

King Fire BAER - Recreation and Trails Report

Resource Specialty: Recreation, Trails

Fire Name: King Fire

Month and Year: October, 2014

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I. Potential Values at Risk (identified prior to the on-the-ground survey using FSM 2523.1 evaluation criteria)

A. Critical Values

Potential values at risk identified and addressed in this report include Forest Service recreation facilities and trails, as well as associated post-fire impacts to cultural resources and ecosystem recovery related to recreation. Risks include threat to life and safety of public and administration personnel, threat to facility infrastructure, threat to cultural resources, and threat to ecosystem recovery.

B. Resource Condition Assessment

(a) Resource Setting

Recreation facilities impacted in the burned area include:

- *Developed Campgrounds*
 - Big Meadows Campground
 - Middle Meadows Campground
 - Stumpy Meadows Campground
 - Black Oak Group Campground
 - Hell Hole Campground

Developed campgrounds within the affected area each have highly developed infrastructure, including vault toilets, water systems, signage, barrier posts, interior roads, campfire rings, grills and picnic tables. These sites received varying degrees of fire damage to infrastructure, depending on location and burn

severity. Big Meadows received little damage to infrastructure during the fire, but has significant risk to infrastructure due to the presence of hazard trees. Middle Meadows Campground is on the edge of the burn perimeter, and was not affected by the fire. Stumpy Meadows Campground received damage to infrastructure in the form of many burned barrier posts, bollards and information signs. Additionally, Stumpy Meadows Campground has exposed, burned hazardous material present at the campground host site. Black Oak Campground has damage to infrastructure in the form of many burned barrier posts and bollards, as well as significant damage to the water system resulting in exposure of hazardous material. Hazard trees were mitigated during fire suppression activities at Black Oak and Stumpy Meadows Campgrounds.

- *Day Use Areas*
 - Hell Hole Vista
 - Hell Hole Boat Ramp
 - Stumpy Meadows Boat Ramp
 - Bridal Veil Day Use Area

Day use areas within the affected area have varying levels of developed infrastructure, typically including signage, vault toilets, picnic tables, campfire rings, grills, and interior roads and trails. Of these sites, Hell Hole Vista and Bridal Veil Day use area were impacted by the fire.

- *Dispersed Camping Areas/Concentrated Use Areas*
 - Slab Creek Reservoir dispersed camping
 - Long Canyon dispersed camping

Two high use dispersed camping areas exist within the affected area and are evaluated in this report due to the concentrated public use. Other dispersed camping is likely to occur within the burn perimeter, but none were identified as being areas of known or expected concentrated use. Proposed hazard warning signage on access routes into the burn area will be effective to inform dispersed recreational users of anticipated hazards.

Non-Motorized Trails

- 12E02 – Edson Burn Interpretive Trail
- 12E30 – Brush Creek Reservoir
- 13E02 – Middle Meadow
- 13E03 – Frey

- 13E05 – Gray
- 13E13 – Ellicott
- 13E16 – Lawyer
- 13E17 – Slide Point
- 13E18 – SugarPine Point
- 13E19 – Pony Express NHT
- 13E24 – Belix
- 14E10 – Parsley Bar
- 14E14 – South Fork

The system non-motorized trails within the burn perimeter are typically Trail Class 2 or 3 level developed and improved trails. A number of these trails access various points of interest along the Rubicon River and provide connectivity throughout the canyon. Infrastructure associated with these trails includes the trail tread, drainage features, constructed features such as staircases, trailheads, trailhead signage and kiosks, and directional signage.

- *Motorized Trails*

- 11E49 – Soapweed
- 12E15 – Poho
- 12E16 – Poho Power
- 12E17 – Slide Point
- 12E18 – Brushy Tie
- 12E19 – Big X ATV
- 12E20 – Big Brushy
- 12E21 – Camp Seven
- 14E04 – Hales Crossing
- 14E09 – Hunter
- 14E11 – Deer Creek

The system motorized trails within the burn perimeter are typically Trail Class 3 developed and improved trails, designed for either motorcycle or ATV use. A number of these trails access various points of interest such as the Rubicon River, scenic overlooks, and fishing and hunting areas. Infrastructure associated with these trails includes the trail tread, drainage features, constructed features such as trailheads, trailhead signage and kiosks, retaining walls, barriers, and directional signage.

(b) Findings of the On-The-Ground Surveys

Recreation facilities:

- Following this survey it was determined that there were no values at risk requiring treatments at the Hell Hole Boat Ramp, Hell Hole Campground and Middle Meadows Campground. Hell Hole Vista is adjacent to low/moderate severity burn, and hazard warnings signs are recommended.
- Numerous hazard trees were observed at the Big Meadow Campground presenting a life and property risk to infrastructure, administrative and public users. Though many fire-weakened trees are present, we have identified some trees posing an immediate threat to life and property. These trees were evaluated by the recreation/trails specialists, and verified by the Hazard Tree Inspector using Regional guidelines for Hazard Tree Classification.
- At both the Black Oak and Stumpy Meadows Campgrounds, posts and bollards were burned resulting in holes in the ground adjacent to roads and campsites. Additionally, many stump holes are present throughout both campgrounds with some immediately proximate to campsites, and restrooms. As previously mentioned, hazardous waste is exposed at the Stumpy Meadows Campground, and the water system at Black Oak Campground is damaged. Each of these conditions presents a life and safety risk to administrative and public use, and requires immediate treatment. Both campgrounds received fire damage to informational signage. This presents a public and administrative safety issue due to potential for falling dimensional lumber. Though both campgrounds are currently under a closure order, the Stumpy Meadows Campground gate is not secure and requires action to ensure the gate closure is effective.

Trails:

Non-motorized trails:

An on the ground survey was conducted for most of the above mentioned trails, and all trails within the burn area were observed via aerial reconnaissance to determine individual levels of risk based on slope and burn severity. Following this survey it was determined that most trails have an increased level of risk to infrastructure damage or failure, and each require emergency treatments in order to stabilize, stormproof or otherwise mitigate the anticipated impact of a post-fire storm event. Hazard warning signage is recommended to inform users of anticipated hazards within the burn area.

Specifically, surveys indicate a high to very high potential for post-fire storm damage to the trail infrastructure on 14E10, 13E17, 13E16, 14E14, 13E13, 13E24, 13E18. Each of these trails contains segments that lie within and/or below areas that experienced moderate to high burn severity. Watershed response is expected to increase in these areas due to lack of vegetation, impacted soils and increased run-on of water during a model storm event. Additionally there is potential for sedimentation, dry ravel, rock-fall, and loss of trail tread in these affected areas. If this damage was to occur, it would represent a loss to the forest investment in the construction and maintenance of the infrastructure of these recreation features, as well as decreased public and administrative access.

The existence of fire-damaged hazard trees presents a life and safety risk to administrative and public users. However, the risk to public use is contained to areas of known or expected congregation such as trailheads, view points, parking areas etc. There is a risk to implementation and administrative personnel requiring mitigation in areas where people are likely to spend blocks of time performing work, which effectively increases hazard tree exposure time to an unacceptable level (BAER Guidance Paper, Hazard Trees, April 2013).

Motorized Trails:

On the ground and/or aerial surveys were conducted for all of the above mentioned motorized trails. It was determined that trails 12E15, 12E17, 12E18, 12E19, 14E04, 14E09 and 14E11 contain segments that lie within and/or below areas that experienced moderate to high burn severity. Watershed response is expected to increase within these areas and trail sections may experience increased water run-off and sedimentation during and after model storm events. These trails are anticipated to see higher levels of erosion and tread incision within affected segments. Additionally there is potential for sedimentation, dry ravel and debris-fall in these affected areas.

The increased runoff in the first year following the fire has the potential to cause infrastructure loss due to tread incision, increased runoff and erosion along segments of these trails. This would represent a loss to the forest investment in the construction and maintenance of these off highway vehicle trail features, as well as additional contribution of concentrated water runoff and sedimentation to burned hill slopes.

(c) Consequences of the Fire on Values at Risk

The King Fire has resulted in a “very likely” probability of moderate to major threats to life, public safety, property, cultural resource protection, and ecosystem recovery at several recreation facilities and trails. Each trail and recreation site within the burn has been evaluated for risk assessment, and those findings are included in the remainder of this report, along with treatment recommendations to minimize anticipated impacts and effects.

II. Risk Assessment:

The Values at Risk for recreation facilities and trails subject to an increased number of hazard trees, erosion, runoff and sediment flows caused by hydrologic response, infrastructure failure or loss, and hazardous waste presence are:

- Life and safety
- Public health
- Infrastructure
- Cultural resources
- Ecosystem recovery

The following conditions describe in detail the consequences of the fire on Values at Risk:

- There is an immediate risk of hazard trees within and adjacent to recreation facilities posing life and safety threat to BAER implementation team members and public visitors. Treatment of hazard trees on trails is exclusively limited to areas where hazard trees present an imminent threat to implementation team members (BAER Guidance Paper, Hazard Trees, April 2013).
- Burned infrastructure has resulted in a hazardous material exposure to the public and environment at Stumpy Meadows Campground and Black Oak Campground.
- Segments of numerous trails within the burn area are subject to increased erosion from model storm. Without emergency storm proofing further loss of trail tread, trail instability and incision are likely to occur.
- Barrier posts and bollards were burned resulting in exposed holes and hardware fasteners within the Stumpy Meadows and Black Oak Campgrounds. The loss of these barriers presents a threat to life and safety as well as ecosystem recovery.

C. Emergency Determination

The BAER team has concluded that the above post fire conditions pose an emergency due to an immediate:

- Risk to life and safety
- Risk to infrastructure
- Risk to cultural resources
- Risk to ecosystem recovery

D. Treatments to Mitigate the Emergency (per FSM 2523.2)

Recreation Facility Treatment Descriptions: An emergency determination was made that the following BAER treatments are required for recreation facility treatments in the King Fire burned area to protect infrastructure and reduce life/safety hazards:

- Site Closures
- Warning Signs (per FSM ID 2520-2012-1)
- Treatment of Hazard Trees ((BAER Guidance Paper, Hazard Trees, April 2013)
- Storm-proofing Trails
- Secure exposed hazardous waste at Stumpy Meadows Campground and Black Oak Campground.
- Monitor treatments at all recreation sites for effectiveness and additional threats to values at risk not identified in this assessment, specifically hazard trees not evident at the time of initial survey
- Replace lost and remove/replace damaged traffic control barriers
- Monitor warning signs and travel management signs, specifically in areas where unauthorized OHV use may pose a threat to soil productivity, invasive weed spread and ecosystem recovery, for early detection and treatment of creation of unauthorized routes (Watershed, Soil, Air Management, 0625 1801—SDTDC, December 2006, figure 110, page 181).

Discussion/Summary/Recommendations

In summary, the prescribed treatments for recreation facilities and trails will be implemented in concert with larger scale watershed treatments to help preserve life, public and administrative safety, infrastructure, cultural resources, and post-fire ecosystem recovery. Trail treatments are designed to minimize damage caused by increased runoff and sediment transport across steep slopes, and erosion from drainage channels in correlation with burn areas. Implementation of the prescribed trail treatments will mitigate potential risk to trail infrastructure and reduce further erosion and sediment transport. Additional treatments are proposed at Stumpy Meadows Campground and Black Oak Campground to control exposed hazardous waste. The risk assessment for trails and recreational sites showed areas of very likely probability of damage with major consequences resulting in a very high risk for areas with life/safety threats.

Temporary closures along with extensive warning signage are recommended for immediate implementation in order to inform public users of the known and unknown hazards present within the burn area.

Appendices

A Example of Signs

B.. King Fire Trails Storm Inspection and Response Plan

C. References

RS1= Recreation Sign 1 (example):



RS2= Recreation Sign 2 (example): Entering Burn Area- Stay on Trails and Roads



RS3= Recreation Sign 3 (example): Area Closed



Appendix B: King Fire Trails Storm Inspection and Response Plan

A. Storm Inspections and Response

A dedicated team will be made available to meet the 4 objectives of the storm inspection and response plan. Team members will:

1. Identify and record hillslope erosion that may be causing damage to the trail.
2. Monitor and record the effectiveness of the water bars, rolling dips, off trail drains, swales and other drainage features to help determine if further action is needed.
3. Perform limited maintenance of treatments as needed by using hand tools to remove sediment and debris from the drainage features to maintain functionality during the fire recovery period.
4. Identify segments of trail where illegal motorized use is occurring and exacerbating storm damage.

B. Timing

Monthly monitoring and post-storm event monitoring will begin immediately after implementation of the trail treatments and last through May, 2015.

C. Storm Inspection Areas

There are two distinct zones within the burn perimeter where trails will be storm-proofed due to fire damage: The Southern Fire Zone and the Rubicon River Drainage. Access to each of these zones requires careful driving through severely burned areas where roads may be administratively closed to the public due to hazards caused by rolling debris, washouts, etc. It is required that those performing the storm inspections contact the Georgetown Ranger District for up to date road conditions. Table 1 should be used in conjunction with the implementation map so that the inspection team can plan the best access to each trail. Generally, the Rubicon Drainage Zone will be accessed from the Georgetown Ranger District via the Wentworth Springs Road (13N28) and the Eleven Pines Road (14N08). With the exception of the 13E19 Trail which can be access by the Eleven Pines Rd. on the Pacific District, the Southern Zone will be accessed from the town of Pollock Pines via the Forebay Road to the 12N34 Road to the 12N54 Road. Access to the Poho Ridge area from Georgetown has been hampered due to the loss of the Brush Creek Bridge to fire damage.

Table 1 Storm Inspection Zones

Storm Inspection and Response Area	Trails to be Inspected
Rubicon Drainage Zone	13E03, 13E05, 13E13, 13E16, 13E17, 13E24, 14E10, 14E14, 14E09, 14E04, 14E11
Southern Fire Zone	12E15, 12E16, 12E17, 12E18, 12E19, 12E20, 12E21, 12E30, 13E18, 13E19, 11E49

D. Record Keeping:

Inspection logs will be maintained in order to monitor the effectiveness of the storm-proofing treatments applied during BAER Implementation. Photos will be taken of each site and inspectors will record the following in field notes:

- 1.Number of drainage structure failures
- 2.Type of storm event that mobilized material (Duration and intensity)
- 3.Size and extent of hillslope material mobilized by the storm event
- 4.Evidence of damage to trail infrastructure due to treatment failure or defect.

E. Safety:

Trail inspection and response shall only take place under circumstances where work can be completed in a safe and timely manner. Ensure that work leaders and supervisors know the types and locations of the stabilization treatments (Refer to the BAER Team Recreation/Trails specialist report). Communication and safety plans (including weather reports) should be reviewed by the work leaders before each inspection.

- 1.Work is not to be completed until at least 24 hours after the storm event.
- 2.All inspection teams will consist of at least 2 people working together at all times.
- 3.A job Hazard Analysis outlining the existing hazards will be signed by all personnel prior to inspections.

Appendix C: References

BAER Guidance Paper, Hazard Trees, April 2013

Forest Service Manual (FSM) 2523 - EMERGENCY STABILIZATION - BURNED-AREA EMERGENCY RESPONSE (BAER)

Forest Service Manual ID 2520-2012-1

Forest Service Handbook (FSH) 2309.18; Trail Management Handbook

EM7100 – 15; Sign and Poster Guidelines for the Forest Service

Watershed, Soil, Air Management, 0625 1801—SDTDC, December 2006, figure 110, page 181