

Sequoia National Forest
Burned Area Emergency Response (BAER)
Post-Fire BAER Assessment



BAER Information: (415) 881-1871

ROUGH SOUTH ZONE POST-FIRE BAER ASSESSMENT REPORT SUMMARY



FS-2500-8 Burned-Area Report: Watershed Analysis, Condition, and Response

On July 31, 2015, the [Rough Fire](#) started by lightning on the High Sierra Ranger District within the steep northern side of the Kings River drainage. By October 6, the wildfire burned approximately 141,100 acres on the [Sierra National Forest](#) (NF) and [Sequoia National Forest](#) (NF), 9,400 acres on the [Kings Canyon National Park](#), with the remaining acres burned on state and private lands for a total of approximately 151,600 acres.

The fire burned within the Kings River from the confluence of the North Fork Kings River in the west (near Pine Flat Reservoir) to the east just beyond Cedar Grove in Kings Canyon National Park. The fire burned north and south of the Kings River, extending approximately one mile north of Lost Meadow on the Sierra NF and as far south as McKenzie Ridge near Sequoia Lake in the south on the Sequoia NF.

Two analysis areas for the Rough Fire were delineated by Burned Area Emergency Response (BAER) assessment teams. One area is called the North Zone of the Rough Fire and is comprised 30,800 acres that burned on the north side of the wildfire and is located on the Sierra NF. This area was surveyed and assessed by the Sierra NF BAER team. Their analysis, findings, and recommended BAER treatments and measures are included in a separate Forest Service BAER report that was released on October 25 and posted on InciWeb at <http://inciweb.nwcg.gov/incident/article/4625/30293/>.

The other BAER analysis area, called the South Zone of the Rough Fire, burned approximately 110,300 acres on the south side of the Rough Fire on the Sequoia NF. This area was surveyed and assessed by the Sequoia NF BAER team.

Both BAER teams evaluated the burned watersheds to determine post-fire conditions, values-at-risk such as human life and safety, property, and critical natural and cultural resources, emergency

determination on those values and the potential for increased post-fire flooding, sediment flows, rock slides, and hazard trees. The teams also recommended emergency stabilization treatments and actions to reduce the risks to those values.

The Sierra NF BAER assessment team's analysis of the burned areas within the South Zone of the Rough Fire and recommended emergency treatments are documented in a separate Forest Service (FS) Burned-Area Report. This report was recently submitted to the Pacific Southwest Region (Region 5) Regional Forester by the Forest Supervisor for the Sequoia NF. The following are a summary of the BAER team's burned area analysis for the South Zone of the Rough Fire:

- 11 watersheds were analyzed and modeled to compare pre-fire conditions to post-fire predicted response: Patterson Creek-NF Kings River, Rancheria Creek-NF Kings River, Converse Creek-Kings River, and Verplank Creek-Kings River, Mill Flat Creek, Tenmile, Lower Middle Fork Kings River, Boulder Creek-South Fork Kings River, Big Meadows-Boulder Creek, Lightning Creek-South Fork Kings River, and Lewis Creek-South Fork Kings River watersheds. The highest changes were found in the Mill Flat Creek and Converse Creek sub-watersheds which showed increases in post-fire run-off by 72% and 61% respectively.
- There are 637 miles of ephemeral streams, 373 miles of intermittent streams and 293 miles of perennial streams.
- There are 170 miles of roads and 50 miles of trails.
- There are 28,173 acres of water repellent soils.
- There are 34,394 acres with high and very high hazard ratings for soil erosion, 66,031 acres with moderate ratings for soil erosion, and 23,147 acres with low hazard ratings for soil erosion.
- There are about 103,128 (68%) acres of unburned/low soil burn severity, 41,943 (28%) acres of moderate soil burn severity and 6,031 (4%) of high soil burn severity in the Rough Fire that were analyzed by both BAER teams.

The different soil burn severity categories reflect changes in soil properties and are a key element BAER specialists use to determine if post-fire threats exist. The identified soil burn severity levels become a baseline for resource specialists to monitor changes in soil hydrologic function and vegetative productivity as the burned watersheds recover.

High and moderate soil burn severity categories have evidence of severe soil heating and the consumption of organic material. Soil seedbank and water infiltration characteristics are also impacted in areas that have burned at high or moderate severity. Natural recovery is slower where little or no vegetative ground cover remains, and increased surface water runoff will result in increased soil erosion at these sites. The low to very low soil burn severity areas still have good surface soil structure, intact fine roots and organic matter, and should recover more quickly once revegetation begins and the soil cover is re-established.

The Rough Fire consumed a wide variety of vegetation across both sides of the Kings Canyon Gorge. Kings Canyon is a very steep drainage with a large elevation gain resulting in long drainage lengths. The fire burned from blue oak savanna ecosystem type at 1,000 feet elevation to sub-alpine forest at over 10,000 feet elevation, with chaparral, live oak forest, black oak forest, ponderosa pine forest, mixed

conifer forest, giant sequoia groves, montane meadows, and red fir forest, in between. Various riparian plant communities are also found along rivers, streams and within meadows.

Identified Values-at-Risk, Threats, and Emergency Conditions

Threats to the values-at-risk identified below result from the potential for increased water flows, loss of water control, increased sediment delivery, debris flow occurrence, rock fall, and incursion of invasive weeds. Emergency post-fire conditions for the Rough Fire South Zone were identified by the BAER team for the following values-at-risk:

1. Threats to forest visitors include the Mill Flat Campground at the confluence of Mill Flat Creek and the South Fork Kings River, Davis Road (12S01) and other Level 2 FS roads, and Boole Tree Trail (28E02), Deer Cove Trail (30E01), Kanawyer Trail (30E04), Yucca Point Trail (28E01);
2. Threats to property including forest system roads, trails include the Davis Road (12S01) and other Level 2 FS roads, and Boole Tree Trail (28E02), Deer Cove Trail (30E01), Kanawyer Trail (30E04), Yucca Point Trail (28E01) are at a very high risk to users;
3. Threats to critical natural resources from invasion of noxious weeds spreading within the Rough burned areas and impacting natural vegetative recovery; and
4. Threats to critical cultural resources from destabilization, erosion, and looting.

Emergency Stabilization Treatments

Treatment Objectives

The BAER assessment team's emergency stabilization objectives for the burned areas are to protect, mitigate and reduce the potential for identified post-fire threats, including increased soil erosion/sediment yield and water runoff on steep slopes, to:

1. Human life, safety, and property within and downstream of the burned area;
2. Forest Service infrastructure and investments such as roads and trails;
3. Critical natural and cultural resources; and
4. Native and naturalized plant communities from new noxious weed infestations.

In addition to on-Forest efforts to reduce the threats to National Forest values and resources, the BAER team and the Forest will warn users of Forest Service roads and trails of hazards present in the burned area, and communicate and coordinate with other agencies such as the National Park Service, National Resource Conservation Service (NRCS), National Weather Service, California Department of Transportation, and counties to assist private entities and communities including private residents, domestic water suppliers, hydroelectric infrastructure managers, and public utilities to achieve post-fire recovery objectives.

The following post-fire emergency stabilizations measures and treatments have been approved:

- Storm-proof and stabilize 74 miles of level 2 FS transportation roads with improved water drainage structures and features to prevent damage resulting from post-fire watershed conditions such as soil erosion and storm water run-off, public safety hazards to improve the safety of forest visitors and employees. Conduct storm patrols to monitor roads and drainage structures within the burned areas.
- Storm-proof and stabilize burned area hiking trails with improved water drainage structures and features to prevent damage resulting from post-fire watershed conditions. Close trails, and/or install hazard warning signage along trails affected by the fire as part of an area closure. Conduct post-storm inspection of problem areas with emergency repairs if needed.
- Reduce the potential for impaired vegetative recovery, and the introduction and spread of invasive weeds by conducting early detection surveys, rapid response eradication of noxious weeds along areas disturbed by fire suppression activities (50 miles of dozer line construction), equipment concentration points (14 sites), high and moderate soil burn severity areas near these fire suppression disturbed areas, and other high priority areas.
- Install burned area warning signs to caution forest visitors recreating within the burned areas.
- Consider continuing temporary forest, road and trail closures with signage to protect public users of Forest Service System lands and recreation sites, including the temporary closure of Mill Flat Campground.
- Continue to communicate risks to the public, community groups, and cooperating agencies.
- Continue to work and coordinate with interagency cooperators, partners, and affected parties and stakeholders.
- Assist cooperators, including local, state, and federal agencies with the interpretation of BAER assessment findings to identify potential post-fire impacts to communities and residences, domestic water supplies, and public utilities (including hydropower facilities, power lines, county roads, and other infrastructure).

SPECIAL NOTE: *Everyone near and downstream from the **Rough Fire** burned areas should remain alert and stay updated on weather conditions that may result in heavy rains over the burn scar. Flash flooding may occur quickly during heavy rain events. Current weather and emergency notifications can be found at the **National Weather Service, San Joaquin Valley/Hanford Office** (www.wrh.noaa.gov/hnx/) website.*

Rough Post-Fire BAER Assessment information is available at <http://inciweb.nwcg.gov/incident/4625/>.

