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Science You Can Use *in 5 minutes*

Wildfire and Communities: Are there tradeoffs when promoting fire mitigation versus evacuation preparedness?

For homeowners living in the wildland-urban interface, wildfire outreach programs encourage wildfire risk mitigation and evacuation preparedness as steps to protect homes and lives in the event of a wildfire. Wildfire risk mitigation may include activities such as removing vegetation from around structures and storing combustible materials (e.g. firewood or propane tanks) away from homes. Signing up to receive evacuation notifications, packing a to-go bag, or identifying evacuation routes are examples of evacuation preparedness.

In recent years, researchers with the Wildfire Research (WiRē) Team have observed that outreach programs take different approaches in presenting this material. Some outreach programs combine wildfire mitigation and evacuation preparedness. Other programs focus on wildfire mitigation while local offices of emergency management often educate on evacuation preparedness.

Additionally, "there is greater recognition about the need to prepare for evacuation before there is smoke in the air," explains Patricia Champ, a research economist with the U.S. Forest Service, Rocky Mountain Research Station and a researcher with the WiRē Team. For example, notification systems are becoming more prominent, but researchers don't fully understand what prompts some residents to sign up while others don't.

These observations prompted a new question to pursue.

Outreach programs that target homeowners who live in the wildland-urban interface may focus on wildfire mitigation, evacuation preparedness, or a combination of both. Researchers wondered if there is a tradeoff that homeowners make if they decide to prioritize wildfire mitigation instead of evacuation preparedness or vice versa. Courtesy photo by M. Tobin, WSCC North Yakima Conservation District.

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"Homeowners are being asked to be prepared to leave and evacuate safely, and they're also asked to make changes on their property to withstand a wildfire event," Champ says. "If we ask people to do evacuation preparation and mitigation, is it possible that there will be tradeoffs? We didn't know how people make decisions about evacuation preparedness in relation to mitigation actions."

Are homeowners taking proactive measures?

WiRē projects include both a parcel-level rapid wildfire risk assessment conducted by a trained professional and self-reported household surveys. Researchers used data from these projects in 25 WUI communities across Colorado, Utah, Washington, New Mexico, and Wyoming between 2021 and 2023. Because the statistical model they developed to analyze the data was a causal model, researchers could draw causal inferences from the results and found that homeowners who do more mitigation are more prepared for evacuation. In addition, those who had evacuation experience, met with a wildfire professional, and had conversations with neighbors about wildfire were more prepared for evacuation.

Reaching those who haven't prepared

In spite of these favorable results, Champ says there is a flip side to the story the data tell. Seventy-four percent of households have an evacuation plan—that means twenty-six percent don't have an evacuation plan.

"In the past, a lot of wildfire social science has focused on characterizing the problem," says Champ. "This research is trying to get at the behavioral outcomes because if we understand those, then we can support development of programs that push on those pieces that are associated with higher levels of completing these evacuation preparation actions."

Because completing evacuation preparation activities means lives may be saved.

Management Considerations

- When controlling for differences across the communities, homeowners who do more mitigation are more likely to also be more prepared to evacuate. Additionally, those who have had previous experience evacuating are more likely to have taken steps to be prepared to evacuate.
- Seventy-four percent of households reported having an evacuation plan although only thirty percent had previously evacuated.
- Homeowners who talked about wildfire with their neighbors indicated they were more likely to have completed these evacuation actions. From a programmatic perspective, this suggests that leveraging informal social networks could increase homeowner's evacuation preparedness.

Further Reading

Webster, G.; Brenkert-Smith, H.; Champ, P.; Meldrum, J.; Wallace, K.; Donovan, C.; Wagner, C.; Barth, C.; Kuehn, J.; Wittenbrink, S.; Taniguchi, C. 2025. Are wildfire risk mitigators more prepared to evacuate? Insights from communities in the Western United States. Ecological Economics. 236: 108638.

WiRē at a Glance: The Wildfire Reseach Center

WiRē
wildfire research

Featured Scientist

Patricia Champ is a research economist with the Rocky Mountain Research Station in Fort Collins, CO whose research focuses on economic valuation methods, economic and social analysis of natural hazards, and measurement of public preferences, attitudes, and behaviors.

Andrea Watts is the author of this Science You Can Use.

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