

Twisp River Fire: BAER Briefing



November 15, 2015

Okanogan-Wenatchee National Forest
215 Melody Lane
Wenatchee WA 98801



Fire Background

The Twisp River Fire started on August 19, 2015 and burned 11,220 acres in the Twisp River watershed in central Washington. Of the total fire area, 4,948 acres were on National Forest System lands and 1,469 acres burned on private lands. Approximately 60 percent of the Myers Creek subwatershed burned at moderate or high soil burn severity.



The Central Washington Burned Area Emergency Response (BAER) team on October 15 submitted a request for \$23,400 for risk-mitigation projects to improve road drainage, install Automated Local Evaluation in Real Time (ALERT) storm warning systems, initiate storm patrols, and install burned area hazard signs and gates.

Surface erosion and mass wasting are inherent hillslope processes accelerated by disturbance, principally by wildfire or intense precipitation and high runoff. Erosion generally becomes accelerated when effective ground cover and protective forest canopy have been removed, or when runoff is locally concentrated.

The risk of debris flows can be high on steep slopes. Shallow soils on steep slopes such as Myers Creek, in first- and second-order headwater drainages, are most prone to such hazards. The probability of debris flows is typically relative to the occurrence of heavy precipitation, and this can be exacerbated by the post-fire loss of forest canopy and diminished root strength. Heavy precipitation and runoff from seasonal storms in a post-fire area can cause debris-laden flows in steep drainageways and channels, with sediment and other debris routed downslope.

There are contiguous patches in the fire area where soil burn severity was moderate to high; notable locations exist on the upper slopes of Myers Creek. The potential is very high for accelerated erosion transporting sediment to streams, and the cumulative bulking of eroded materials from these slopes – combined with the deposits that now exist in the channel – will probably magnify the effect of runoff and flooding to the

stream channel by an order of magnitude. Property and infrastructure such as roads below these drainageways are at risk of damage if major runoff occurs, particularly at the mouth of Myers Creek. Within the burned area, there is increased probability of erosion, mass wasting, and sediment delivery to streams, mostly from the Myer Creek portion of the fire area.

Human life and safety are at increased risk on all roads in the burned area; hazards include falling rocks or trees in roadways, blocked culverts, and debris-laden flows that could deposit sediment on roadways or remove parts of the roads. Flooding and debris flows could also cause problems on sections of Forest Road 4410.

Homes in and adjacent to the burned area are at increased risk from flooding and debris flows. Residences adjacent to stream channels are at elevated risk of flooding.

Water quality in the area could be negatively affected by ash, sediment, and debris. The Twisp River supports runs of federally listed Upper Columbia River summer steelhead (threatened), spring Chinook salmon (endangered), bull trout (threatened), and their designated Critical Habitat. The Twisp River provides spawning and rearing habitat for both steelhead and spring Chinook.

Based on peak flow calculations and hill slope erosion models of the Twisp River Fire, there is increased probability of erosion, mass wasting, and sediment delivery to the Twisp River. The highest risk is in the Myer Creek area of the burn, a 900-acre catchment tributary of the Twisp River. The probability of fine sediment or a debris-laden flow reaching the Twisp River is estimated at 90-100 percent within the next 1-3 years. The magnitude of consequences, though, could be relatively low – consequences including damage to critical fisheries resources resulting in considerable or long-term effects.

Erosion in some areas will result in a long-term loss of soil productivity. Natural recovery of ground cover vegetation is likely over the next 3-5 years, but in areas that were severely burned, pre-fire conditions may not be restored until a new forest stand is established.

Planned Forest Service emergency treatment projects within the Twisp River Fire area focus on the safety of roadway travel, within recreation sites, and along trails within and downstream of the burn area.

The Forest Service will coordinate with county governments, the Natural Resources Conservation Service, and the National Weather Service to provide information about the increase in flood risk to those living below the fire area, along with information about the risks of traveling on county and forest roads. Post-fire work will also include temporary area closures, fire closure signs, and installation of precipitation monitoring stations and ALERT stations.

Other planned projects will ensure safe access within the drainages and reduction of road-related hazards. Some road work, e.g. pulling culverts on Forest Road 4410 and installing trash racks, will reduce the risk of runoff downstream of the fire and address safety issues in locations where debris flows could meet drainage structures.

Questions?

Check for updates on the BAER team website at CentralWashingtonFireRecovery.info or call the Okanogan-Wenatchee National Forest headquarters office at 509-664-9200.