

BAER Scientists and Specialists Assess Yeti Fire – What They Do

A Forest Service Burned Area Emergency Response (BAER) team is assessing federal lands burned in the McKinney and Yeti fires, with the goal of keeping visitors and employees safe while recreating and working in the Klamath National Forest. After a fire, loss of vegetation exposes soil to erosion; water runoff may increase and cause flooding, sediments may move downstream and damage houses or fill reservoirs and put endangered species and community water supplies at-risk. BAER team assessments focus on emergency actions that are necessary to protect human life and safety, property, critical cultural resources, and critical natural resources such as soil productivity, hydrologic function, and water quality. Emergency actions are intended to minimize any further damage during rainstorm events.

BAER hydrologists, soil scientists, geologists, road engineers, recreation specialists, biologists, botanists, archeologists, and GIS specialists are currently assessing the condition and response of the watersheds within the McKinney and Yeti burned areas. These specialists evaluate critical natural and cultural resources, and critical infrastructures such as forest roads, trails, and campgrounds that could be at risk during a major storm event.

BAER scientists evaluate the burned watersheds to determine post-fire effects to soil and watershed conditions. This includes testing whether the soil repels water (aka hydrophobic), the amount of soil cover left, soil structure damage, and organic matter left in the soil. Post-fire burned areas of hydrophobic soils along with destruction of soil structure can act as a “tin roof” by reducing the infiltration capacity of soils, leading to enhanced overland flow and accelerated soil erosion.

Below, these three photos show Forest Service Soil Scientist Eric Nicita and Hydrologist Jesse Merrifield assessing soil hydrophobicity (water repellency) and changes to soil structure in a high soil burn severity (SBS) burned area. Jesse digs a trench and drops water on the soil at multiple depths to determine how deep and how strong the layer of water-repellant soil may be.



When burned watersheds and channels are loaded with unsorted, unconsolidated rocky materials, it creates a post-fire risk where that material is available to be transported downstream as a destructive debris flow during a major rainstorm event.

In this photo below, BAER Geologists Yonni Schwartz and Dennis Veich assessed these steep (90%) burn slopes below China Peak within the Yeti burn area for potential initiation of debris flows during major rainstorm events.



This photo below shows moderate and high soil burn severity areas on extremely steep slopes (80% and above) below China Peak.



During Yonni and Dennis' Yeti burned area assessment, they found some slopes and drainages loaded with unsorted, unconsolidated materials comprised of rocks of all sizes including boulders, cobbles, gravels, and fine sediments.

In the photo below, West Grider Creek is loaded with rocks of all sizes, including boulders and cobbles.



In this photo Dennis assesses potential increased sediment and debris flow impacts to road crossings and culverts in the Yeti burned area.



Another BAER specialist who conducted field surveys within the McKinney and Yeti burned areas to assess habitat conditions of critical aquatic species was Forest Service Fisheries biologist Maija Meneks. She captured these next two photos during her August 21, 2022, Yeti burned area assessment. Her photo below shows a downstream view of West Grider Creek from Forest Service Road 46N56 crossing.



While this photo shows an upstream view of West Grider Creek from Forest Service Road 46N56 crossing.



In this last photo, Forest Service Engineer Sam Marano and Forest Service Botanist Erin Lonergan are getting ready to assess dozer lines and Forest Service roads in the Yeti burned area for possible invasive weeds that could impact native plant communities and damage natural resource vegetative habitat.



BAER SAFETY MESSAGE: *Everyone near and downstream from the burned areas should remain alert and stay updated on weather conditions that may result in heavy rains and increased water runoff. Flash flooding may occur quickly during heavy rain events – be prepared to act. Current weather and emergency notifications can be found at the **National Weather Service** websites: www.weather.gov/sto/ and www.weather.gov/eka/.*