail are within the fire footprint with 1 mile within moderate severity burn. Holy Jim Trail has high recreation use. Urban areas near the fire area typically attract numbers of trail users, including mountain bike enthusiasts. The trail is located within moderate severity areas in steep terrain with little to no ground cover or vegetation remaining after the fire. Existing drainage structures are not adequate to mitigate expected increases of post-fire storm runoff. Because of increased runoff due to the fire, trail sections may create erosion channels so will need additional drainage features installed.

### 3. Natural Resources – Botanical Resources:

#### *Threatened/ Endangered Plants*

No federally listed threatened nor endangered plants were present on Forest Service land

#### *Threats to Vulnerable Native Plant Communities from Non-Native Invasive Plants*

The Botanist visited previously mapped fig infestations along Holy Jim Trail on March 11<sup>th</sup> and found burned fig infestations in the Holy Jim stream. The fig infestations experienced low to moderate severity burns and were not entirely consumed in the fire. Two tamarisk seedlings were found lower in the Holy Jim canyon, near cabin 29, outside of the burn area. The tamarisk was hand pulled to prevent spread and is included on the priority weed survey and treatment list. Italian thistle infestations were found along the Holy Jim Trail and have the potential to spread into exposed burned areas if EDRR surveys are not conducted.

**Suppression areas:** During field surveys, no weeds were detected along the road or in the suppression areas, but preventative action (Early Detection and Rapid Response surveys and treatment) is recommended to aid native vegetation recovery and limit weed introduction and spread along newly exposed travel routes. During fire suppression, 1.5 miles of dozer line were created. It is **likely** that noxious weeds present adjacent to fire suppression areas will recolonize the site and expand if preventative surveys and treatments are not implemented. There are **moderate** consequences to the introduction and spread of weeds along windy road and open corridors like the North Main Divide Road and newly exposed dozer line. The risk for permanent alteration of native vegetation communities is **high** if recommended EDRR surveys and treatments are not implemented on suppression areas.

**Burned areas:** It is **likely** that noxious weeds present in burn areas pre-fire will recolonize the site and expand if EDRR surveys and treatments are not conducted. There are **major** consequences to the introduction and expansion of weeds in riparian ecosystems. Ecosystem structure and function may be compromised by

noxious weed invasion due to loss of native plant biodiversity and presence. Vegetation type conversion from mixed riparian hardwood forest to dense fig infested streams can occur and alter fuel loading in streams. Therefore, this is a BAER emergency, and EDRR noxious weed surveys and treatments are strongly recommended. The risk for permanent alteration of native vegetation communities is **very high** if recommended EDRR surveys and treatments are not implemented on burned areas. Implementation of EDRR surveys and treatment of fig and other non-native weeds will increase the success of native vegetation recovery in burn and suppression areas.

4. **Cultural and Heritage Resources:** Heritage BAER team members completed a burned area assessment for cultural resources to determine if post-fire conditions constitute a risk to critical cultural resources values. The assessment consists of identification of known cultural resources in the area potentially impacted by post-fire conditions and conducting field inspections to identify emergency stabilization needs. The identification of cultural resource values at risk entails conducting a cultural resource assessment, consulting with individuals, tribes, and state agencies, and assessing sites in the field. A cultural resource risk assessment was completed to determine if post-fire conditions pose a risk to cultural resource values. This includes evaluation of direct fire impacts and evaluating potential post-fire impacts within burned areas on known resources. Where emergency conditions have the potential to affect known cultural resources, treatment prescriptions are developed to protect the values at risk. A total of 60 identified cultural resources are located within the fire perimeter and downstream of the burned watershed. Fifty-four (54) of these resources have been previously evaluated as ineligible for inclusion in the National Register of Historic Places, which left six (6) sites to assess for effects. The Holy Jim Cabin Tract (52-00117), Holy Jim Road (FS Road 6S14; 52-00310), and a newly identified lithic scatter (52-00309) were assessed in the field for potential impacts from post-fire effects. Heritage staff and hydrologists determined that Holy Jim Road (FS Road 6S14; 52-00310) is at “**High**” risk due to a “**likely**” impact by flooding and debris flows following damaging storm events. The Holy Jim Cabin Tract (52-00117) and Trabuco Canyon Road (FS Road 6S13; 52-00285) were determined to be at “**Intermediate**” risk from the “**possible**” probability of damage or loss due to debris flows. Three Trabuco Cabin Tract structures (52-00120) and features associated with the Trabuco Guard Station administrative site (52-00094) are determined to be at “**Low**” risk with an “**unlikely**” probability of damage. The lithic scatter (52-00309) in the burned area adjacent to North Main Divide Road was also determined to be at “**Low**” risk due to the nature of artifacts being “**unlikely**” to be looted and low site data potential under NRHP Criterion D.

While the cabins are located on NFS lands, they are privately owned and are not generally considered to be a Forest Service critical value under the BAER policy. However, management of recreation tracts as historic properties by the CNF Heritage Program, does in fact make them a critical value as a Cultural Resource. Several recreation Holy Jim Tract cabins have been identified as having “**Intermediate**” risk for irreparable damage or destruction.

## **B. Emergency Treatment Objectives:**

The primary objective of this Burned Area Emergency Response Report is to recommend prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable degradation to natural and cultural resources. The application of these BAER treatments are expected to minimize on-site and downstream damages to the identified values at risk listed in the critical values table. The emergency treatments being recommended by the Jim Fire BAER team are specifically designed to achieve the following results:

### Proposed Land Treatments

The objective of the land treatments are to:

- A. Minimize the spread of invasive weeds as a result of suppression repair activities, mainly dozer lines (L1).
- B. Minimize the spread of invasive weeds into the natural vegetative communities with minimal weeds, primarily in riparian corridors (L2).
- C. Mitigate the hazards to life and safety and protect other BAER critical values (L3).

### Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

- A. Protect and stabilize Forest Service infrastructure at risk of damage as a result of increased sedimentation, stream diversion, and erosion from the fire (R1, R2, R3, R4, T1).
- B. Reduce risk to water quality and other natural resources by reducing risk of infrastructure damage and failure (L3, R1, R2, R3, R4, T1).
- C. Mitigate public safety hazards along NFS roads and trails (L3, P1, P2).
- D. Protect historic properties at risk from post-fire threats of erosion, flooding, and sedimentation. (R2)

### Proposed Protection/Safety Treatments

The objective of the protection and safety treatments are to:

- A. Caution forest visitors recreating and administrative users about the potential hazards that exist within the burned area (L3, P1, P2,)
- B. Improve public safety by keeping Forest users out of the burn area during major storm events (L3, P1, P2).

### Proposed Channel Treatments

There are no proposed channel treatments.

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

Land 80%      Channel \_\_\_\_\_ %      Roads 80%      Other %

## **D. Probability of Treatment Success**

Years after Treatment			
	1	3	5
Land	80	95	100
Safety	85	90	95
Channel	NA	NA	NA
Roads	90	90	90
Other			

## **E. Cost of No-Action (Including Loss): \$1,275,000 plus cost of loss of life or injury**

## **F. Cost of Selected Alternative (Including Loss): \$1,275,000 expected benefit of treatment (treatment cost \$194,920) plus non-market value of increased safety and protection of life; Implied Minimum value: \$324,867.**

## G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Todd Ellsworth

BAER Coordinator: Emily Fudge

Email: efudge@fs.fed.us Phone: 619-430-3092

<u>Rob Taylor- Hydrology, Geology</u>	<u>Foster Kuramata-Engineering</u>
<u>Audrey Pazmino - Heritage</u>	<u>Maureen Durrant -GIS</u>
<u>Lauren Quon -Botany/Weeds</u>	<u>Kirsten Winter-Wildlife</u>
<u>Cathleen Thompson - PAO</u>	

## H. Treatment Narrative:

### Land Treatments:

#### **L1. Invasive Weed Detection and Control Treatment Related to Suppression**

Under the supervision of a Botanist and Range Specialist, a contract weed crew will survey and treat emerging and burned invasive plants in the burn and suppression areas.

The contract weed crew will survey the EDRR survey and treatment areas indicated in the treatments map. Surveys will include identifying target weed species, mapping weed infestations using Collector and/or other GPS devices/apps and recording information on discovered/re-visited weed infestations in the Weed Occurrence Form (Cleveland NF project record). The Botanist will provide the weed crew with additional survey data collection details.

Early survey and rapid treatment of target invasive weeds will begin in 2022 or 2023 during the flowering periods of weeds. Treatments may consist of hand pulling, using hand tools, and herbicide applications, as directed by the 2014 CNF Invasive Weed Management EA. If seeds are identified on invasive plants, they should be removed, placed in sealed plastic bags, and disposed of off forest land. Treatments will occur over multiple days to ensure that resprouting and growing fig infestations are surveyed and treated. Fig is a weed that requires multiple treatments over time to completely eradicate it from an area, so surveys and treatments shall be implemented over multiple days (e.g. 4 days of survey and treatment during one month, and 4 days of survey and treatment during the next).

The following deliverables shall be provided to the Cleveland NF upon completion of detection and treatment of target invasive weeds:

1. Spatial data (GPS points, polygons, PDF maps) of surveyed and treated infestations; preferred to be submitted in electronic format (Excel spreadsheets or shapefiles accepted).
2. Narrative for each survey (include species surveyed/treated, estimated # or % cover of individuals surveyed treated, phenology, treatment method used, equipment used, herbicide

application %, herbicide type, and surfactant, if applicable) Cleveland National Forest data form may also be submitted in place of narrative.

3. Photos of before and after treatment.

Survey areas related to suppression areas include 1.15 miles of dozer line.

Land Treatment #1: Early Detection, Rapid Response- Suppression Area				
Item	Unit	Unit Cost	# of Units	Cost
1 GS- 11 Botanist (OT)	Day	\$400.00	1	\$400.00
4 person contract weed crew	Day	\$3,000.00	2	\$6,000.00
Vehicle Gas Mileage	Miles	\$0.60	500	\$300.00
Subtotal cost:				<b>\$6,700.00</b>

## L2. Invasive Weed Detection and Control Treatment Related to BAER VARs

Early weed detection and rapid response (EDRR) will be necessary to mitigate the risk of weed introduction and spread in vulnerable areas such as native riparian communities. Prior fires on the CNF have resulted in dense tamarisk populations where populations before the fire were minor or non-existent. Tamarisk has responded aggressively to fire in riparian areas, displacing native riparian vegetation. Weed populations could affect the structure, habitat function, and long-term recovery of native riparian plant communities within the burn area. It is expected that most native vegetation would recover if weed invasions are minimized. Methods for surveys/response are like those described in treatment L1.

Survey areas related to burn areas include 1.87 miles of road, 0.55 miles of stream, and 0.33 miles of trail

Land Treatment #2: Early Detection, Rapid Response- Burn Area				
Item	Unit	Unit Cost	# of Units	Cost
1 GS- 11 Botanist (OT)	Day	\$400.00	1	\$400.00
1 GS- 12 Range Specialist (OT)	Day	\$425.00	2	\$850.00
4 person contract weed crew	Day	\$3,000.00	8	\$24,000.00
Supplies- herbicide	Each	\$1,000.00	1	\$1,000.00
Vehicle Gas Mileage	Miles	\$0.60	500	\$300.00
Subtotal cost:				<b>\$26,550.00</b>
Total cost:				<b>\$33,250.00</b>

## L3. Burned Area Closure

Currently the Forest has issued a closure area surrounding the Jim Fire. It is recommended that this closure stays in place and the risks associated within the burn scar are re-evaluated prior to lifting the closure. The BAER specialist reports detail the post-fire threats within and downstream of the burn area. Much of the area is subject to post-fire debris flow, rockfall, flooding, erosion, sedimentation, and landsliding that pose a very high risk to multiple Critical Values, especially life and safety. Because of the HIGH risk of these post-fire threats, it is recommended that the burned area closure applies to the public, all recreation residences within Trabuco and Holy Jim tracts, FS staff before and during storm events, and trails and roads leading into the burn area. Utilities on the Forest need to coordinate access and should time their work to avoid forecasted storms. Anyone who attempts to access the burned area through the Holy Jim road prior to or during a storm is at a **HIGH** risk of at the least, entrapment up the canyon. The Holy Jim Road is in the canyon bottom and is very likely to be damaged to the point of impassability after a heavy rain even with the improved drainage crossings installed after the Holy Fire.

#### **L4. Natural Recovery**

No federally-listed species are present within the burn area so no treatments are recommended. Natural recovery is recommended for treatment of risks to hydrologic function and soil productivity in areas with moderate soil burn severity.

#### **Roads and Trail Treatments:**

Road drainage features are at risk from adjacent burned watersheds. Increased runoff and sediment from the burned areas can negatively affect the road prism, damaging the road, eroding land downslope of the road and routing flow and sediment directly to stream channels. These instances could negatively impact soil productivity and hydrologic function as well as lead to damaged infrastructure. Road failure can also contribute to failure or loss of other infrastructure downstream. Culverts and overside drains associated with these roads are at risk of plugging from debris carried down channels from burned watersheds. A detailed assessment of NFS roads within the burned area was performed and minimum treatment prescriptions were developed to help reduce the risk of road failures to a more acceptable level. Proposed road treatments include drainage structure cleaning, upsizing overside drains, culvert inlet basin cleaning, rehabilitation of rolling dips and leadoff ditches, debris fences. Past BAER implementation on the Dolan and other fires have shown that even though sections of the road are close to the ridgetop, debris and sediment can still be delivered to the road, eroding fillslopes and plugging drainage control features. Ensuring proper function will prevent damage that can compound when drainage control infrastructure starts to fail.

A cultural resource risk assessment was completed to determine if post-fire conditions pose a risk to cultural resource values. One site (Holy Jim Road) has been identified as being at “high” risk from flooding and debris flows following major storm events. Recommended R2 Road drainage stabilization will protect this critical value from washout. No additional treatment beyond road stabilization is recommended.

**Treatments are displayed based on on-the-ground visitation and GIS analysis and screening. Treatments are focused on areas that are likely to experience post-fire watershed response. GIS display of treatments is as accurate as possible, acknowledging roads traverse different landscape positions and differing soil burn severities.**

**R1- Storm Inspection/Response:** Storm inspection/response will keep culvert and drainage features functional by cleaning sediment and debris from in and around features between or during storms. Storm inspection and response includes approximately 2.40 miles of very steep NFS roads and other sections of roads subject to post-fire response. This work will be accomplished through contractor equipment and labor. **Total request is for \$75,200.**

Locations: 1) FSR 3S04, 6S14

R1- Treatment	Units	Unit Cost	# of Units	Total Cost
Storm Response	Days	\$ 9,000	8	\$ 72,000
Storm Inspection	Days	\$ 400	8	\$ 3,200
Total				<b>\$75,200</b>

#### **R2- Road Drainage stabilization:**

Road stormproofing involves cleaning or armoring of existing drainage structures, as well as recently installed treatments, and is intended to help ensure road drainage performs optimally and to improve structure performance under increased runoff and debris. This work will be accomplished using contractor equipment and labor. Drainage Stabilization includes approximately .75 miles of very steep NFS roads within the burned area and roads subject to post-fire watershed response. Holy Jim Road (6S14) is out of the burn area but is down hill from the burn area and is subject to debris flow runoff. This road is the main access for emergency response, FS administrative needs, and recreation in Holy Jim canyon.

Total request is for **\$20,500**.

Locations: 1) FSR 3S04,6S14,

R-2 Treatment	Units	Unit Cost	# of Units	Total Cost
Contract Prep./Admin.(OT)	Day	\$ 400	5	\$ 2,000
Mobilization	Lump Sum	\$ 10,000	1	\$ 10,000
Installation of Rolling Dips	Each	\$ 500	15	\$ 7,500
Cleanout Culvert Inlet Basin (18"-48")	Each	\$ 500	2	\$ 1,000
Total				<b>\$ 20,500</b>

### **R3 – Bridge stabilization**

Due to post-fire watershed response from the 2018 Holy Fire, clearance under the Holy Jim Bridge on 6S13 has been reduced to 4' of clearance from the 20 feet of clearance existing before the 2018 Holy Fire. Trabuco Creek aggraded over two feet following large post-fire storm events in 2019 causing aggradation in Holy Jim Creek at the confluence with Trabuco Creek. Additionally, debris flows in the Holy Jim creek headwaters produced large amounts of sediment that also contributed to reduced capacity. Mobilization costs are reflected above in road drainage stabilization. Total request is for **\$15,000**.

R-3 Treatment	Units	Unit Cost	# of Units	Total Cost
Cleanout Sediment under Holy Jim Bridge to accommodate new flows (6S13)	Each	\$ 5,000	3	<b>\$ 15,000</b>

**R4- Road Drainage Structure Replacement/Improvements:** Road drainage structure improvements involves replacing existing deficient structures and installation of additional drainage structures to help ensure road drainage performs optimally and to improve drainage performance under increased runoff and debris . This work will be accomplished using contractor equipment and labor. The proposed treatments are designed to be the minimal treatment necessary to reduce the risk of road failure to an acceptable level. These treatments are located on the segments of road within the burned area and in combination with drainage stabilization. There are 10 existing 12" overside drains that are either damaged,crushed or hanging off the side of the road within areas of moderate burn severity that are expected to receive additional post-fire runoff and debris. They are not sufficient in size to accommodate the potential sediment flow. Total request is for **\$25,676**.

Locations: 1) FSR 3S04,6S13

R4 - Treatment	Units	Unit Cost	# of Units	Total Cost
Contract Preparation/ Administration (OT)	Day	\$ 400	5	\$ 2,000
Mobilization	Lump Sum	\$ 3,000	1	\$ 3,000
Install Debris Fence	Each	\$ 1,000	1	\$ 1,000
Install 18 inch Overside Drain, 10 LF Flume	Each	\$ 1,500	12	\$ 18,000
Reset 18 inch Overside Drain	Each	\$ 900	1	\$ 900
Heritage Roads Treatment Monitoring (Term)	Days	\$ 388	2	\$ 776
Total				<b>\$25,676</b>



## T1. Trail Stabilization

Trail drainage stabilization and grade **stabilization of 1 Miles of the Holy Jim trail** from the top down to the Holy Jim Falls trail has been identified to prevent loss of trail tread, trail structure and reduce soil erosion on slopes. The identified trail is within the fire perimeter and has high recreation use. Urban areas near the fire area typically attract numbers of trail users, including mountain bike enthusiasts. The trail is located within moderate burn severity areas in steep terrain with little to no ground cover or vegetation remaining after the fire. Existing drainage structures are not adequate to mitigate expected increases of post-fire storm runoff. Because of increased runoff due to the fire, trail sections may create erosion channels so will need additional drainage features installed. Work will include the installation of drainage features (outsloping, rolling grade dips, knicks, water bars) and snagging trees as appropriate for worker safety. This work is necessary to protect the trail asset by dispersing anticipated increases in surface runoff off the trail. This request also includes felling of hazard trees along the portion of trail to be worked on to mitigate safety concerns for trail crews as necessary.

The trail work will be conducted by ACE crews (contract) or other contract crews and administered and supervised by Forest Service personnel.

### **Total request is for \$18,025**

T1. Treatment	Units	# of Units	Unit Cost	Total Cost
FS System Non-Motorized Trails # 6W03 – Implementation layout, Drainage stabilization and trail stabilization treatments. ace crew for one hitch.	Miles	1.0	16,000	16,000
GS-7 Forestry Tech (Recreation) (OT)	Days	3	\$325	\$975
GS-11 Hydrologist (OT)	Days	3	\$350	\$1,050
<b>Total</b>				<b>\$18,025</b>

## **Protection and Safety Treatments:**

### **P1 – Road Warning Sign and Closure Gates**

This treatment will install burned area warning signs at key road entry points to caution forest administrative users about the potential hazards that exist within the burned area and will be consistent with the language provided in the BAER Treatments Catalog. The purchase and installation of signs at each of the identified locations will 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. The gate at the entrance to Trabuco Canyon (6S13) has been vandalized and is not functioning at this time. It will need to be repaired to ensure that the Forest Closure can be enforced.

Controlling access up Holy Jim Canyon and near the confluence with Trabuco Creek is critical because a 2-5 year storm could trap or injure someone during a rain event. A heavy-duty gate will ensure that life and safety are protected and the closure is maintained.

This treatment will keep Forest users out of the burned area to mitigate the public safety risk. This work will be accomplished using contractor equipment and labor. **Total request is for \$5,600.**

P-1Treatment	Units	Unit Cost	# of units	Total Cost
Mobilization	1	\$ 2,000	Lump Sum	\$ 2,000
Hazard Signs for 3S04, Aluminum Panels and Posts	3	\$ 500	Each	\$ 1,500
Repair Gate to Function at 6S13	1	\$ 1500	Each	\$ 1,500

Replacement Signs for above roads	2	\$ 300	Each	\$ 600
Total				<b>\$ 5,600</b>

## **P2. Trail Hazard/Closure Signs**

Trail marker post were burned up on the upper Holy Jim trailhead and on the trail of Holy Jim Trail. Signs will inform users of the danger associated with entering and using trails and dispersed recreation areas within the burned area, and/or to stay on trails and not go into burned areas. The installation of trail signs includes posts and associated hardware. There are several portals or access points to these trails. Forest staff will provide oversight for sign installations and implementation.

**Total request is for \$2,100.**

<b>P2- Treatment</b>	<b>Units</b>	<b>Unit Cost</b>	<b># of Units</b>	<b>Total Cost</b>
Trail Warning Signs	Sign	\$100	10	\$1,000
Sign Post and Hardware	Sign/Post	\$25	5	\$125
Labor for Installation (FS Staff)(temps)	Days	\$325	3	\$975
			<b>TOTAL</b>	<b>\$2,100</b>

### **I. Monitoring Narrative: NA**

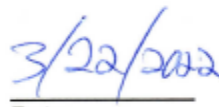
(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

## Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

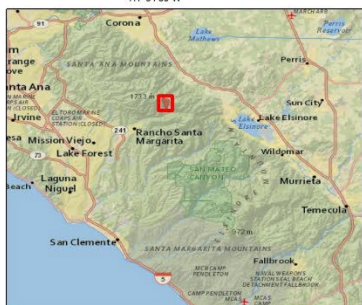
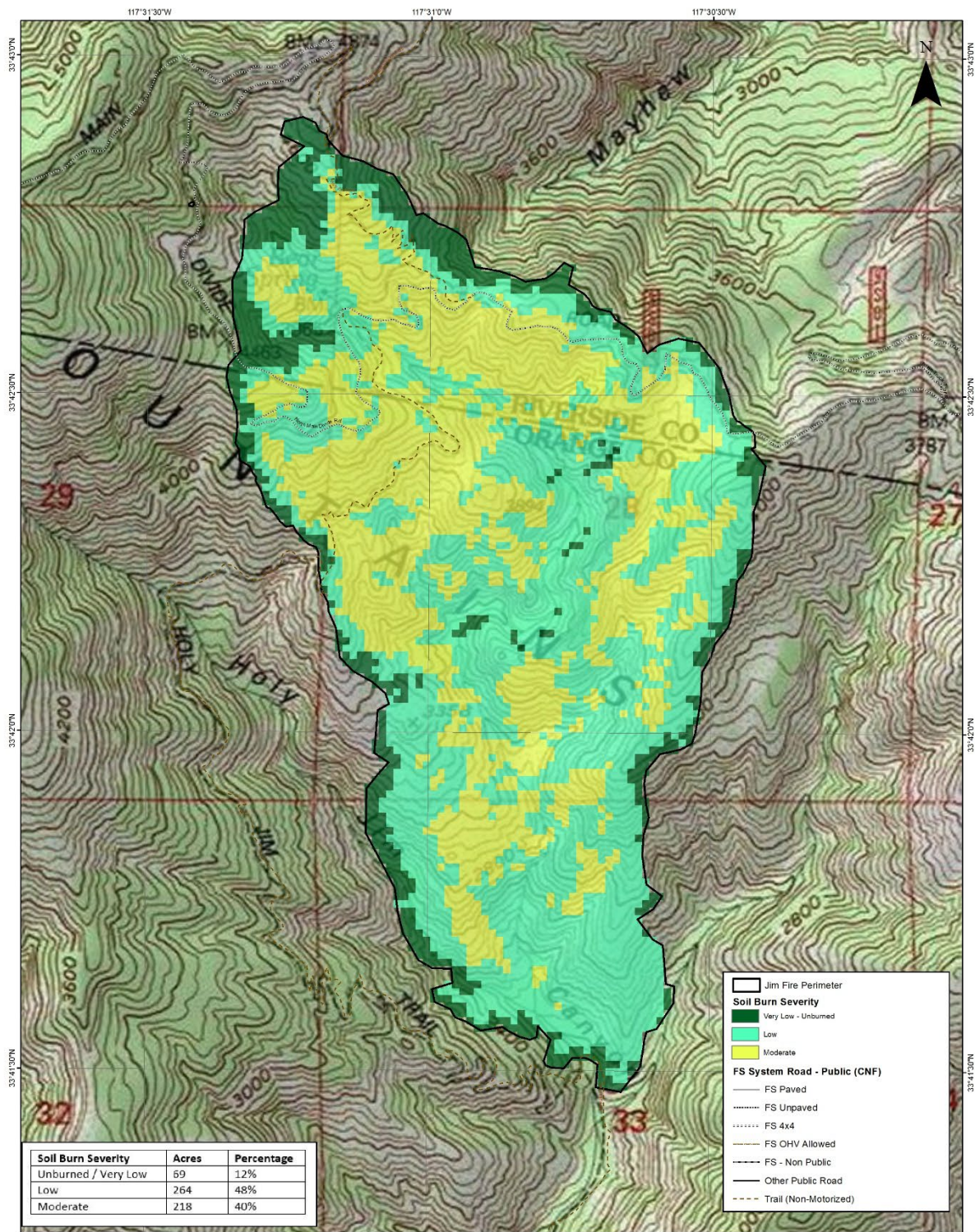
Line Items	Units	Unit Cost	NFS Lands			Other Lands				All Total
			# of Units	WFSU SULT \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	
<b>A. Land Treatments</b>										
L1. Weeds related to Suppression	Days	3350	2	\$6,699	\$0		\$0		\$0	\$6,699
L2. Weeds related to BAER	Days	3,319	8	\$26,552	\$0		\$0		\$0	\$26,552
L3. Burn Area Closure	NA	0		\$0	\$0		\$0		\$0	\$0
L4. Natural Recovery	NA	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
<i>Subtotal Land Treatments</i>				<b>\$33,251</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$33,251</b>
<b>B. Channel Treatments</b>										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				<b>\$0</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$0</b>
<b>C. Road and Trails</b>										
R1. Storm Inspection/Response	Miles	31,333	2.4	\$75,199	\$0		\$0		\$0	\$75,199
R2. Road Drainage	Each	1367	15	\$20,505	\$0		\$0		\$0	\$20,505
R3. Bridge stabilization	EAch	15000	1	\$15,000						\$15,000
R4. Rd. Drain. Improve/Replace	Each	2106	12	\$25,272	\$0		\$0		\$0	\$25,272
T1. Trail Stabilization	miles	18,025	1	\$18,024	\$0		\$0		\$0	\$18,024
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road &amp; Trails</i>				<b>\$154,000</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$154,000</b>
<b>D. Protection and Safety</b>										
P1. Road Sign/Gates	lump	5,600	1	\$5,600	\$0		\$0		\$0	\$5,600
P2. Trail Signs	number	222	10	\$2,220	\$0		\$0		\$0	\$2,220
					\$0		\$0		\$0	\$0
					\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				<b>\$7,820</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$7,820</b>
<b>E. BAER Evaluation</b>										
BAER team non-trainee	lump	20,500	1	\$20,500	\$0		\$0		\$0	\$20,500
BAER trainee										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Evaluation</i>				<b>\$20,500</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$20,500</b>
<b>F. Monitoring-NA</b>										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				<b>\$0</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$0</b>
<b>G. Totals</b>				<b>\$195,071</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>	<b>\$195,071</b>

## PART VII - APPROVALS

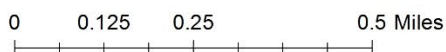
1.   
Forest Supervisor (signature)

  
Date



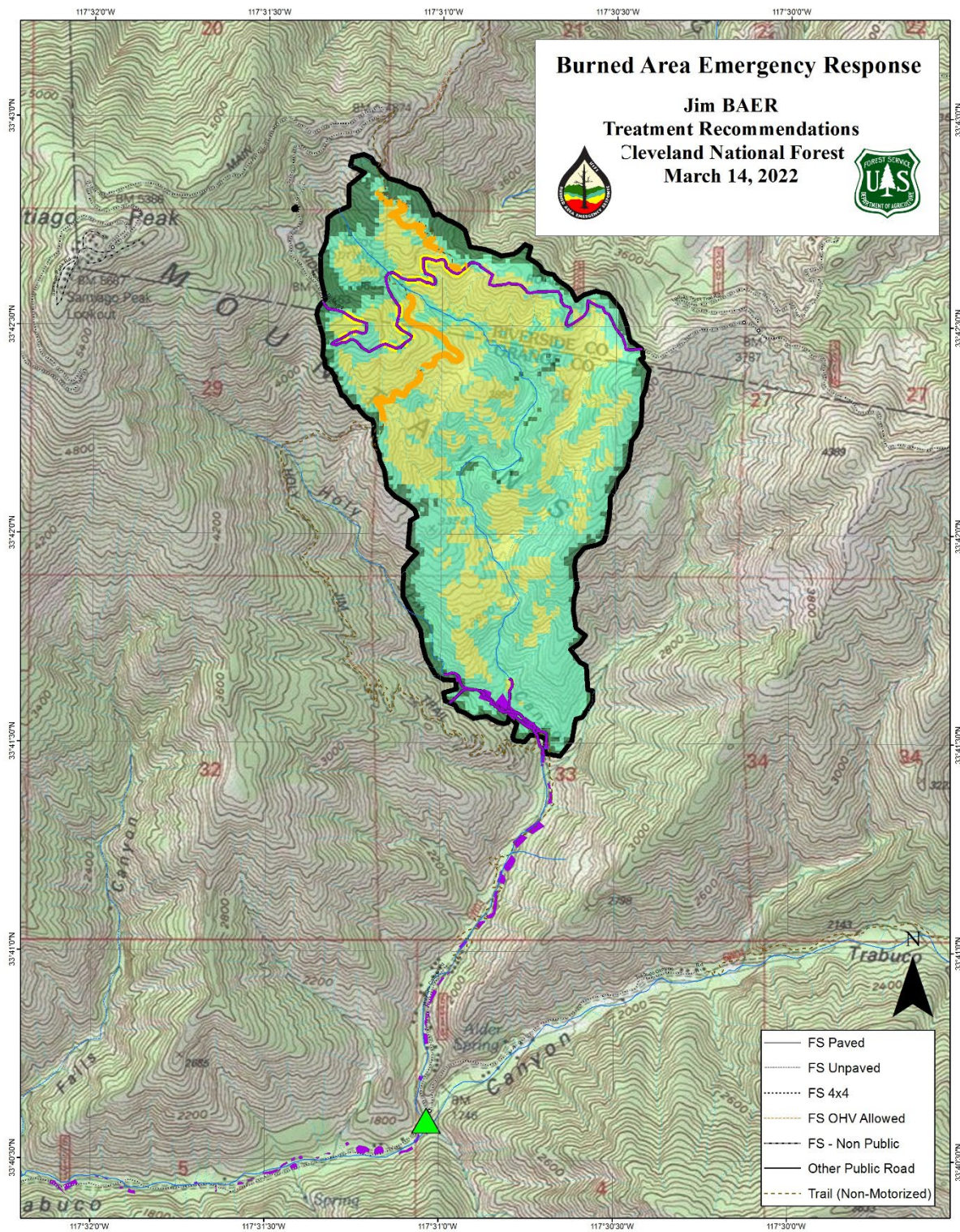


# Soil Burn Severity Jim Fire Trabuco Ranger District Cleveland National Forest 2022



The USDA Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification.



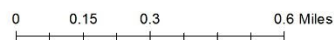


### Treatment Recommendations

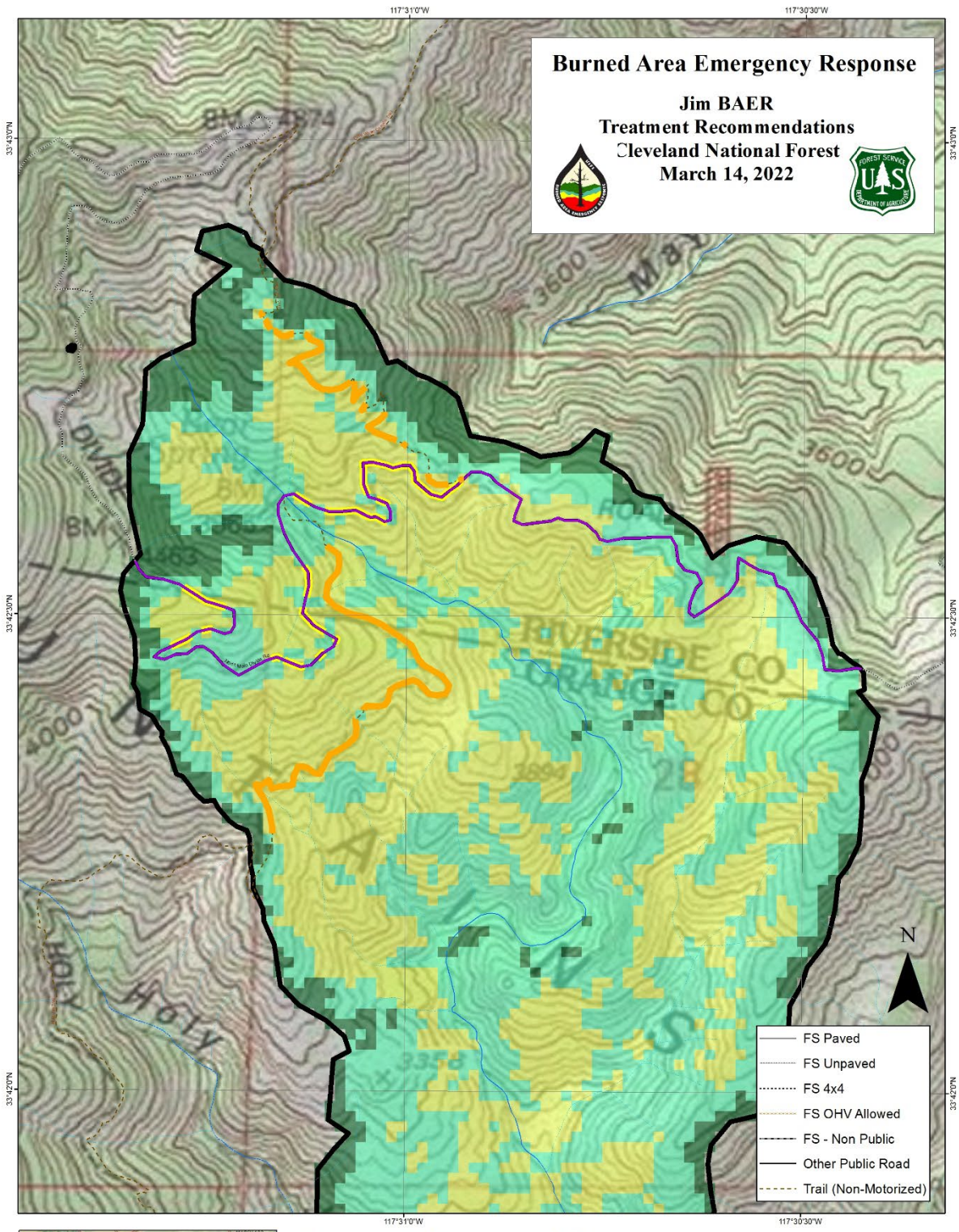
- Jim Fire Perimeter
  - Bridge Stabilization
  - Road Stabilization
  - Trail Stabilization
  - Invasives EDDR Suppression Repair
  - Invasives EDDR - Fig Infestations
- Soil Burn Severity**
- Very Low - Unburned
  - Low
  - Moderate



The USDA Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification.









**Burned Area Emergency Response**

**Jim BAER**

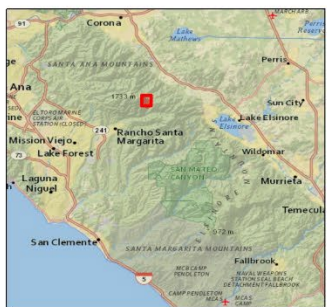
**Treatment Recommendations**

**Cleveland National Forest**

**March 14, 2022**

- FS Paved
- FS Unpaved
- FS 4x4
- FS OHV Allowed
- FS - Non Public
- Other Public Road
- Trail (Non-Motorized)



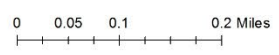
### Treatment Recommendations

- Jim Fire Perimeter
- Bridge Stabilization
- Road Stabilization
- Trail Stabilization
- Invasives EDDR Suppression Repair
- Invasives EDDR - Fig Infestations

- Soil Burn Severity**
- Very Low - Unburned
  - Low
  - Moderate



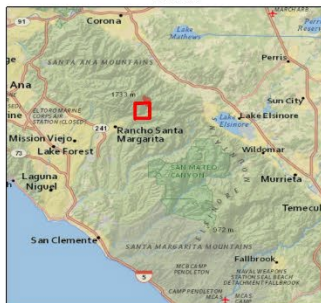
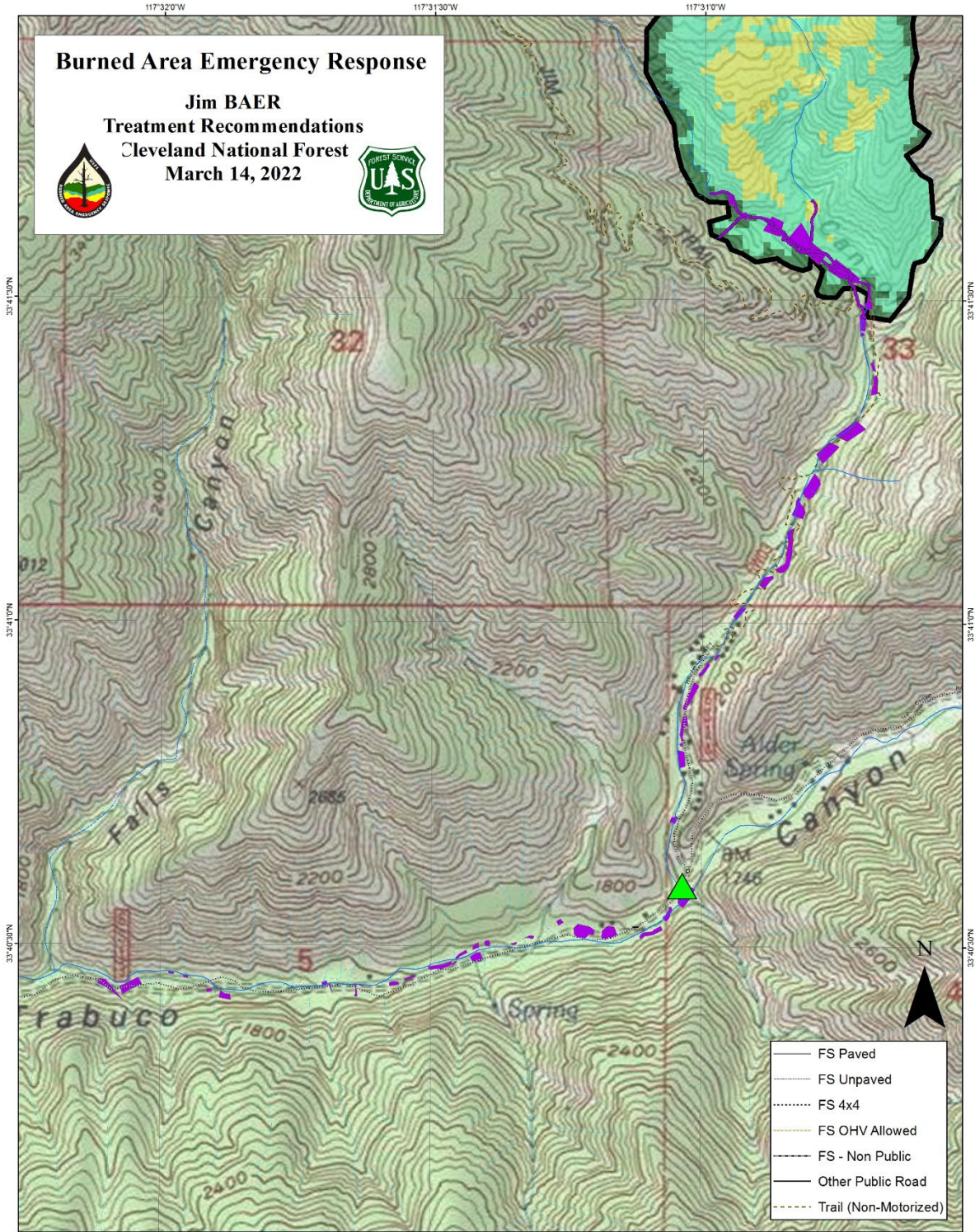
The USDA Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification.





# Burned Area Emergency Response

Jim BAER  
Treatment Recommendations  
Cleveland National Forest  
March 14, 2022



## Treatment Recommendations South

- Jim Fire Perimeter
  - Bridge Stabilization
  - Road Stabilization
  - Trail Stabilization
  - Invasives EDDR Suppression Repair
  - Invasives EDDR - Fig Infestations
- Soil Burn Severity
- Very Low - Unburned
  - Low
  - Moderate



The USDA Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification.

