



## Description of Burn Severity Rankings

**LOW:** The majority of the delineated area has not been significantly altered by the fire. Significant amount of organic layers remain intact or singed leaf litter and duff remain, ash is sparse, small unburned fuels remain, canopy is largely intact, and grass and shrub root crowns are intact. Areas where pre-fire vegetation was sparse, and/or bare soil and rock fragments dominate should be classified as Low severity since there was little fuel to burn to begin with. Low severity burn areas do not contribute to an emergency watershed condition, but they may act as buffer areas to mitigate flood hazards that originate on more severely burned areas. Over-story mortality is generally minimal but can be significant in some cases.

**MODERATE:** This class is the most difficult to define, but think of it as intermediate between Low and High. Its specific characteristics may vary depending on the ecosystem types involved in the fire area. Less than 40 percent of a Moderate severity area exhibits high severity characteristics. During triage, areas of Moderate severity are not as likely to be prime candidates for emergency stabilization treatments, but a rating of Moderate alerts the team to the possibility that the area may be a potential flood-source area. The site is somewhat altered by fire. Over-story mortality may be moderate to high, where brown needles remain but trees are dead.

In forested areas that burn at Moderate severity, litter is consumed and duff is deeply charred or consumed, but recognizable char and some unburned remnants of leaf or needle litter and duff may remain. Ash and char are present. Soil characteristics are not visibly altered in a significant way. Fine and very fine roots and soil structure remains intact in the soil surface. On shrub or grassland sites, canopy is consumed and ash may replace the usually sparse pre-fire leaf litter. Evidence of unburned litter is found under a thin ash or char layer. Shrub skeletons remain but leaves and fine twigs are consumed. Water repellency may be observed in places, but other factors such as remaining ground cover or needle cast potential, or rapidly re-sprouting vegetation will help to mitigate runoff to some extent. Generally, runoff response is significantly accelerated as a result of the fire for the first year only on Moderate severity shrub sites. Runoff in subsequent years is mitigated by vegetation recovery.

A situation that often causes confusion in burn severity mapping is an area where you may find forested areas where duff and litter have mostly been consumed, but small fuels and needles remain in the canopy. Even though these needles may be brown and dead, they will quickly fall and create a natural mulch, or ground cover. This natural mulch will act to moderate soil surface temperature and moisture, add native organic matter, and protect the soil from raindrop splash and runoff. Replenishing ground cover is the least expensive and single most effective treatment we can implement on a burned area, and during triage for treatment recommendations, these areas with natural mulch potential are not likely to be high priority for treatment. It will usually be classified as "Moderate", especially if you can identify intact soil structure or fine roots, and at least some remnants of charred duff and litter.

**HIGH:** The site has been significantly affected by the fire. In general, areas where pre-fire vegetation, ladder fuels, and litter layers are thick, the fire burns on this area for a long period of time. More than 40 percent of the area exhibits characteristics of High severity. The area is classified as High burn severity if duff and litter layers have been completely consumed to ash such that little or no effective ground cover remains, surface soil is often loose, single-grained with little sign of intact structure or fine roots. (It is important to compare these factors to those present in unburned sites, since sometimes this is the natural condition.) Soil structure is often destroyed, and fine roots in surface soil have been consumed. Surface soil which, prior to the fire, may have had stable granular structure can, after a High severity burn, be loose and single grained due to volatilization of roots and binding organic compounds. Water repellency may or may not be significant, but is often increased after a High severity burn. (Water repellency alone is not necessarily an indicator of High severity, nor is it required for a classification of High severity.) It is best to use multiple indicators to categorize High severity burn, rather than just one or two. The size of fuels remaining is generally large - all fine fuels have been consumed. In other words, the only stuff remaining is big stuff. The soil hydrologic function has been significantly altered. Little or no ground cover or litter remains, and trees are black sticks with no needle cast and/or mulch potential. Runoff and erosion will be significant. Canopy and small to medium or even large fuels are usually consumed. Natural recovery of vegetation may be inhibited. Over-story mortality is generally high, up to 100%.

The appearance and characteristics of High severity may vary from ecosystem to ecosystem so it is difficult to give a hard-and-fast definition. Sometimes ash color can indicate the heat of consumption. White ash may indicate more complete consumption, but some vegetation species tend to produce white ash as well, so ash color by itself is not a reliable indicator. Plenty of areas with black or gray ash are High severity. Grass or shrub root crowns may have been consumed and natural re-sprouting and re-vegetation may be inhibited.

### END ###