

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 highlights from several recent social science studies conducted in and around Flagstaff, AZ between 2019–2022 to highlight growing public support for forest management and provide suggestions that can leverage support during future forest management planning and implementation.

Full Cost Accounting for the Schultz Fire

In 2020, a team of researchers conducted a full cost accounting for the 2010 Schultz Fire. The total cost of the fire and flooding for a ten-year assessment period (2010–2020) was conservatively estimated to be approximately \$111 million in 2021 dollars, only 10% of which were for fire suppression. This represents a fire cost of \$7,345 per acre, which is 4.5 times the proposed cost of restoration. Furthermore, these costs continued to accrue over time and included long-term financial costs, but also effects that are more difficult to quantify such as decreases in local ecosystem services and societal costs like community well-being.

Surveyed households in 2020 indicated that they were still experiencing long-term well-being and mental health effects. Namely, 25% of survey respondents shared that the Schultz Fire and subsequent flooding had caused significant stress, while almost 20% agreed that their mental health had suffered because of fire or flooding. There was also a decline in respondents who said they were purchasing flood insurance over time, most notably 2–5 years after the fire.

Household Experiences with the 2019 Museum Fire

Two household surveys — one in 2019 and one in 2022 — sought to understand Flagstaff resident 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 through proactive and collaborative approaches, suggesting that most Flagstaff residents may have reached a consistent level of acceptance of fuels management that is resilient in the face of wildfire events. This support was likely tied to a high level of understanding regarding fire ecology; an overwhelming majority (86.5%) of 2019 respondents agreed that “fire is a natural part of the landscape around Flagstaff,” indicating high social acceptability of fire activity in the area.

A strong 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%). A strong majority also supported reforestation in burned areas (95%), forest thinning (75.2%), and use of prescribed fire (76.6%) to manage flood risk. This built upon high acceptance in the 2019 survey, where more than 60% of respondents felt more open forests, temporarily reduced recreation access, prescribed fire, the presence of residual materials, temporary roads, and burned areas were moderately or very acceptable. 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.

The public's 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 postfire flooding (80.7%) and minimize future costs associated with wildfire (81.4%) and postfire flooding (77.8%). Under these collaborative conditions, local government and land management agencies have a relative amount of flexibility given widespread public support for and recognition of the need for forest restoration and wildfire and post-fire flood risk reduction.

Community Acceptance of Smoke from Wildfire and Fire Used for Land Management

Two household surveys were conducted in Parks, AZ in 2021 and across the Highlands Fire District (HFD) including Kachina Village, Mountainaire, and Forest Highlands, AZ in 2022. Participants were asked to report how long they would tolerate unhealthy levels of smoke from different sources; wildfire smoke was identified as most tolerable (an average of 5.2 days in Parks and 5.6 in HFD), while slash pile burning was less tolerable (4.6 days in Parks, 4.9 days in HFD). Survey respondents reported high acceptance of prescribed fire, particularly when described as reducing wildfire risk to homes (Parks 83.2%, HFD 89.0%).

Recommendations

While these findings are not representative of Coconino County or northern Arizona in its entirety, these studies collectively suggest that support for forest management and tolerance of associated impacts remain high despite recent wildfires. We conclude that:

- It may take a minimum of 3–5 years following a fire to understand the full costs of a single event. Furthermore, investment in treatment costs upfront far outweigh the economic, social, and ecological costs following uncharacteristic fire and flooding.
- Uncharacteristic fire and flooding can impact mental health; thus, it is important to emphasize the connection between preparation and mental health. Higher levels of preparation such as property-level mitigation and purchase of flood insurance can offer peace of mind.
- Continued communication about the importance of maintaining flood insurance is needed, particularly at the two-year mark after a fire when interest begins to decline.
- Support for a diverse suite of forest management approaches has remained consistent in the greater Flagstaff area. This continued high support for forest management has been bolstered by effective communication about the value of fire in Flagstaff and provides an opportunity to engage in more nuanced discussions related to forest management, while sustaining current communication approaches to new residents.
- Given high ecological literacy across studies, outreach regarding forest management should focus not only on why activities are necessary, but also provide more information about the approaches being used and the decision-making rationale.
- 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.
- 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.

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



Melanie Colavito, Director of Policy and Communications, Melanie.Colavito@nau.edu, 928.523.6651

Niki vonHedemann, Human Dimensions Specialist, Niki.vonHedemann@nau.edu, 928.523.7854

Catrin Edgeley, Assistant Professor, School of Forestry, Catrin.Edgeley@nau.edu, 928.523.7347

Ecological Restoration Institute, Northern Arizona University, PO Box 15017, Flagstaff, AZ 86011, eri.nau.edu

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