

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



BAER Information: (415) 881-1871

**KANIKSU COMPLEX: TOWER, BALDY, & GREASE CREEK  
 POST-FIRE BAER ASSESSMENT REPORT SUMMARY**



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

Of the seven lightning-caused wildfires comprised within the [Kaniksu Complex](#), three fires were assessed by Forest Service **Burned Area Emergency Response (BAER)** specialists for post-fire watershed conditions and response. The **Tower** (24,700 acres), **Baldy** (500 acres) and **Grease Creek** (700 acres) fires burned a total of approximately 25,900 acres. Approximately 6,700 acres burned on the [Colville National Forest](#) (NF) and 12,100 acres that burned on the [Idaho Panhandle National Forests](#). The remaining acres burned were state and private lands.

A [Forest Service \(FS\) Burned-Area Report](#), which included the BAER assessment team's analysis of the burned areas within the Kaniksu Complex and recommended emergency stabilization treatments, was submitted to the Pacific Northwest Region by the Forest Supervisor for the Colville NF, and to the Northern Region by the Forest Supervisor for the Idaho Panhandle National Forests:

- 4 sub-watersheds in the **Tower Fire** were analyzed and modeled to compare pre-fire conditions to post-fire predicted response: Cee Cee Ah Creek, Goose Creek, Headwaters of Upper West Branch Priest River, and Middle Creek-Pend Oreille River watersheds; 2 sub-watersheds in the **Baldy Fire** were analyzed and modeled to compare pre-fire conditions to post-fire predicted response: North Fork Deep Creek and Sweet Creek-Pend Oreille River watersheds; and for the **Grease Creek Fire**, no analysis was performed due to the amount of low soil burn severity and minimal connectivity of the burned areas to the stream and riparian network within that fire perimeter.
- There are 135 miles of intermittent streams and 36 miles of perennial streams within the **Tower** burned areas; there are .5 miles of intermittent streams and .2 miles of perennial streams within the **Baldy** burned areas;

and there are .7 miles of intermittent streams and .2 miles of perennial streams within the **Grease Creek** burned areas.

- There are 155 miles of NF roads; 12 miles of trail, and 56 miles of snowmobile trails within the **Tower** burned area; there are no roads or trails within the **Baldy** burned area; and there are 2 miles of trail within the **Grease Creek** burned area.
- There are 10,475 acres of water repellent soil within the **Tower** burned area; there are 71 acres of water repellent soil within the **Baldy** burned area; and there are 89 acres of water repellent soil within the **Grease Creek** burned area.
- In the **Tower** burned areas, there are 10,475 acres of a high hazard rating for soil erosion, 10,001 acres of a moderate rating for soil erosion, and 4,226 acres of a low hazard rating for soil erosion; in the **Baldy** burned areas, there are 71 acres of a high hazard rating for soil erosion, 299 acres of a moderate rating for soil erosion, and 144 acres of a low hazard rating for soil erosion; in the **Grease Creek** burned areas, there are 46 acres of a high hazard rating for soil erosion, 43 acres of a moderate rating for soil erosion, and 628 acres of a low hazard rating for soil erosion.
- Of the total 25,900 acres of mixed ownership lands burned within the Kaniksu Complex, 57% of the 24,700 acres burned by the **Tower Fire** are either unburned or have a low soil burn severity, while 34% sustained a moderate soil burn severity and 9% received a high soil burn severity; 86% of the 500 acres burned by the **Baldy Fire** are either unburned or have a low soil burn severity, while 7% sustained a moderate soil burn severity and 7% received a high soil burn severity; and 88% of the 700 acres burned by the **Grease Fire** are either unburned or have a low soil burn severity, while 6% sustained a moderate soil burn severity and 6% received a high soil burn severity.

The different BAER soil burn severity categories are areas and classes of impaired soil functions and are the key element BAER specialists use to determine if threats exist, whether fire-caused changes in soil characteristics exist that affect the soil hydrologic function, and at what level. 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.

High and moderate soil burn severity classes have evidence of severe soil heating. Across wildfire burned areas, these generally occur in a patchy distribution, with some concentrated zones of high burn severity. Soil seedbank and water infiltration characteristics are impacted in areas that have burned at high or moderate severity, especially where there were extended or multiple burning periods. 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.

### **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. Emergency post-fire conditions for these identified values-at-risk were assessed by the BAER team.

#### **TOWER FIRE**

**Tower Fire: Human Life and Safety** – There are varying degrees of increased risk to forest visitors, cooperators, and NF workers and contractors within and downslope from the burned areas along forest roads, trails, snowmobile routes, and dispersed recreation sites due to the increased threat of falling hazard trees, rock-fall,

avalanche potential, increased run-off, flooding, erosion, sedimentation, debris flows and/or hazardous materials introduced to water sources from burnt foot-bridge. The highest identified risks are along roads 312, 659, 1200000, 1920000, and 5080000; at Icy Spring, Kalispell Rock and South Baldy Trail Heads; and on South Baldy (#104-IPNF) and Kalispell Rock (#103-IPNF) Trails.

Tower Fire: Property - Roads – Post-fire conditions and predicted watershed response indicate increased run-off, excessive sedimentation, debris flows, and rock fall will occur with a very high and high risk to forest roads and associated infrastructure that are downslope of high and moderate soil burned severity areas, especially roads 312, 460, 659, 1090, 1137, 1090A, 460D, 460B, 460E, 659A, 659B, 1200000, 1920000, 1920042, 1920050, 1920306, 5080000, and 5080306.

Tower Fire: Property - Trails – There is a very high risks to Icy Springs (#197-IPNF), Squaw Valley (#164-IPNF), Kalispell Rock (#103-IPNF), and South Baldy (#104-IPNF) trails; and an intermediate risks on groomed snowmobile trails on both Colville and Idaho Panhandle National Forests, increased run-off, excessive sedimentation, debris flows, rock fall, and/or falling burned trees will occur in areas that are downslope of high and moderate soil burned severity areas.

Tower Fire: Natural Resources - Hydrologic Function and Water Quality – There is a very high to intermediate risk to hydrologic function from loss of ground cover and coarse woody debris, mass erosion, flooding and debris flows that scour channels below the root structure of the surviving plant communities, and exists to varying degrees in all sub-watersheds with significant moderate to high soil burn severity. The highest threat is within the Mill Creek drainage. There is also a very high risk to water quality in the Mill Creek and Browns Lake areas from ash and sediment input.

Tower Fire: Natural Resources - Soil Productivity – There is an intermediate risk to soil productivity from Off-Highway Vehicle (OHV) users in areas that burned at moderate to high soil burn severity which can result in further loss of organic material, destruction of soil structure, sub-surface compaction and creation of artificial rills and/or gullies. The most effective methods to reduce this potential risk are area closures, patrols, interpretive signage, and protected natural recovery.

Tower Fire: Natural Resources - Ecosystem Stability and Vegetation Recovery – A very high risk is expected to native and naturalized plant communities along roads, hand lines and dozer lines used during fire suppression activities in moderate to high soil burn severity areas due to the establishment or spread of invasive weeds from these activities. There is also an intermediate risk to native vegetation due to OHV intrusions in high and moderate soil burn severity areas. Both of these risks result in reduced native vegetation recovery. OHV use and other disturbances need to be eliminated in certain burned areas until natural recovery occurs.

Tower Fire: Natural Resources - Threatened and Endangered Species (T&E) – There is a very high risk to Whitebark Pine, which is a candidate T&E species, and its habitat due to the loss of a self-sustaining population due to the large area destroyed by the Tower Fire and the moderate to high soil burn severity those habitat areas sustained. As a result, organic soil horizons were destroyed and it is unlikely that cached seeds would have survived the fire.

Due to high risk for water quality concerns in the Browns Lake and Mill Creek watersheds, there is a potential for loss of designated critical habitat for the bull trout, a T&E species, and the westslope cutthroat trout, which is considered culturally significant. These threats exists due to the probability of increased water flows resulting in flooding and excess sedimentation input, compromised water quality and changes in water chemistry due to ash delivery and hazardous materials, changes in water temperature from loss of canopy shading and increased sedimentation, scouring of riparian/aquatic vegetation, and changes in streambed/pool habitat due to geomorphic movement by debris flows, and flushing of individual fish downstream during flood events.

Tower Fire: Cultural Resources – Increased risk exists to cultural and historic sites from looting, due to the burning removal of ground vegetation covering, which are now exposing previously obscured features and

artifacts to potential vandalism and looting; and due to increased threat from increased run-off, soil erosion, flooding, or debris flows causing irreversible damage. Two sites will benefit from erosion control mitigation and from proposed roads, trail and land BAER treatments.

### BALDY FIRE

Baldy Fire: Human Life and Safety – No critical BAER values were identified to be at risk.

Baldy Fire: Property – No critical BAER values were identified to be at risk.

Baldy Fire: Natural Resources – Water Quality and Soil Productivity – Potential threats and intermediate risks exist to the Abercrombie-Hooknose Inventoried Road Area on the Colville NF with increased risks to soil productivity and water quality post-fire conditions and watershed response. Natural recovery is recommended.

Baldy Fire: Natural Resources - Ecosystem Stability and Vegetation Recovery – Intermediate risk are expected to native and naturalized plant communities along roads, hand lines and dozer lines used during fire suppression activities in moderate to high soil burn severity areas due to the establishment or spread of invasive weeds from these activities, resulting in reduced native vegetation recovery.

Baldy Fire: Cultural Resources – No critical BAER values were identified to be at risk.

### GREASE CREEK FIRE

Grease Creek Fire: Human Life and Safety – There are varying risks to forest visitors, cooperators, and NF workers and contractors within and downslope from the burned areas along forest roads and trails due to the increased threat of falling hazard trees, rock-fall, flooding, and sedimentation. The highest identified risks are along Hall Mountain-Grassy Top Hiking Trail (#533-CNF) which is also a feeder trail for the Pacific Northwest Trail.

Grease Creek Fire: Property – High risks exist to trail infrastructure located along the Hall Mountain-Grassy Top Hiking Trail (#533-CNF) due to increased flooding and sedimentation caused by the fire.

Grease Creek Fire: Natural Resources – Water Quality and Soil Productivity – Potential threats and intermediate risks exist to the Grassy Top Inventoried Road Area on the Colville NF with increased risks to soil productivity and water quality post-fire conditions and watershed response. Natural recovery is recommended.

Grease Creek Fire: Natural Resources - Ecosystem Stability and Vegetation Recovery – High and intermediate risks are expected to native and naturalized plant communities along roads, hand lines and dozer lines used during fire suppression activities in moderate to high soil burn severity areas due to the establishment or spread of invasive weeds from these activities, resulting in reduced native vegetation recovery.

Grease Creek Fire: Cultural Resources – No critical BAER values were identified to be at risk.

## Emergency Stabilization Treatments

### Treatment Objectives

The BAER assessment team's emergency stabilization objectives for the Kaniksu Complex burned areas are to:

- Provide for recovery of native vegetation by preventing the establishment and spread of noxious weeds in the moderate and high soil burn severity areas.
- Reduce threats to human life and safety of forest visitors using roads, snowmobile routes, and trails by installing gates and warning signs within the burned areas, stabilizing roads and trails, removing hazard trees, performing storm patrols and response, and removing burnt foot bridge.
- Prevent damage and erosion to any existing heritage sites, and irretrievable loss of archeological information.

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 NF roads and trails of hazards present in the burned area, and communicate and coordinate with the National Weather Service, Northwest Avalanche Center, Natural Resources Conservation Service, Washington Department of Natural Resources, and other federal, state and local agencies and private timber land owners of anticipated post-fire watershed response and associated threats on private and state lands.

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

- Stabilize the transportation road and trail 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.
- Conduct storm patrols to monitor and respond to any roads and drainage structures at-risk, maintain and/or repair any damage to road surfaces, remove sediment and debris from drainage and treatment structures within the burned area.
- Stabilize the soils and protect high risk cultural resources sites from erosion, damage and vandalism by establishing temporary ground cover with weed free shredded mulch or seeding until regeneration occurs naturally.
- Reduce the potential for impaired vegetative recovery and the introduction and spread of invasive weeds by conducting detection surveys, rapid response eradication, and herbicide spraying of noxious weeds where feasible as roadside treatments.
- Remove the Icy Springs Trail Foot Bridge from the creek to reduce the potential for hazardous material to be introduced into the water.
- Mitigate imminent hazard trees at BAER treatment locations to provide for worker safety.
- Install gates and burned area warning signs on roads, trails, and snowmobile routes to caution forest visitors entering and recreating within the burned areas.
- Consider temporary forest closures to protect public users of NF lands.
- 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 state and private lands.
- Conduct implementation monitoring of the effectiveness of the BAER treatments and check that the treatments are functioning properly.

**SPECIAL NOTE:** *Everyone near and downstream from the **Kaniksu Complex** 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, Spokane Office** (<http://www.wrh.noaa.gov/otx/>) website.*

**Colville NF Post-Fire BAER Assessment & Implementation information is available at <http://inciweb.nwcg.gov/incident/4646/>.**

