

Reducing wildfire risks for better management and resource allocation

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Difficult to contain, wildfires consume everything in their path and wreak havoc on human and animal lives, homes and landscapes. From 1995 to 2015, wildfire management has cost the U.S. \$21 billion. Over the past 10 years, the National Interagency Fire Center reports that there were 1.4 million fires with an average of 67,000 wildfires annually and an average of 7.0 million acres burned annually. Most of these wildfires are caused by human activity. Management resources are becoming strained and funds that were earmarked for promoting forest health and fuel reduction are being diverted to fire response activities.

As wildfires become deadlier, larger and more expensive, there is strong interest in better risk governance. Managing future wildfire risk requires an interface between [human decision processes](#) and knowledge about climate trends related to fire, as well as humans' abilities to anticipate wildfire potential and mitigation approaches are critical. Several presentations at the 2019 Society for Risk Analysis (SRA) Annual Meeting will explore analyses of past fire seasons, projections for the future and approaches for decision making aimed at mitigating risk.

One mitigation strategy that has been widely employed across the U.S. is burning prescribed fires. More than 40 million acres have been burned from 2003-2017 by federal and state government agencies, with an average cost of \$101.34 per acre. Esther Jose and Dr. Jun Zhuang, Professor at the University at Buffalo, reviewed the literature on prescribed fires to design a data driven model to calculate the effectiveness of prescribed fires for each state to determine the most

significant factors in their effectiveness.

Jose and Zhuang's study, "An analysis on the effectiveness of prescribed fires," found that Oregon has conducted the most effective prescribed fires and U.S. Forest Service is the most successful agency in the country at conducting these fires. And while California has had some of the largest fires of the past five years, the state is prohibited from burning sufficient prescribed fires due to factors such as funding, weather and policies. Understanding when and where to burn these fires is vital in limiting excess spending and associated risks.

In another study, Harry Podschwit, University of Washington-Seattle, studied sets of wildfire characteristics such as size, frequency and intensity as predictors and pitfalls of resource demand from both a statistical and conceptual perspective.

His study, "Wildfire characteristics as predictors of firefighting resource demand," explores some of the conceptual consequences of adopting certain wildfire characteristics as representations of resource demand. Podschwit also extracted a set of potential wildfire proxies from 2009-2015 wildfire data and compared them to preparedness levels to validate the appropriateness of the wildfire proxies in firefighting [risk analysis](#).

"Our research will improve the quality of wildfire risk assessments by instructing of the pitfalls of using popular wildfire characteristics, such as size, as surrogates for wildfire risk," states Podschwit. "This research will explicitly identify which [wildfire](#) characteristics are good proxies for resource demand and lead to higher quality decisions and fire management resource allocations."

More information: These studies will be presented during the Wildfire Risk Management - Current Status, Future Projections and

Approaches to Reducing Risk symposium.

Provided by Society for Risk Analysis

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