

# Shasta-Trinity National Forest

## Burned Area Emergency Response (BAER)

### Post-Fire BAER Assessment



BAER Information: (415) 881-1871

#### SOUTH COMPLEX POST-FIRE BAER ASSESSMENT REPORT SUMMARY

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

The [South Complex](#) wildfires started on August 1, 2015, and burned about 29,387 acres. On September 12, 2015, the complex was 95% contained. The wildfires burned in the South Fork Trinity River watershed. 26,961 acres burned predominantly within the Hayfork Ranger District on the [Shasta-Trinity National Forest](#) near the town of Hyampom. 664 acres burned on the Lower Trinity Ranger District on the [Six Rivers National Forest](#). The remaining acres burned on private land.

A [Forest Service Burned-Area Report](#), which included the BAER assessment team's analysis of the burned areas within South Complex and recommended emergency treatments, was recently submitted to the Pacific Southwest Region (Region 5) Regional Forester by the Forest Supervisor for the Shasta-Trinity National Forest:

- ✓ 5 sub-watersheds were analyzed and modeled to compare pre-fire conditions to post-fire predicted response.
- ✓ There are 20 miles of intermittent streams and 50 miles of perennial streams within the burned areas.
- ✓ There are 83 miles of National Forest System roads, 2 miles of county roads, and 7 miles of non-motorized trail within the burned area.
- ✓ There are 4,525 acres of water repellent soil.
- ✓ There are 13,602 acres with high or very high hazard ratings for soil erosion, 9,786 acres with moderate ratings for soil erosion, and 6,024 acres with low hazard ratings for soil erosion.
- ✓ There are 773 acres of high soil burn severity (3%), 5,735 acres of moderate soil burn severity (19%), and 22,880 acres of low/unburned soil burn severity (78%).

The BAER soil burn severity map identifies areas and classes of impaired soil function and is the key element in determining if threats exist. It is a map of fire-caused changes in soil characteristics that affect the soil hydrologic function. The identified soil burn severity levels in the burned areas of a wildfire become a baseline for resource specialists to monitor changes in soil hydrologic function and vegetative productivity as the burned watersheds recover.

Soil burn severity patterns varied for the South Complex wildfires due to different topographies and fire behavior. High and moderate soil burn severity classes have evidence of severe soil heating in a patchy distribution. Soil seedbank and water infiltration characteristics are impacted in the areas that have burned repeatedly for the high and moderate soil burn severity areas. So natural recovery of these areas is slower where little or no vegetative ground cover remains along with high water run-off and soil erosion. The low to very low soil burn severity areas still have good surface structure, contain intact fine roots and organic matter, and should recover in the short-term once revegetation begins and the soil surface regains its cover.

#### 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, increased debris flows, the establishment of invasive weeds, falling hazard trees, and rock-fall exist. Emergency post-fire conditions for these identified values-at-risk were assessed by the BAER team.

Human Life and Safety – There is a high risk to forest visitors and Forest Service employees within and adjacent to the burned areas along roads, trails, and near recreation sites due to the increased threat of falling trees, rocks, flash floods, and debris flows.

An intermediate risk is expected to forest visitors (recreational users, fishing, and swimming) who utilize Big Slide and Slide Creek Campgrounds to gain access to Eltapom Creek and the South Fork Trinity River downstream from Eltapom Creek. Burned areas in upper Eltapom Creek pose a threat of debris flows and flash floods.

There is a high risk to forest visitors using the system trails in the Pattison Peak and Rays Peak areas due to the threat of falling hazard trees, debris sliding, dry ravel, and burned stump holes.

A high risk is expected to private residents within and adjacent to the fire perimeters. The potential for flash flooding, debris flows, falling rocks and trees poses the threat loss of ingress and egress to landowners if road systems are impacted.

Several private residences exist within or adjacent to the wildfires with primary ingress and egress routes that cross areas which may be impacted by post fire conditions.

Property: Roads – There are intermediate to high risks expected to road prisms due to an increased threat of erosion damage from accelerated storm water runoff and velocity across road templates from runoff originating on moderate and high burn severity areas. Secondary threats to adjacent watersheds and fisheries habitat exist from the potential for road erosion and failure.

Property: Trails – A low risk is expected to the trail prisms of the Pattison Peak Trail and Rays Peak Trail. Threats to this infrastructure include increased runoff and erosion and loss of drainage features resulting in deterioration of trail conditions.

Natural Resources: Ecosystem Stability and Vegetation Recovery – A high risk is expected to native and naturalized plant communities due to the threat from the spread of noxious weeds and invasive plant species.

Natural Resources: Wildlife – Low to high risks are expected to critical habitat or suitable occupied habitat for Endangered Species Act (ESA)-listed Coho salmon. High risk is associated with critical habitat located within the Eltapom watershed and low risk is associated with all other critical habitat adjacent to the burned areas. Potential threats include short and long-term modification of suitable and occupied habitat due to channel scouring from increased stream flows, increased sediment, and debris flows. Impacts to water quality include increased sediment and ash. Modifications of streamside vegetation and stream-bank conditions can increase water temperatures due to loss of shading in watersheds.

A high risk is expected to critical habitat and suitable occupied habitat for ESA-listed northern spotted owl from additional tree mortality due to trees that have been stressed by the wildfires. The fires are estimated to have removed about 17% of the suitable owl habitat on National Forest Systems lands and about 21% of the suitable habitat in critical habitat areas within the fire perimeters. Three owl activity centers in the fire perimeters were heavily impacted by the wildfires. It is likely that substantial additional tree mortality will occur post-fire from the stress of the wildfires and drought. Additional suitable habitat will be lost and functionality of at least two owl home ranges may decline as a result. No effective treatments to reverse this mortality are known.

Natural Resources: Water Quality – An emergency threat exists to the water quality of streams due to increased sediment and soil erosion. Threats to streams include increased sediment delivery and elevated water temperatures. Impacts to watershed process and functions that regulate erosion, sediment delivery, and stream shade are expected in areas that burned at moderate to high severity. Threats to water quality can potentially impact beneficial uses that includes habitat for ESA-listed aquatic species and domestic water supply systems.

Natural Resources: Soil Productivity and Hydrologic Function – A low risk has been defined for soil productivity and hydrologic functions. Although very high rates of post-fire soil erosion are expected to occur, an emergency for long-term soil productivity was not caused by direct effects of the wildfire in this fire-adapted ecosystem. Despite high rates of post-fire soil erosion, burned area soils will support recovery of native fire-adapted vegetation in the burned areas.

Cultural Resources – A low risk to cultural resources sites exist from post-wildfire conditions. Threats exist to critical cultural resource values from erosion, falling rocks and trees, and/or vandalism and looting. The probability of damage or loss to cultural resources was determined to be unlikely. No treatments are recommended.

## **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) downstream life and property; 2) Forest Service infrastructure and investments such as roads and trails; 3) critical natural 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 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 Resource Conservation Service (NRCS) to assist private entities and communities including private residents, domestic water suppliers and public utilities to achieve post-fire recovery objectives.

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

- Stabilize the transportation roads system and water drainage structures to prevent damage resulting from soil erosion and storm water run-off, public safety hazards, and improve the safety of forest visitors and employees.

- Storm-proof roads and close portions of trails to the public as warranted until properly stabilized.
- Install barrier rock and informational signage to aid in vegetation recovery and conduct treatment enforcement patrols.
- Reduce the potential for impaired vegetative recovery and the introduction and spread of invasive weeds by conducting detection surveys and rapid response eradication efforts where feasible.
- Conduct storm patrols to monitor roads and drainage structures at risk, maintain and/or repairs any damage to road surfaces, remove sediment and debris from drainage and treatment structures within the burned areas.
- Mitigate hazard trees at BAER treatment locations to provide for worker safety,
- Install burned area warning signs to caution forest visitors recreating within the burned areas.
- 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, roads, and other infrastructure).
- Consider temporary forest closures to protect public users of Forest Service System lands and recreation sites.

**SPECIAL NOTE:** *Everyone near and downstream from the **South Complex** fire 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, Eureka Office** (<http://www.wrh.noaa.gov/eka/>) website.*

**Shasta-Trinity NF Post-Fire BAER Assessment information is available at <http://inciweb.nwcg.gov/incident/4601/>.**

