

Hazard Tree Alert

True firs that survived wildfires are failing in as little as three years



Black trees.....Be on the lookout for hazardous trees in burned forests. This kind of warning is common when conducting work in areas that have experienced wild or prescribed fires. Fire-killed trees are usually abundant and begin to fall about 3-5 years post-fire, creating very hazardous working conditions. Performing your job in these areas requires you to be extra cautious at a minimum, and under certain weather conditions such as wind, to stay out of areas entirely. Walking a wide path around existing snags is one way to reduce the odds of being struck should one fail.

Green trees.....But what about the surviving trees? Recent monitoring of fire-injured trees has revealed the failure of 8" to 24" dbh red and white fir, with green crowns, in as little as three years. The rate of failure increases dramatically after the fourth year post-fire, especially in conjunction with high winds or heavy snows.



Extensive bole charring on this "live", 12" dbh red fir resulted in cambium kill and subsequent attack by ambrosia and wood boring beetles. Decay is now nearly 100% in pre-fire sapwood.



This 18" dbh red fir suffered >50% cambium kill during the 1999 Bucks Fire. It failed in the fall of 2004 with a full green crown.

During the 1999 Bucks Fire on the Plumas National Forest the crowns of many true firs were light to moderately scorched. However, these same trees suffered moderate to severe cambium injury and near complete girdling in some cases. Following the fire, frass and/or boring dust from wood boring and ambrosia beetles was



This 8" dbh, fire-injured white fir was surviving with <5% of its functional xylem and phloem. The crown was still green when it failed in 2004.

evident on many of the tree boles, often indicative of internal injury. Bark sloughing over the last couple of years from the damaged areas of the bole and root collar has revealed extensive decay of the sapwood, however, most of these trees have maintained green crowns. During the fourth year post-fire, a few trees within the burn that had green crowns and extensive bole decay failed. In the fall of 2004, after an early storm brought heavy snow and wind, many more trees failed with these same characteristics. This has also been observed recently in a few fir trees in the 2001 Star Fire (Tahoe National Forest) and the 2000 Storrie Fire (Lassen National Forest). Based on the number of failed green trees observed this year in the Bucks Fire, true firs in these other fire areas are likely to start coming down at a higher rate within the next couple of years. People working in these areas or any other recently burned areas that contain red or white fir with similar fire injury, i.e. moderate to severe bole scorch with light to moderate crown scorch, should consider these trees hazardous until a closer inspection of the bole is completed. Forest Health Protection is currently working on fire-injured tree evaluation criteria to facilitate the early identification of trees that may succumb to the type of decay and failure presented here. For more information, contact Sheri Smith or Danny Cluck of the Forest Health Protection staff at 530-257-2151.