**Shasta-Trinity National Forest**

# Burned Area Emergency Response (BAER)

**Post-Fire BAER Assessment**

**BAER Information: (415) 881-1871**

## RIVER COMPLEX POST-FIRE BAER ASSESSMENT REPORT SUMMARY

**Mixed soil burn severity on Beartooth Mountain and the New River Drainage**

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

The River Complex wildfires were started by a dry lightning event that began on July 30, 2015. The event caused over 60 new fires in the New River drainage area and adjacent watersheds which eventually burned together to form the complex near the communities of Dailey Ranch, Hoboken and Denny. The River Complex consists of 5 large fires ranging from about 4,000 to 15,000 acres on steep terrain and burning a total of approximately 77,805 acres. 70,354 acres burned on the Shasta-Trinity National Forest and 6,644 acres burned 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 the River Complex and recommended emergency treatments, was submitted to the Pacific Southwest Region (Region 5) Regional Forester by the Forest Supervisors for the Shasta-Trinity and Six Rivers National Forests:

- ✓ 13 watersheds were analyzed and modeled to compare pre-fire conditions to post-fire predicted response.
- ✓ There are 141 miles of perennial streams, 234 miles of intermittent streams, and 42 miles of ephemeral streams within the burned areas.
- ✓ There are 139 miles of roads and 22 miles of trails within the burned area.
- ✓ There are 7,570 acres of water repellent soil.
- ✓ There are 11,682 acres with high hazard ratings for soil erosion, 63,675 acres with moderate ratings for soil erosion, and 2,446 acres with low hazard ratings for soil erosion. Bell Creek, Quinby Creek, and Devils Canyon drainages are expected to receive the highest quantities of increased sediment mostly due to the large amount of acres burned within those watershed basins.
- ✓ There are 2,373 acres of high soil burn severity (3%), 11,916 acres of moderate soil burn severity (15%), and 63,516 acres of low/unburned soil burn severity (82%).

The River Complex burned area has significantly lower relative amounts of moderate and high soil burn severity. The vast majority of the area is a mosaic of unburned and low soil burn severity caused by slow moving under burns and minimal canopy consumption due to alignment of fuels. Patches of moderate and high soil burn severity occurred throughout the burn but are most notable in the Devils Canyon watershed and in the Pine Ridge-Grizzly Camp and Fawn Ridge areas.

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 for BAER analysis considers surface and below-ground factors that relate to soil hydrologic function, water run-off and erosion potential, and vegetation recovery. 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 an increased risk for forest personnel and the general public to be impacted by rolling rocks, flooding, debris flows and/or landslides and hazardous trees.

Property – There is an increased risk to Forest Service roads and wilderness trails, and water diversion and conveyance infrastructure.

Natural Resources: Ecosystem Stability and Vegetation Recovery – An increased 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 – Critical habitat for the Coho Salmon in the New River, Trinity River, Swede Creek, and Devils Canyon Creek are at an increased risk.

Natural Resources: Water – Water resources at risk include water conveyance systems, domestic water infrastructure, water quality, aquatic/riparian habitats, and the New River and Trinity River Wild and Scenic River corridors. Overall soil burn severity was low with isolated pockets of high severity occurring in the Devils Canyon Creek watershed and small catchments. There is a potential for impacts to water conveyance systems and domestic water sources as well as portions of streams located within and below areas that burned at high to moderate severity. No direct channel treatments were recommended based on the low probability of success and slope steepness. Potential concerns with water quality and aquatic/riparian habitat are best addressed through implementation of treatment recommendations for roads and other resources such as fisheries, geology, soils, botany, and recreation.

Natural Resources: Soil Productivity and Hydrologic Function – Risk has been defined for soil productivity and hydrologic functions. Increased rates of post-fire soil erosion are expected in the areas of moderate and high soil burn severity.

Cultural Resources – A 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 moderate.

**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), and counties 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:

- Storm-proof and stabilize the transportation roads system 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.
- Close trails affected by the fire as part of an area closure and install trail erosion structures such as rolling dips, check dams, log erosion barriers, and drainage armoring to maintain natural drainage patterns to maintain trail tread stability during increased flows to prevent further erosion caused by the loss of vegetation and root systems

previously supporting the outer trail edge. Armor key ephemeral drainages at trail crossings with rock or log check dams to dissipate water flow energy across trails and prevent down slope head cutting and trail loss. 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 detection surveys, rapid response eradication efforts where feasible. Apply native seed, weed-free straw and/or wood chips to discourage noxious weed introduction and spread on fire suppression-constructed dozer lines leading into the interior of the wildfires.
- 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, county roads, and other infrastructure).
- Consider temporary forest, road and trail closures to protect public users of Forest Service System lands and recreation sites.

**SPECIAL NOTE**: *Everyone near and downstream from the **River 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/.***