



Learning About Burning: Wisdom of Old Trees

Fire Learning Network Notes from the Field

Rogue Basin FLN Landscape ~ Fall 2018

The paper “Regional and Local Controls on Historical Fire Regimes of Dry Forests and Woodlands in the Rogue River Basin, Oregon, USA” (*Forest Ecology and Management*, 430:43-58), published in 2018, was written by Kerry L. Metlen¹, Carl N. Skinner², Derek R. Olson¹, Clint Nichols³ and Darren Borgias¹. (<https://www.fs.usda.gov/treearch/pubs/56923>) It is based on their research in the Rogue Valley landscape of the Northwest FLN.

Using 100 trees scarred by more than 200 fires going back to 1650 AD, the researchers found that diverse dry forest stands from across the Rogue River Basin survived repeated fires. Fire returned on average every eight years, with 90 percent of fires returning within 3 to 30 years of the previous fire.

While the forests surrounding the Rogue Valley are known to support large wildfires at the height of summer wildfire season, the research found that half of all historical fires burned in the spring or fall. Frequent fire and cool season burning ended in the research stands 110-165 years ago. Loss of frequent fire in the 1850s corresponded with Euro-American settlements and the forced displacement of Native Americans, which ended their well-documented cultural burning. Fire regimes were disrupted by 1906 in more remote settings.

The findings of this study are important for considering the historical role that tribal burning had in contributing to past fire regimes, and for increasing the public’s and resource managers’ awareness of how working with tribes on forest restoration and restoring fire as an eco-cultural process can benefit society and the environment today.

Frank Lake
Research Ecologist
USFS Pacific Southwest Research Station



Freshly collected fire scar sample (above) and fire scars and continued growth in a Jeffrey pine (below).
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A wealth of science provides details about historic fire patterns in other regions. However, in the Rogue Basin a fuzzy picture of fire has been painted from historic accounts and old photographs, old forest inventories, and research on charcoal in lake sediments.

These local fire-scar data from ponderosa pine, mixed conifer, and mixed evergreen forests sharpen resolution of burn patterns and reveal similarities in fire regimes in diverse dry forests across the Siskiyou, southern Cascades, and northern Sierra Nevada Mountains.

Kerry Metlen
Forest Ecologist
The Nature Conservancy

The findings of this paper match well with other studies in dry forest ecosystems. Frequent fires created fuel-limited systems, with open forest canopies and clumped tree distributions. These conditions are readily restored and an excellent bet-hedging strategy for the coming wildfires and a steadily warming climate.

Paul Hessburg
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USFS Pacific Northwest Research Station



Preparing a fire-scar sample for collection from an old stump.

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Cross-dated fire-scars on a section of ponderosa pine.

Photo: USFS Pacific Southwest Research Station (Carl Skinner)

This research shows how fire exclusion has narrowed the role of fire to one dominated by large fires during the hottest times of the year when fires are more likely to be higher severity, and suppression is the most difficult, dangerous, and costly. This makes a case for using fire in cooler spring and fall months, along with significant fuels reduction work, to prepare our forests for a changing climate.

Bill Kuhn
Area Ecologist
Rogue River-Siskiyou and Umpqua National Forests

Looking to the trees for wisdom, the authors suggest that these results reinforce the need to work in partnership to increase the pace and scale of forest restoration, including forest thinning and fuels reduction to set the stage for controlled burns in the spring and fall.

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The Fire Learning Network is part of *Promoting Eco-system Resilience and Fire Adapted Communities Together*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior. For more information about PERFACT, contact Marek Smith at marek_smith@tnc.org.

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