

Long-term efficacy of managed wildfires in restoration efforts

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Land managers are increasingly interested in using lightning-ignited wildfires as a tool to restore forests and reduce fuel loads. But little is known about the effectiveness of managing wildfires to meet restoration

goals.

For several years, ecologists at the Ecological Restoration Institute at Northern Arizona University have been working to better understand ecological outcomes of wildfires managed to achieve resource objectives and conditions under which practitioners can expect beneficial results.

A new article in the International Journal of Wildland Fire contributes to this line of research by testing the [long-term effects](#) of managed wildfire on three different [forest](#) types (pine-oak, mixed-conifer, and spruce fir).

To examine the long-term impacts of [wildfire](#) applications, a team of ERI-NAU ecologists remeasured permanent monitoring plots on the North Rim of Grand Canyon National Park 12 years after three wildfires were allowed to burn to meet resource objectives in 2003. The ecologists evaluated fire outcomes and measured effects on forest structure—for example, tree density—and species composition (the relative numbers of different tree species) over time.

Mike Stoddard, an ERI senior research specialist and lead author of the study, said managing for forests that are resilient to [climate change](#) and severe fire can require bold management to overcome more than a century of fire exclusion. But, he added, it is important that these management decisions are informed by science.

And while wildfires managed under mild weather conditions may be less expensive than other treatment methods, like mechanical thinning or prescribed fire, more research is needed to understand tradeoffs between methods in terms of ecological outcomes.

"Wildfires can accomplish a range of management objectives and some may build resilience to a changing climate, at least in the short-term," Stoddard said. "However, delayed effects on tree mortality and tree

regeneration may shift our perception of the efficacy of fire treatment."

Overall, the 2003 resource objective wildfires in Grand Canyon National Park achieved several beneficial management outcomes, but researchers say there is much more to learn about the effectiveness of wildfires at accomplishing restoration objectives and promoting resilient forest conditions, particularly in less-remote areas.

More information: Michael T. Stoddard et al. Ecosystem management applications of resource objective wildfires in forests of the Grand Canyon National Park, USA, *International Journal of Wildland Fire* (2020). [DOI: 10.1071/WF19067](https://doi.org/10.1071/WF19067)

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