Post-fire logging can reduce fuels for up to 40 years in regenerating forests, new study finds

March 12 2015

Harvesting fire-killed trees is an effective way to reduce woody fuels for up to four decades following wildfire in dry coniferous forests, a U.S. Forest Service study has found.

The retrospective analysis, among the first to measure the long-term effects of post-fire logging on forest fuels, is published in the journal *Forest Ecology and Management*.

"Large wildfires can leave behind thousands of acres of fire-killed trees that eventually become fuel for future fires. In the past, post-fire logging has been conducted primarily to recover economic value from those fire-killed trees," said David W. Peterson, a Wenatchee-based research ecologist with the Pacific Northwest Research Station who led the study.

The study shows that post-fire logging also provides a tangible long-term fuel reduction benefit, giving forest managers another tool for managing woody fuels in dry forest landscapes.

"In comparing logged and unlogged stands, we found that logged stands had higher fuels than unlogged stands, on average, during the first five years after fire and logging, but then had lower fuels from seven to forty years after fire, with the greatest differences being found for large-diameter woody fuels," Peterson said. "This study provides a sound scientific basis for forest managers to consider fuels management goals

along with recovery of economic value and wildlife habitat concerns when deciding when and where to propose post-fire logging."

The researchers' analysis revealed that, in unlogged stands, surface woody fuel levels were low shortly after wildfire, peaked 10 to 20 years after wildfire, and then declined gradually out to 39 years past the wildfire. In logged stands, small- and medium-diameter fuels reached their highest levels shortly after the wildfire and then declined in subsequent years, but larger-diameter fuels changed relatively little over the entire time range.

Peterson and his co-authors sampled woody fuels on 255 coniferous forest stands that were killed by wildfires in eastern Washington and Oregon—the region's most fire-prone areas—between 1970 and 2007. Their sample included 96 stands that were logged after wildfire and 159 that were not, an approach that allowed the researchers to test the effects of post-fire logging on forest fuels. The researchers accounted for pre-fire stand differences by measuring standing and fallen dead trees and stumps in each stand. They did not consider the effects of post-fire logging on sediment, wildlife habitat, or aesthetics.

More information: *Forest Ecology and Management*, www.sciencedirect.com/science/ … ii/S0378112714006823

Provided by USDA Forest Service