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Fires vital for long-term health of sequoia forests

BY Russel J. Wilson

On behalf of Sequoia and Kings Canyon National Parks, I would like to respond to Thomas Bonnicksen's recent opinion piece.

Bonnicksen spent only two summers, nearly 30 years ago, collecting data in sequoia forests. The state of scientific and empirical knowledge regarding giant sequoia forests has grown exponentially since Dr. Bonnicksen collected his data. As a result, his ideas, though once in vogue, have been superseded by a more comprehensive and sophisticated picture of forest structure and fire ecology.

Sound data

The information that I'd like to share is based on current science, decades of field fire operations and a long-term monitoring program in our parks. The information has been collected, validated and published by the National Park Service, the United States Geological Survey and members of the academic community.

Giant sequoia trees have a close relationship with fire. By studying the fire scars on their growth rings, scientists know that over the last few thousand years sequoias experienced naturally caused fires an average of every five to 20 years. Therefore, a 1,000-year-old specimen could have burned approximately 60 times. To survive, and ultimately thrive, in this fire-prone environment, sequoias develop a thick layer of bark to insulate themselves from heat. Most importantly, fire allows these trees to reproduce by clearing the forest floor, creating sunlit forest gaps, adding nutrients to the soil and opening cones to release seeds.

Given this close natural relationship, the National Park Service initiated a prescribed burning program in 1969 to reverse the harmful effects that a century of fire suppression had caused, choking our forests with excess trees. Bonnicksen claims that this program has resulted in "decades of destruction" and "the loss of thousands of huge trees." Are things really this bad?

Park Service monitoring of prescribed fires in sequoia forests has shown that five years after a fire, the number of large trees (mostly pines and firs) is reduced by approximately 9%, which is still within the natural range. If the parks had never suppressed natural fires over the last century, these few large pine and fir trees and many excess small trees would have been cleared away long ago. Their removal makes space for other new, young trees and rejuvenates forest conditions for all kinds of species.

Not practical

Bonnicksen points out that chain saws can be a valuable tool for forest management. Indeed, the Park Service sometimes uses chain saws to thin forests around developments to protect public safety. So why not use saws much more extensively -- or even as a replacement for prescribed fire -- in national parks?

First, much of the forested land in national parks is too steep or remote to be thinned with chain saws and building expensive road networks to complete this work defies laws passed by Congress to establish national parks. Secondly, it is not cost-effective over large areas (\$2,000 per acre for mechanical removal vs. \$130 per acre for prescribed fire). Thirdly, no amount of mechanical removal will replace the role of fire in a giant sequoia forest. Chain saws do not replace nutrients or stimulate the production of seedlings.

Bonnicksen implies that the Washington sequoia could have been saved from fire simply by raking around the tree. He does not mention that the tree was hollow from past fires, or that the fire in the tree's crown most likely started from a blowing ember landing in the opening to the hollow, 200 feet above the ground. No amount of raking would have changed that outcome.

But why was the fire that produced the fateful ember allowed to burn in the first place? It was allowed to burn to restore resilience to a forest from which all fire, human or natural, has been excluded for more than a century. We cannot continue this exclusion. It is not possible, nor desirable.

Plan that works

The efficiency of the National Park Service program has been proven over time. The public overwhelmingly supported our new Fire and Fuels Management Plan. This plan is balanced and scientifically sound based on the current level of knowledge (not information from a generation ago).

We have an integrated, multi-strategy program that consists of many different tools: fire suppression, wildland fire use (the management of lightning-caused fires), prescribed fire, and, yes, even mechanical fuel reduction around structures. We use each tool at the right time and in the right place to safeguard the public and preserve park resources.

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