

Researchers: The US must address the 'wicked problem' of wildfire

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The United States must make preparing for and adapting to wildfire a top national priority, says a team of University of Idaho researchers and their international partners in a paper published today in the journal *BioScience*.

The researchers issued a call for academia, government agencies, industries and communities to work together to address wildfire because it is a "wicked problem"—one so complex that a one-size-fits-all solution does not exist.

"We need to help communities understand how to coexist with wildfire," said lead author Alistair Smith, fire ecology and management program lead and director of research and graduate studies for the UI College of Natural Resources. "The partnerships have to cover agencies and universities and industries. We can't fix this alone. We have to do this together."

U.S. wildfires burned more than 10.1 million acres in 2015—a new record, Agriculture Secretary Tom Vilsack announced last month. Those fires destroyed 4,500 homes and structures and killed 13 firefighters.

Wildfire suppression costs the United States, on average, \$2.9 billion a year. The cascading consequences—such as health problems from [poor air quality](#), post-fire landslides or loss of tourism—add up to staggering additional costs, Smith said.

The researchers' paper outlines the wildfire problem and suggests strategies for mitigating and adapting to it, including investments in research and technology. The authors conclude by proposing five Wildfire Grand Challenges to understand the risks of fire and help communities become more resilient to its effects:

Identify the most vulnerable firescapes—a term encompassing landscapes, communities, economies and fire.

Identify cascading fire consequences by expanding research into the indirect impacts of fire and how communities can plan for and adapt to them.

Identify early warning signals that indicate when a firescape could face devastating changes to its ecology or economy if a fire occurs, taking into account the complex connections among elements.

Create a centralized system that will help researchers and managers in different places share information.

Address barriers to achieving firescape resilience, especially by recognizing that all stakeholders must work together.

The UI team's work links to a nationwide push for a new approach to fire management, which includes the National Science and Technology Council's Wildland Fire Science and Technology Task Force Report, released in November 2015.

The paper reaches beyond the United States, with perspectives from researchers from Australia, the United Kingdom and Canada, as well as those who have studied fire around the world. "The concepts we put in here are highly relevant for the U.S., but they can also be translated globally," Smith said.

The paper's co-authors include 10 UI researchers across disciplines, demonstrating the university's dedication to [fire](#) research that transcends traditional barriers and leads to direct results for the people who live with wildfire. The team's work connects to multiple research efforts across campus.

"Communities in the western U.S. and around the world will always face wildfire, but the University of Idaho is leading the way in understanding and reducing the threats to ecosystems, economies and, most importantly, human lives," said Jack McIver, vice president for research and economic development at UI.

"The University of Idaho is a leader in [wildfire](#) research, education and outreach," said UI College of Natural Resources Dean Kurt Pregitzer. "This team provides an important, fresh and global perspective on how to deal with a wicked problem."

UI-affiliated coauthors of the *BioScience* paper include Smith; Travis Paveglio, Andrew Kliskey, Luigi Boschetti, Kara Yedinak and Eva Strand in the College of Natural Resources; Crystal Kolden and John Abatzoglou of the College of Science; and Lilian Alessa and John Anderson of the College of Art and Architecture. The full text of the paper, "The Science of Firescapes: Achieving Fire-Resilient Communities," is available online.

More information: Alistair M.S. Smith et al. The Science of Firescapes: Achieving Fire-Resilient Communities, *BioScience* (2016). [DOI: 10.1093/biosci/biv182](https://doi.org/10.1093/biosci/biv182)

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