Study of wildfire trends in Northwestern California shows no increase in severity over time

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Even though wildfires have increased in size over time, they haven't necessarily grown in severity nor had corresponding negative impacts to the ecosystem, according to a recently published study appearing in the journal *Ecological Applications*.

A team of scientists from the USDA Forest Service and the University of California, Davis, assessed the size, severity and frequency of wildfires on four national forests—Klamath, Mendocino, Shasta-Trinity and Six Rivers—of northwestern California from 1910 to 2008 and their effects on the ecosystem. Fire severity is measured by its impact on resources such as watersheds, wildlife habitat, soils, vegetation and forest products. "High" severity patches within fires are areas where greater than 95 percent of the forest canopy was killed.

The study's key findings include:

- Despite an increase in total acres burned, there was no trend in the proportion of fires burning at high severity, which indicates that fires have not been getting worse.
- Most areas burned since 1987 have been at low to moderate severity.
- The more area burned in a year, the less the proportion that burned at high severity.

- Lightning-caused fires, which burned at lower severity than human-caused fires, accounted for 87 percent of the 1.6 million acres that burned in northwestern California from 1987 through 2008.
- Human-caused fires dominated the first half of the 20th century, while lightning-caused fires have dominated the last several decades.

These findings suggest that fires burning under less than extreme fire weather and fuel moisture conditions could be used to attain ecological and management goals since they generally produce less than severe results. In other words, the fires that are easy to put out could actually be used to achieve management goals.

Researchers note that these findings may be unique to the Klamath Mountains where the study was conducted. The steep, rugged mountains in northwestern California present different environmental features compared to the Sierra Nevada where similar studies did show a trend of increasing proportion of high severity over time.

"As we can see from these findings, one size does not fit all when it comes to managing wildfires," says Carl Skinner, PSW geographer, who co-authored the study. "This study has some very important implications for fire and forest management policies. Our results support the idea that wildfires could be managed for ecological benefit in this bioregion."

More information: To read the full article, go to: treesearch.fs.fed.us/pubs/40143

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