

Study highlights 4 strategies to overcome barriers to prescribed fire in the west

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Cooperation at prescribed and cultural fire events. (a) Veteran firefighters and novices work together on a prescribed burn at the Klamath TREX (training exchange) near Orleans, California (image credit: JN Williams). (b) A cooperative extension “burn boss” briefs Prescribed Burn Association members ahead of a burn (image credit: L Quinn-Davidson). (c) The Mexican National Forestry and Protected Areas Commissions collaborate with community brigades on a prescribed burn in Parque Nacional Constitución, Baja California (image

credit: H Rivera-Huerta). (d) A cultural burn conducted to promote the growth of plants used for traditional basketmaking in the central Sierra Nevada mountains of California (image credit: C Adlam). Credit: *Frontiers in Ecology and the Environment* (2023). DOI: 10.1002/fee.2687

Prescribed fire, which mimics natural fire regimes, can help improve forest health and reduce the likelihood of catastrophic wildfire. But this management tool is underused in the fire-prone U.S. West and Baja California, Mexico, due to several barriers.

A paper from the University of California, Davis, pinpoints those obstacles and suggests four key strategies that policymakers and land managers can take to get more "good fire" on the ground in North America's fire-adapted ecosystems. The paper also provides examples of how people are surmounting some of these obstacles.

"Prescribed fire is one of the most important tools we have for restoring natural fire regimes and undoing the effects of a century of [fire suppression](#)," said lead author John Williams, a project scientist with the UC Davis Department of Environmental Science and Policy.

"But there are a number of top-down barriers at the upper levels of management that keep us from growing the workforce and getting burns done at the scale and extent needed. We point out some of the big ways that agency leaders and policymakers can dismantle those barriers and empower the full range of people capable of doing this work, from burn bosses and citizen-prescribed burn associations to nonprofits and tribal groups."

[The paper, published](#) in the journal *Frontiers in Ecology and the Environment*, centers on the North American Mediterranean climate

zone, which includes most of California, southwestern Oregon, western Nevada and northern Baja California in Mexico.

A natural process

Fire is a [natural process](#) that has helped shape this region, but the area has experienced a spike in destructive, high-severity wildfires over the past decade. In fact, three of the five largest wildfires in continental U.S. history occurred in this region in just the past five years. This is due to a combination of climate change and fuel accumulation driven by a century of policies that encouraged fire suppression, curtailed Indigenous cultural burning, and favored harvest of the largest, most fire-tolerant trees, the study notes.

While scientists and resource managers recognize the need for more prescribed fire, its application has not kept pace with the enormity of the challenge. The study said that is because management policies prioritize fire suppression over prevention. There is also a limited fire workforce; regulatory hurdles like permitting, insurance and liability; and few incentives or protections for landowners, [tribal members](#) and other people who burn responsibly.

4 key strategies

Researchers identified four key areas where supportive institutional and agency leadership can help expand prescribed fire in the region:

- 1) Fire culture. After decades of emphasizing wildfire suppression, current fire management culture "does not adequately promote prescribed fire as a [management tool](#)," the study said. Support for prescribed fire along the entire chain of command within agencies is needed to foster a new culture that incentivizes and enables prescribed

fire practitioners within and outside of government agencies.

2) Funding. Prescribed fire is considerably more cost-effective than wildfire suppression, which can cost more than \$2 billion a year in the U.S., but there is little dedicated funding for prescribed fire projects and lack of flexibility as to when such money can be spent. This impedes fire staffing and limits the kinds of projects that can be done. Year-round, dedicated funding and resources could help increase prescribed fire capacity.

3) Capacity building and cooperation. Connecting agencies with landowners, community members, tribes, prescribed burning associations (PBAs), prescribed fire training exchanges (TREXs) and others can facilitate responsible, effective prescribed fire and cultural burning exchanges. Such groups have limited reach and require investment and support to meet demand.

Inter-organizational agreements can also help local, state and [federal agencies](#) share resources and staffing. Formalizing and fully integrating such agreements into fire management plans remains a challenge, the study said. Collaborations that support Indigenous cultural burning are also key.

Partnerships must recognize the unique dimensions of cultural burning, which are inseparable from Indigenous culture. Educating land managers and decision makers about tribal sovereignty and federal American Indian law is critical. Introducing legislation that supports cultural burning can also foster such collaborations.

4) Monitoring and adaptive management. Designated funding and personnel for quantitative monitoring after a [prescribed burn](#) can help practitioners better measure success and then apply lessons to future burns.

"All of the barriers identified in the study can be overcome, and they have been at least partially resolved in other parts of the U.S., as well as in other Mediterranean climate regions, such as southwestern Australia," said co-author Hugh Safford, a research ecologist in the UC Davis Department of Environmental Science and Policy and director of the California Prescribed Fire Monitoring Program.

"Fundamental to setting the situation right is developing a culture of safe and regular [fire](#) use in California and neighboring states by all landowners and managers, and reducing the officiousness, risk aversion and bureaucracy that hinders access to the tool by the public."

More information: John N Williams et al, Overcoming obstacles to prescribed fire in the North American Mediterranean climate zone, *Frontiers in Ecology and the Environment* (2023). [DOI: 10.1002/fee.2687](https://doi.org/10.1002/fee.2687)

Provided by UC Davis

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