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Recent social science findings on forest and fire management from the greater Flagstaff, Arizona area

Overview

Recent research in social science related to forest and fire management illustrates best practices for engaging with the public around decision-making, resource allocation, and public safety, among other key topics. This briefing paper reviews several recent social science studies conducted in and around Flagstaff, AZ, between 2019 and 2025 to highlight growing public support for forest management and provide suggestions that can leverage support during future forest management planning and implementation.

Real-time perspectives of prescribed fire

In fall 2024 surveys were administered to households in the Linwood Heights and Cheshire neighborhoods following the Jesse Gregg prescribed fire, conducted by the City of Flagstaff. Researchers aimed to explore residents' perceptions and experiences with smoke from prescribed fire in real time by collecting data immediately following air-quality decline. This effort was repeated in spring 2025 following the Coconino National Forest-administered Weatherford prescribed fire near the Timberline and Weatherford neighborhoods in Flagstaff. Despite each study location's varying experiences with wildfire and forest management activities, there were very few significant differences between them. Most respondents felt safe during the prescribed fire (83%), had confidence that it was being managed appropriately (78%), and would support another prescribed fire near their neighborhood (83%). Respondents generally felt they understood the ecological rationale behind the prescribed fire and how to access information regarding burn operations, but they indicated greater uncertainty about accessing information about air quality. The vast majority (86%) of respondents reported a desire for advance warnings of expected air-quality decline whenever possible, and most (56.7%) felt they needed 24–48 hours to make preparatory decisions for their households.

Community acceptance of smoke from wildfire and fire used for land management

Five household surveys were conducted in four Arizona communities — Parks, Highlands Fire District (Kachina Village, Mountaineer, and Forest Highlands), Sedona, and Camp Verde — between 2021 and 2024. Participants were asked to report how long they would tolerate unhealthy levels of smoke from different sources; mean responses ranged from 3–6 days across surveys. Smoke from wildfire was most acceptable, followed by prescribed fire, managed fire, and then slash pile burning. Residents were supportive of forest management activities that produce smoke, but indicated a preference for techniques that did not produce smoke wherever possible. Common information needs respondents expressed included notification of approaching declines in air quality, explanations of the decision-making process behind prescribed fire planning and timing, and access to real-time air-quality monitoring.

Household experiences with the 2019 Museum Fire

Two household surveys — one in 2019 and one in 2022 — sought to understand Flagstaff residents' experiences before and after flooding following the 2019 Museum Fire. While conditions surrounding the Museum Fire concerned many residents, there is continued support for forest management activities. A majority of 2022 respondents found a variety of forest management practices acceptable, including strategic removal of trees to

reduce hazardous fuels (89.5%), creating fuel breaks (88.9%), allowing lightning-ignited fires to burn (74%), and utilizing prescribed fire (79.5%). An exception was reduced air quality (40.6%), although prescribed fire had high levels of acceptance (78.4%). This contradiction highlights the challenges of management tactics that have consequences beyond public land such as reduced air quality.

Public support is built upon the perception that continued collaborative forest management will lead to positive long-term outcomes, with a strong majority of 2022 respondents agreeing that continued forest management will reduce the risk of catastrophic fire (90.3%) and post-fire flooding (80.7%) and minimize future costs associated with wildfire (81.4%) and post-fire flooding (77.8%). Under these collaborative conditions, local government and land management agencies have widespread public support for and recognition of the need for forest restoration and wildfire and post-fire flood risk reduction.

Household flood insurance after wildfire

Household surveys following the Schultz (2010) and Museum (2019) fires invited respondents to describe their experiences with post-fire flood insurance coverage. The average respondent who made a flood insurance claim was underinsured by at least \$12,111. Most respondents declined to renew their coverage between 2–5 years after a fire, indicating a need to increase risk communication around the two-year mark to encourage retention. Renters are particularly vulnerable, as their ability to mitigate or recoup losses is in large part dependent on the decisions of their landlord. The cost of mitigation efforts to reduce the impacts of post-fire flooding doubled over a 10-year period following the Schultz Fire, indicating that there are substantial out-of-pocket costs (an average of \$10,847 per household) that are often not captured in economic analyses after wildfires.

Recommendations

While more work is needed in other areas of Coconino County or northern Arizona, these studies suggest that support for forest management and tolerance of associated impacts remain high. We conclude that:

- Support for a diverse suite of forest management approaches, even when smoke is produced, has remained consistent in the greater Flagstaff area and has been bolstered by effective communication about the value of fire. Given the high understanding of fire, forest management outreach should focus on why activities are necessary and provide information about the approaches used.
- Providing learning opportunities, such as open houses or field trips, that focus specifically on prescribed burn operations and mechanics can further increase public support for, and confidence during, prescribed fires.
- Addressing disconnects between short-term impacts of forest management (e.g., smoke) versus long-term benefits (e.g., reduced property risk) can extend public acceptance of forest management activities even further.
- Exploring mechanisms such as outreach programming or small grants and cost shares to support post-fire flood mitigation may encourage proactive risk reduction while minimizing financial hardships at the household level.
- Resident turnover in the greater Flagstaff area requires continued engagement and communication about forest health and management, but many new residents are more willing to accept the impacts and outcomes of forest management.
- Increased access to information regarding planning and preparation for smoke from wildfire and forest management can increase public support; this requires better guidance on where to find this information, rather than the creation of new resources.

For a comprehensive list of publications and resource links, visit eri.nau.edu/social-science-findings, or use the QR code below:



Melanie Colavito
Deputy Director
Ecological Restoration Institute
melanie.colavito@nau.edu

Niki vonHedemann
Human Dimensions Program Manager
Ecological Restoration Institute
niki.vonhedemann@nau.edu

Sarah Devenport
Research Associate
Ecological Restoration Institute
sarah.devenport@nau.edu

Catrin Edgeley
Assistant Professor
Dept. of Environment and Society
Utah State University
catrin.edgeley@usu.edu

