

# University study questions USFS beliefs about fires

By Scott Sonner, AP

Scientists using field notes from surveys first conducted by the government before the Civil War believe they've gained a better understanding of how Western wildfires behaved historically.

Researchers at the University of Wyoming studied historical fire patterns across millions of acres of dry Western forests. Their findings challenge the current operating protocol of the U.S. Forest Service and other agencies that today's fires are burning hotter and more frequently than in the past.

Combing through 13,000 firsthand descriptions of forests and retracing steps covering more than 250 miles in three states, where teams of government land surveyors first set out in the mid-1800s to map the nation's wild lands, the researchers said they found evidence forests then were much denser than previously believed.



The 2007 Angora Fire ravaged the South Shore of Lake Tahoe. Photo/Lake Valley Fire

“More highly intense fire is not occurring now than historically in dry forests,” said William Baker, who teaches fire ecology and landscape ecology in Laramie, Wyo., where he’s been doing research more than 20 years. “These forests were much more diverse and experienced a much wider mixture of fire than we thought in the past, including substantial amounts of high-severity fire.”

If he’s right, he and others say it means fuel-reduction programs aimed at removing trees and shrubs in the name of easing fire threats are creating artificial conditions that likely make dry forests less resilient.

“It means we need to rethink our management of Western dry forests,” said Baker, a member of a U.S. Fish and Wildlife Service working group that is developing plans to help bolster northern spotted owl populations in dry forests.

Baker’s conclusions have drawn sharp criticism from other longtime researchers who believe that decades of fire suppression have led to more densely tangled forests and more intense fires, the position advanced by the Forest Service.

“I have yet to hear any knowledgeable forest or fire ecologist or forest manager say they are convinced by the main interpretations in that (Wyoming) paper,” said Thomas Swetnam, a professor of dendrochronology and director of the Laboratory of Tree Ring Research at the University of Arizona. “I doubt it will gain much traction in the scientific or management communities.”

The Forest Service did not immediately respond to a request for comment.

Baker said the historic government land surveys provided researchers with a surprisingly detailed and precise record.

The studies conducted by Baker and others over the past two years focused on parts of Colorado, Oregon and Arizona, but

were indicative of dry forest types stretching from the Rockies to the Sierra Nevada previously thought to be “open and park-like” and typically enduring only cycles of frequent, low-severity fire.

“The major surprising finding was ... areas of high density of forest and higher severity fires in really all dry forests across the West,” said Mark Williams, who co-authored two of the three studies with Baker.

“The notes are pretty descriptive,” said Williams. “You can look for where the fire started and ended. We were actually walking the same lines, collecting fire scars from trees.”

Wallace Covington, the director of the Ecological Restoration Institute at Northern Arizona University, takes no issue with the Wyoming duo’s data collection or statistical analysis but said some of Baker’s conclusions don’t follow from his data. Covington first testified before Congress in 2002 about the urgent need to thin forests to guard against catastrophic wildfires and insists it’s still necessary.

Others say the Wyoming studies are important new information in an emerging field of research.

Jennifer Marlon, a Yale University paleoecologist, said a study she recently led on the impact of climate change on forests over thousands of years appeared to be largely consistent “with Baker’s idea that there were large, severe fires even in dry forests historically.”

The fire record her team built for the Western U.S. for the past 3,000 years shows “that fires during the 20th century generally are actually fewer and smaller than ever before given current climate conditions,” said Marlon, who emphasized the role of climate on wildfire.

“The general trend from high fire in the 1800s to very low fire in the 1900s is strong and clear from three independent

datasets," she said. "Open park-like conditions may have indeed occurred after the 'peak' in burning during the mid-1800s."

Baker and Williams contend that past studies of forest structure and fires were not so much wrong as "incomplete" because that they placed too much emphasis on anecdotal references, sampled too small of areas and often concentrated on old-growth stands more resistant to fire.

One of the earliest references to the open nature of the forests is found in a 1943 study by Harold Weaver, a forester from Oregon State who characterized forests in Oregon's eastern Cascades as "like a park, with clean-boled trees and grassy forest floor."

An updated view was summarized in the 2012 spring edition of California Forests: "Human fire suppression activity during the past 100 years have created dense, more crowded forests and shifted the fire regime in Sierran mixed conifer forests from one of frequent, low-level fire to one where high intensity wildfires are more common," wrote John Battles, chairman of ecosystem sciences in Department of Environmental Science, Policy and Management at the University of California, Berkeley

Williams said the Wyoming studies have significant implications for wildlife that depends on post-fire habitat, such as the black-backed woodpecker, which has survived for millions of years by eating beetle larvae in burned trees.

Four conservation groups filed a petition with the U.S. Interior Department in May seeking Endangered Species Act protection for the bird in the Sierra Nevada, Oregon's Eastern Cascades and the Black Hills of eastern Wyoming and western South Dakota.

The new studies provide the first "real, direct data'" showing that more forests burned historically, creating more post-fire

forest habitat, said Chad Hanson, a forest ecologist and director of the John Muir Project who is helping lead the listing effort and suing the Forest Service to block post-fire logging in woodpecker habitat near Lake Tahoe.

“It indicates the woodpeckers had more habitat historically than they do now,” Hanson said.

Williams said when he started the study he had “the same general ideas most people have – that the forests were less dense and there were frequent, less severe fires to maintain that structure.”

Now, he believes thinning and post-fire salvage operations should be re-examined and emphasis placed on maintaining high-density stands in certain circumstances that would not threaten people or homes.

“We shouldn’t be managing just for low-density forests,” he said. “We should not be unhappy with – or perhaps even manage for – higher severity fires in the forests.”