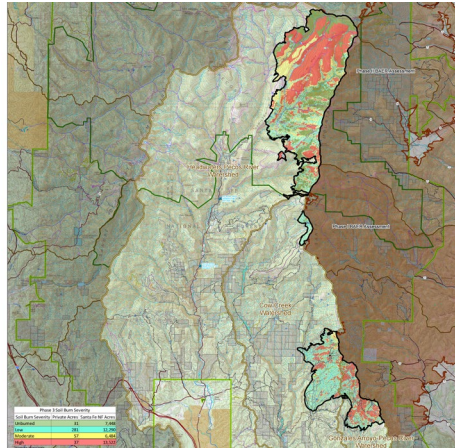




PHASE III HERMITS PEAK-CALF CANYON POST-FIRE BAER SOIL BURN SEVERITY MAP RELEASED



BAER team specialists completed data gathering and analysis for Phase III of the Hermits Peak-Calf Canyon (HPCC) burned area on June 29, 2022. The soil burn severity (SBS) map analyzes 40,150 acres for the *Pecos River*, and portions of *Cow Creek* and *Gonzales Arroyo-Pecos* watersheds. The map and the data display SBS categories of unburned/very low, low, moderate, and high. In the Phase III area, 50% of the acres are either unburned/very low or low SBS, while 16% are moderate SBS and 34% are high SBS.

The land ownership for the Phase III SBS assessment is:

- 39,744 acres on the Santa Fe National Forest (NF), and
- 406 acres of private land.

The BAER assessment team used preliminary remote sensing data based on satellite imagery from June 15 and June 17, 2022. Helicopter reconnaissance photos from June 23, 2022, were also used for the Headwaters Pecos River field verification from earlier phases which was used to further refine SBS thresholds. Field-validated data was only collected on National Forest System (NFS) lands. This information was then used to extrapolate SBS off NFS lands.

The BAER team and the US Geological Survey (USGS) use the SBS map as a tool to estimate post-fire erosion, including the potential for subsequent sediment delivery, stream flows and debris flow.

The BAER assessment team also coordinates with other local and federal agencies such as county and state officials, Natural Resources Conservation Service (NRCS), National Weather Service (NWS), and USGS to share information about burned watershed conditions and their predicted response during certain rain events.

The SBS map is an estimate of fire effects on soils and not a measure of direct effects to vegetation. SBS characterizes the soil surface and below-ground impact, whereas effects on vegetation are estimates of mortality based primarily on changes in vegetation canopy. The Rapid Assessment of Vegetation Condition after Wildfire (RAVG) program produces data describing post-fire vegetation conditions on NFS lands. Changes in overhead and understory vegetation canopy are often used as initial indicators of overall burn severity, but do not necessarily coincide with SBS.

Changes in soil cover, water repellency, and soil physical/biological conditions guide the interpretations to determine the severity burn level of the soil. Water repellency can occur naturally in soil and may change as a function of fire. Fire can increase the strength and thickness (or depth) of water-repellent layers in soil, considerably affecting post-fire water runoff and possibly extending time for recovery of the burned area.

Soil burn severity indicators can be found within the Rocky Mountain Research Station's *General Technical Report 243 – Field Guide for Mapping Post-Fire Soil Burn Severity* posted at https://www.fs.fed.us/rm/pubs/rmrs_gtr243.pdf.

Low SBS generally occurs where surface organic layers are not completely consumed and are still recognizable. Structural aggregate stability is not changed from its unburned condition, and roots are generally unchanged because the heat pulse below the soil surface was not great enough to consume or char any underlying organics. The ground surface, including any exposed mineral soil, may appear brown or black (lightly charred), and the canopy and understory vegetation will likely appear “green.” Lower risk for accelerated runoff, erosion, flooding, and debris flows is expected within and below these areas compared to moderate and high SBS.

In areas with moderate SBS, up to 80% of the pre-fire ground cover (litter and ground fuels) is consumed. Fine roots may be scorched at or near the surface but are rarely completely consumed over much of the area, large roots are intact. The color of the ash on the surface is generally blackened with possible gray patches. There may be potential for recruitment of effective ground cover from scorched needles or leaves remaining in the canopy that will soon fall to the ground. The prevailing color of the site is often “brown” due to canopy needle and other vegetation scorch. Soil structure is generally unchanged. Where greater amounts of reduced soil cover and increased water repellency occur, increased overland flow of water from precipitation is expected, most notably in locations where the overstory canopy no longer exists.

High SBS occurs where all or nearly all the pre-fire ground cover and surface organic matter (litter, duff, and fine roots) are consumed, and charring may be visible on larger roots. The prevailing color of the site is often “black” due to extensive charring. Bare soil or ash is exposed and susceptible to erosion, and aggregate structure may be less stable. White or gray ash (up to several centimeters in depth) indicates that considerable ground cover or fuels were consumed. Black charred soil or degraded powdery soil can be seen beneath the thick ash layers. Sometimes very large tree roots are entirely burned extending from a charred stump hole. Soil is often gray, orange, or reddish at the ground surface where large fuels were concentrated and consumed.

Generally, there is 100% tree mortality in high SBS, and tree recovery will take many years without planting. In high SBS, the exposed bare soil is very prone to post-fire impacts. Rain events on damaged soil can cause excessive soil erosion, resulting in higher volumes of sediment delivery to adjacent creeks and rivers. There is increased likelihood for flooding and debris flows. These threats can individually or cumulatively increase the risk to human life and safety, property, infrastructure, and important critical natural and cultural resources.

The Phase III HPCC Fire soil burn severity map can be downloaded at the “Hermits Peak-Calf Canyon Post-Fire BAER” InciWeb site (<https://inciweb.nwcg.gov/incident/8104/>) as a JPEG or PDF version under the “Maps” tab.

Additional basic information about understanding more about soil burn severity, see: [Post-Fire Effects-- Understanding Soil Burn Severity - InciWeb the Incident Information System \(nwcg.gov\)](#).

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

Hermits Peak - Calf Canyon Post-Fire BAER Assessment information is available at: <https://inciweb.nwcg.gov/incident/8104/>

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