



Post-Fire BAER Assessment Burned Area Emergency Response (BAER) Information Brief

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Miriam Fire 2500-8 Summary

September 25, 2018
Okanogan-Wenatchee National Forest

FIRE BACKGROUND

The Miriam Fire was detected on July 30, 2018 at approximately 10 a.m. after lightning passed through the area on July 28, 2018. The Miriam Fire is located on the Naches Ranger District of the Okanogan-Wenatchee National Forest 32 miles southwest of Naches, Washington. The fire is burning within the Goat Rocks Wilderness. The fire is east of the White Pass Ski Area, south of Highway 12, and west of the Tieton River. The majority of the wildfire burned in the Goat Rocks Wilderness above Forest Road 1207 and to the southeast of White Pass ski area on the east side of the Pacific Crest Trail (PCT). Along Forest Road 1207, there are dispersed campsites, and Scatter Creek trailhead is located at the end of the road. Forest roads 1207 and 530 are also groomed ski routes in the winter. Scatter Creek Trailhead provides connector trails to the Pacific Crest Trail, a nationally recognized scenic trail that receives heavy use. The North Fork Tieton River and North Fork Tieton River meadows are occupied critical habitat for Bull Trout (*Salvelinus confluentus*), a federally threatened fish species.

On September 21, 2018 the Okanogan-Wenatchee NF Burned Area Emergency Response (BAER) team completed an assessment report of the burned area, and requested approval for initial funding for recommended emergency treatments. The report was submitted to the Pacific Northwest (Region 6) Regional Forester in Portland, Oregon.



FS-2500-8 BURNED AREA REPORT ANALYSIS

Physical characteristics of the burned landscape

Vegetation types: The Miriam fire is dominated by a moist western hemlock (*Tsuga heterophylla*)/ western red cedar (*Thuja plicata*) and an understory plant community that is shade tolerant and associated with moist forest such as Oregon grape (*Berberis nervosa*)/twin flower (*Linnaea borealis*)/vanilla leaf (*Achlys triphylla*)/ wild ginger (*Asarum caudatum*). A variety of springs and slumps created by movement across the slopes have created some small pockets of forested wetlands.

Elevations above 4,500 feet are dominated by rock and subalpine fir, Engelmann spruce, lodgepole pine, mountain hemlock, whitebark pine and a grouse/low huckleberry low shrub plant communities characteristic of high, cold windswept, and high snow accumulation environments. These cool, moist forest types typically have fire return intervals of 150-400 years. Accumulation of large downed wood also characterized the sites which likely had very little understory vegetation.

Dominant Soils: Within the fire perimeter, a majority of the soils are volcanic ash over colluvium derived from andesite. The most common soil group within the burn are Andic Haplocryods (3,163 acres). These soils are highly variable, depth is typically very deep with well drained soils. Soils have a texture of ashy loamy sand to ashy sandy loam.

Geology: The two major geologic types in the fire perimeter was the Russell Ranch Formation and Hogback Mountain mafic rocks. The Russell Ranch formation within the fire perimeter is an elastic subunit consisting mainly of sandstone and mudstone, with minor conglomerate, greenstone and chert. Hogback Mountain mafic rocks are olivine basalt and basaltic andesite rocks created from the eruption of Hogback Mountain, a shield volcano north of Goat Rocks and south of White Pass during the end of the Pliocene through the early Pleistocene. The remaining geologic types are intrusive andesite, alluvium, and landslide deposits from past local activity in the fire area.

Transportation System: Five miles of trails within Goat Rocks Wilderness, and half a mile of the Pacific Crest Trail. Two miles of road that is suitable for passenger cars.

ANALYSIS OVERVIEW

Field assessments were conducted by BAER team members on September 15-19, 2018. Approximately 3% of the area within the fire perimeter burned at a high soil burn severity (SBS), 17% at moderate, and 48% low soil burn severities. Thirty-two percent (32%) of the Miriam burn perimeter was unburned. The following summarizes the BAER team's emergency determination for the identified critical values. Determinations take into account hydrologic modeling information, predicted soil erosion and debris flow potential, field reconnaissance and observation of post-fire hydrologic response.

The Miriam Fire is entirely within the North Fork Tieton River watershed. Increased watershed response is expected in moderate to high burn severity areas. The primary watershed responses of the Miriam Fire area are expected to include: 1) an initial flush of ash; 2) rill and gully erosion in drainages and on steep slopes within the burned area; 3) flash floods with increased peak flows and sediment deposition; and 4) debris flows. The watershed responses are dependent on the occurrence of storm and melt events and should be greatest with initial storm events. The disturbances will become less evident as vegetation is reestablished, providing ground cover and increasing surface roughness.

The primary hydrologic mechanisms of damage are flooding, debris flows, and debris jams. After a field reconnaissance, the BAER team identified the North Fork Tieton River, Hell Creek, Scatter Creek, and two unnamed tributaries of particular concern. The Soil Burn Severity map and modeling coupled with field observations were used to assess the level of threat and risk to the values at risk in and adjacent to the burned area, and to develop treatment recommendations. The combination of moderate and high severities was used to indicate the hydrologic response because it is these severity ranges that produce the majority of the post-fire runoff.

Soil erosion and subsequent sediment increases are predicted throughout and downstream of the burn area. Sediment increases are expected to occur during a rain event of 0.7 inches. These increases will be of short term duration, recovering to pre-fire conditions over time with the worst impacts occurring over the next three years.

IDENTIFIED VALUES AT RISK

The BAER team analyzed the fire-related threats to the values-at-risk below for potential impacts from increased stream flows, loss of water control on trails and roads, increased debris flow risk, increased sediment delivery to streams, establishment of invasive weeds, and habitat degradation for federally threatened species. The team used a risk matrix (Probability of Damage or Loss and the Magnitude of Consequences) to evaluate the risk level for each value identified during the BAER assessment. The team has identified the following post-fire threats to values at risk.

Human Life and Safety

The Miriam Fire is surrounded by the greater Naches and Yakima communities who use National Forest System lands for a variety of uses such as recreation, hunting and fuelwood products gathering. Interstate 12 is heavily used as a travel corridor to winter skiing opportunities along the Interstate 90 corridor. The post-fire environment within the Miriam Fire include increased threats to public safety as a result of potential hazard trees, increased debris flow and potential run-off. Threats to human life and safety exist along Forest Roads 1207 and 530, along the Pacific Crest Trail, and at various trailheads, dispersed campsites and day use areas. Mitigation of danger trees along FS Road 1207 and 530 occurred during fire suppression efforts. However, it is anticipated that trees may continue to fall during the winter of 2018-2019. Additionally, hazards may still exist along trails, especially within the Goat Rocks Wilderness.

Property

The Miriam Fire has 2 miles of National Forest System roads (FSR) and 5 miles of National Forest System trails within the burn perimeter. All 5 miles of trails occurs within the Goat Rocks Wilderness and approximately 0.5 miles is designated as Pacific Crest Trail, a nationally designated scenic trail. Post-fire conditions include the increase in hazard trees along trails, at trailheads, dispersed campsites and day use areas. Post-fire conditions along roads include increased sediment and debris flow, increased winter runoff into transportation drainage features. Within the Miriam Fire, there are several transportation and recreation investments (bridges, culverts, trailheads) that can be compromised if there is significant runoff events, diverting water, damaging road prisms, destroying tread along trails and eroding campsites.

Natural and Cultural Resources

The Miriam Fire includes pristine wilderness vegetation communities within the Goat Rocks Wilderness, unique habitats such as freshwater emergent wetlands and mature forests, and habitat for unique fauna and flora species including the federally threatened bull trout, federal candidate white bark pine, and the federally threatened northern spotted owl. Higher elevation habitat include unique subalpine forests. The North Fork Tieton River provides federally designated critical habitat for Bull Trout, and various creeks (Miriam, Hells) all drain into the North Fork Tieton River, which feeds Clear and Rimrock Lakes. These resources provide important ecological values for plant, wildlife and human use. Natural resources within the Miriam Fire are at risk from elevated watershed responses, and the introduction of non-native noxious weeds into areas not previously infested. Non-native noxious weed infestation reduces the diversity and resiliency of native communities for both flora and fauna. Altered ecological systems can contribute to changes in vegetation communities, altering fire regime and decreased ecological resiliency. Reduced water quality, increased soil erosion and decrease ecological function can result. All of these changes can have considerable effects on wilderness characteristics of the Goat Rocks Wilderness.

The surrounding landscape is also important for cultural properties and Native American sacred sites on National Forest System lands. The Miriam Fire area is attributed to the Cowlitz Klickitat Band of the Yakima Indian Nation and the area has been used by native people for at least 10,000 years. The area continues to be used today by all people for the various botanical resources available (i.e., huckleberry, mushrooms, cedar), as well as the biological resources available (i.e, hunting and fishing opportunities). Currently known cultural resources are not at risk to the post-fire threats. However, unknown or unrecorded cultural resources can become exposed as a result of post-fire events.



RECOMMENDED EMERGENCY TREATMENT

Objectives

The primary objective of the Burned Area Emergency Response report is to recommend reasonable and necessary actions to protect, reduce and minimize threats to human life, safety, property, and to prevent unacceptable loss to cultural and natural resources on National Forest System lands from “imminent post-wildfire threats” (FSM 2523.02). The timely application of the proposed treatments is expected to substantially reduce the probability of damage to the critical values identified in the section above. Recommended emergency treatment objectives include the following:

Land Treatments

Promote the recovery of native plant communities in the burned area by minimizing the spread of non-native noxious weeds.

Channel Treatments

No channel treatments proposed

Road and Trail Treatments

- Protect road and trail investments from potential infrastructure damage due to elevated post-fire runoff.
- Reduce potential sediment delivery into the North Fork Tieton River degrading water quality into Clear and Rimrock Lakes and critical habitat for the Bull Trout.

Protection and Safety Treatments

- Protect human life and safety of recreationists by increasing awareness of post-fire hazards. Installation of warning signs along trails, at trailheads, dispersed campsites and at White Pass Ski resort immediately adjacent to the burned area.
- Protect human life and safety from post-fire hazards through coordination with partners, and other federal, state, county and local jurisdictions.
- Minimize hazards to employees by mitigating hazard trees at specific locations where trail/road treatments are occurring.

MONITORING NARRATIVE

Treatment monitoring will occur as part of the treatment for noxious weeds, roads and trail treatments. No additional funding is requested specifically for monitoring.