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Prescribed Fire and Wilderness: Barriers and Opportunities in a Time of Change

The first fire on Earth ignited 420 million years ago. Today, our planet remains the only one that we know of where oxygen, fuels, and ignition sources—including humans—come together to spark flames. As fire historian Stephen Pyne writes, "We are uniquely fire creatures on a unique fire planet."

Yet today, many landscapes are adversely affected by the wildfire paradox: widespread fire suppression and exclusion over the last century has increased the likelihood of high-intensity and high-severity wildfires. Many of America's wilderness areas have been impacted by the legacy of fire suppression. In some cases, formerly fire-adapted wilderness ecosystems are experiencing changes in forest composition and structure—more fire-intolerant tree species and small trees— and an overall increase in fuels. When fires of increased intensity and severity do inevitably burn, they are more likely to convert forests to shrublands or other vegetation types that do not resemble prefire conditions.

In 2011, during the third phase of a multiyear effort, the South Fork Sun River Prescribed Fire burned 11,000 acres on the Scapegoat Wilderness in the Helena-Lewis and Clark National Forest in Montana. In total, the project restored fire to 16,000 acres. Photo courtesy of Michael A. Muñoz, District Ranger, Helena-Lewis and Clark National Forest.

In December 2022, experts from land management agencies, Tribes, and organizations from across the country convened at the Wilderness and Fire Workshop in Gunnison, Colorado, to consider the dilemma posed by managing and prescribing fire within wilderness. The results of these discussions were recently published by Western Colorado University's Center for Public Lands in collaboration with Rocky Mountain Research Station's Aldo Leopold Wilderness Research Institute (ALWRI). The synthesis paper presents the threats posed to wilderness by unprecedented fire deficits as well as opportunities identified by workshop participants to help overcome barriers to using prescribed fire in wilderness.

According to Sean Parks, research scientist and ALWRI principal investigator (PI), "Prescribed fire may be necessary to restore wilderness ecosystems that are increasingly degraded by over a century of fire exclusion and the unprecedented effects of today's wildfires."

As workshop participants discussed, prescribed fire might be the best option to restore healthier, more resilient wilderness ecosystem conditions under the Minimum Requirements Analysis Framework. As District Ranger Michael A. Muñoz shared during the workshop, a multiyear prescribed burning project in the Scapegoat Wilderness on the Helena-Lewis and Clark National Forest in Montana was able to successfully restore fire to 16,000 acres.

Participants also underscored the need for increased support for wilderness managers. This includes expanded access to training on prescribed fire in wilderness; consistent interagency guidance and messaging; clear leadership support; and budgetary and administrative changes, including a permanent full-time fire workforce supported by stable funding, improved compensation and career development opportunities, and increased diversity and inclusivity.

According to Jonathan Coop, a PI on the project from Western Colorado University, "Many wilderness ecosystems were historically shaped by fires ignited by lightning and Indigenous peoples. Deliberately restoring fire to avoid the negative outcomes of fuel buildup and climate change-enhanced extreme burning can increase the natural qualities of these places while honoring human relationships with the land that far preceded their designation as wilderness."

A prescribed fire burns during the spring of 2022 in the West Elk Mountains in the Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forest in Colorado. Photo courtesy of Jonathan Coop, Professor, Western Colorado University.

Opportunties for Prescribed Fire in Wilderness Areas

Experts at the Wilderness and Fire Workshop discussed the dilemma of managing and prescribing fire in wilderness. They developed opportunities to help overcome barriers to the use of prescribed fire in wilderness, grouped under the following themes:

1. Acknowledge Indigenous cultural burning in wilderness
2. Develop messaging about the relationship between wilderness and fire
3. Expand and formalize collaboration
4. Initiate proactive and far-reaching public engagement
5. Increase access to training
6. Create comprehensive and consistent interagency guidance and messaging
7. Build leadership support
8. Implement budgetary and administrative change

Further Reading

Miller, Carol. 2006. Wilderness fire management in a changing world. International Journal of Wilderness.

Aplet, Gregory H. 2006. Evolution of wilderness fire policy. International Journal of Wilderness.

Prescribed Fire and U.S. Wilderness Areas: Barriers and Opportunities for Wilderness Fire Management in a Time of Change. Synthesis Report by Center for Public Lands: Western Colorado University and the Aldo Leopold Wilderness Institute. September 2023

Scientists and Manager

Sean Parks is a research ecologist with the USDA Forest Service Rocky Mountain Research Station at the Aldo Leopold Wilderness Research Institute. His research interests include fire-climate relationships, altered fire regimes, and post-fire successional trajectories.

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