

Wildfires will become more frequent due to rising temperatures, but study finds changes will be far from uniform

April 5 2018

Scientists have long believed that wildfires would become more frequent as global temperatures rise, but comparatively few studies have forecast fire behavior by region. Now, researchers at the University of Missouri have found that while wildfires in the U.S. will become more frequent overall in the future, changes will not be straightforward and uniform, as it is likely some regions will see decreases in wildfires. Using climate projections of future temperature and precipitation, researchers were able to predict the frequency of fires for a variety of locations. The specificity of the data allows it to be mapped across the U.S., which will provide a valuable resource for policymakers and residents alike.

"Our projections allow us to see where [climate conditions](#) will impact wildfires the most or the least, and this is valuable information for anyone living or working in an area that will be seeing changes," said Michael Stambaugh, an associate research professor of forestry at MU's School of Natural Resources.

Stambaugh and his colleagues, including MU [researchers](#) Richard Guyette and Joanna Whittier, studied a region in the south central U.S. covering 53 different ecological sections. The variety within this region allowed them to study a cross section of various types of climates and environments. Data from [climate projections](#) of temperature and precipitation were used to determine the likelihood of fire in each ecological section. Researchers found that while wildfires will increase

across the majority of the south central U.S., some places—such as deserts or areas becoming more desert-like—actually will see fewer fires or no change at all.

The degree of changes will vary depending on the area, with the largest increases in future [wildfire](#) frequency found at high elevations such as the Rocky Mountains. Decreases in fires are expected in areas projected to become more arid, as grass and other fuels would be less plentiful. Conversely, desert-like areas receiving more precipitation will likely produce more fuels for wildfires. According to Stambaugh, one of the strengths of the research is its inclusion of robust data at both ends of the timeline: It takes into account data going back centuries, drawn in part from studies of fire damage and tree rings that allowed researchers to develop records of past fire frequency, but it also incorporates new climate change information.

"As temperatures rise, many will assume wildfires will increase across the board, but our fire model gives us practical information about where that is true and where it isn't," Stambaugh said. "This is important because, as the study shows, [climate](#) effects on fire frequency aren't straightforward. In Texas, the potential for wildfire is very different than in Missouri, so you have to look at these areas on a case-by-case basis. This sort of localized accuracy is vital to everyone from legislators to homeowners, as the more certainty we have about how wildfires will behave in the future, the better prepared and informed we can be."

More information: Michael C. Stambaugh et al. Future southcentral US wildfire probability due to climate change, *Climatic Change* (2018). [DOI: 10.1007/s10584-018-2156-8](https://doi.org/10.1007/s10584-018-2156-8)

Provided by University of Missouri-Columbia

Citation: Wildfires will become more frequent due to rising temperatures, but study finds changes will be far from uniform (2018, April 5) retrieved 8 May 2024 from <https://phys.org/news/2018-04-wildfires-frequent-due-temperatures-uniform.html>

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