Social science research related to wildfire management: an overview of recent findings and future research needs

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Abstract. As with other aspects of natural-resource management, the approach to managing wildland fires has evolved over time as scientific understanding has advanced and the broader context surrounding management decisions has changed. Prior to 2000 the primary focus of most fire research was on the physical and ecological aspects of fire; social science research was limited to a small number of studies. However, as more people moved into fire-prone areas interest grew in understanding relevant social dynamics. This growing interest was supported by increased funding for fire research overall with the creation of the Joint Fire Science Program in 1998 and the National Fire Plan in 2000. In subsequent years, a significant body of research has developed on the human dimensions of wildland fire covering diverse topics including: attitudes towards pre-fire mitigation, social acceptability of fire and fuels management, community preparedness, public response during fires, citizen–agency communications and post-fire recovery. This paper reports on two aspects of a Joint Fire Science Program project intended to take stock of the key social science lessons provided to date: a basic review of findings in the non-economic fire social science literature and identification of future research needs.

Introduction

Since their earliest days, the management of wildland fires has been a central part of the missions of USA federal land-management agencies. As with other aspects of natural resource management, the approach to managing wildland fires has evolved over time as scientific understanding has advanced and the broader context surrounding management decisions has changed. The primary focus of most fire research has been on the physical and ecological aspects of fire. Prior to 2000, non-economic social science research on wildland fire management was limited to a small number of studies (e.g. Stankey 1976; Cortner et al. 1984; Gardner et al. 1985; Carpenter et al. 1986; Taylor and Mutch 1986; Manfredo et al. 1990). However, as more people moved into fire-prone areas, most commonly referred to as the wildland–urban interface (WUI), interest grew in understanding relevant social science dynamics. This interest was supported by increased funding for fire research overall with the creation of the Joint Fire Science Program in 1998 and the National Fire Plan in 2000. In the subsequent years, a significant body of research has developed on the human dimensions of wildland fire. Much of this work, particularly in the early years of research, focussed on the diverse issues contributing to attitudes towards fire-mitigation efforts before a fire. Over time, social science research has continued to examine specific factors that contribute to social acceptability of fire and fuels management while expanding to cover a greater diversity of topics including public response during fires (e.g. evacuation and communication) and post-fire recovery.

This paper reports on two aspects of a Joint Fire Science Program project to take stock of the key social science lessons provided by the social science research on fire: a general overview of findings in the fire social science literature and identification of future research needs.

Approach

The research team conducted an extensive review of the available social science literature on wildland fires. Criteria for inclusion in the review included the following:

1) Use of an established social science methodology to address one or more fire-management issues. Economic studies were excluded from the review owing to fundamental differences in approaches and resulting data;
Searches were also performed on the most prominent social scientists active in studying fire-management issues. The resulting database of articles was provided to an external group of scientists who reviewed it for completeness. Additional articles suggested for inclusion were reviewed for consistency with the above criteria. Through these efforts, the research team completed a review of more than 200 publications of research results by well over 100 authors.

Only 7% of study locations in articles that met our search criteria were outside the United States. Although several Australian studies had been conducted before our cut-off date, they were not published in journal or editor peer-reviewed form. In recent years, particularly since 2010, several peer-reviewed articles have been published on fire social science outside the United States, primarily from Australia and Canada. The following summary therefore is most applicable for the United States; however, while dispersed across a range of countries and research topics, the findings from international articles published within our search timeframe, as well as after, suggest that many of the basic social wildfire dynamics are similar across countries. Of the remainder of the study sites, 8% were national-level USA studies, 56% of sites were in the western USA, 13% were in the Midwest, 12% were in the southern USA and 4% were in the north-eastern USA. Although the higher proportion of sites in the western USA could suggest that results are less applicable to other areas of the country, we did not see a strong indication that key social dynamics vary substantially across regions. In fact, social science studies that included multiple study sites often found that there were more similarities than dissimilarities between sites. When differences were found they were generally attributed to specific local contextual elements such as history, building style or ecological conditions. This is not to discount such differences when they do occur, as they can influence many of the key dynamics identified throughout this article.

Using an approach similar to grounded theory (a systematic method that applies a set of rigorous procedures to identify conceptual categories and their interrelationships, see Glaser and Strauss 1967), the research team read each article and categorised key findings. Findings from individual articles were then organised into overarching themes across articles. Preliminary results from this analysis were provided to an external group of scientists for review and discussion in a workshop held in Portland, Oregon, in August 2008. The workshop was attended by 18 of the primary social scientists working on fire-management issues (including the authors). Over 2 days workshop attendees reviewed findings, considered their relevance to managers, and discussed future research needs. Based on feedback from the workshop, the research team refined the themes presented below. In addition, the team compiled a list of research needs identified during the discussion, which was reviewed by workshop participants as well as a small group of managers. Results and the details of the research-needs process will be discussed later in the article.

Findings and discussion

Below we provide a general overview of social science research findings related to wildfire, followed by a brief discussion of identified research needs. Findings are organised into 12 (often overlapping) themes, which fall into four general areas: pre-fire mitigation and preparedness, community–agency dynamics, experiencing a fire and institutional considerations. For each theme we indicate the number of articles addressing the topic and an overview of key patterns identified across studies. What follows is not comprehensive. Space limitations mean we cannot cite every article associated with a theme or finding. Nor can we cover every aspect of a research area or go into detail about specific variation across studies. Instead we hope to provide a sense of the range and depth of the social science research that has been undertaken related to wildfire, as well as the range of researchers who are involved. The patterns identified under each theme required multiple studies to be described in this document, indicating that it is likely a consistent dynamic. More detailed results are being developed using an article database updated through December 2010.

Pre-fire mitigation and preparedness

Public acceptance of fire and fuels management (64 articles)

Substantial research has been conducted on the social acceptability of fuels-management treatments (primarily thinning and prescribed fire) and the agencies that implement these treatments. At a general level, research finds high levels of public support for thinning and prescribed-fire activities on public lands with a high fire risk. Two variables in particular were consistently associated with higher acceptance across sites: familiarity with a treatment technique and trust in those implementing the treatment. Other factors that have been found to influence treatment acceptance include beliefs about certain treatment outcomes (e.g. effect on wildlife, potential for escape, aesthetics), consideration of local values and context, perceptions of wildfire risk and citizen involvement in decision making. Treatment preference is also influenced by land ownership and location, with a preference for use of prescribed fire in remote areas and thinning in the WUI (Table 1). The influence of demographic characteristics (e.g. age, education, income, proximity of one’s home to the forest) on fuels-management preferences are so mixed that they are largely inconclusive (Shindler and Toman 2003; Weible et al. 2005; Winter et al. 2006; Walker et al. 2007).

Articles whose status was ‘in press’ as of July 2008 are indicated by an asterisk (*).
Table 1. Factors that influence fuel-treatment preference and support

<table>
<thead>
<tr>
<th>Factors</th>
<th>Citation</th>
</tr>
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<tbody>
<tr>
<td>Beliefs about or attitudes towards trust or confidence in those implementing a practice</td>
<td>Shindler and Toman 2003; McCaffrey 2004b, 2006; Weisshaupt et al. 2005; Absher and Vaske 2006; Blanchard and Ryan 2007; McGee 2007</td>
</tr>
<tr>
<td>Familiarity with treatment techniques</td>
<td>Shindler and Toman 2003; Winter et al. 2004; McCaffrey 2006; Gunderson and Watson 2007; Vaske et al. 2007</td>
</tr>
<tr>
<td>Trust or confidence in those</td>
<td></td>
</tr>
<tr>
<td>Perception of risk of wildfire</td>
<td>Weible et al. 2005; Bright and Newman 2006; Gunderson and Watson 2007</td>
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<tr>
<td>Citizen involvement in decision making</td>
<td>Winter et al. 2002; Shindler and Toman 2003; Blanchard and Ryan 2007</td>
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<tr>
<td>Consideration of local values or context</td>
<td>Winter et al. 2002; Brunson and Shindler 2004; Flint and Haynes 2006; Burns and Cheng 2007; Gunderson and Watson 2007; Liou et al. 2008</td>
</tr>
<tr>
<td>Location of treatment</td>
<td>Winter et al. 2002; Brunson and Shindler 2004; Weisshaupt et al. 2005; Bright and Newman 2006; Ryan et al. 2006; McCaffrey et al. 2008</td>
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</table>

Table 2. Factors contributing to the decision to mitigate risk

<table>
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<tr>
<th>Factors</th>
<th>Citation</th>
</tr>
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<tbody>
<tr>
<td>Trade-offs with other amenity values</td>
<td>Winter et al. 2002; Monroe et al. 2003; McCaffrey 2004a; Collins 2005; Nelson et al. 2005; Brenkert-Smith 2006; Startevant and McCaffrey 2006; Daniel 2007; Cohn et al. 2008</td>
</tr>
<tr>
<td>Perceived effectiveness of risk-reduction activities</td>
<td>Winter and Fried 2000; Kent et al. 2003; Absher and Vaske 2006; Brenkert-Smith et al. 2006; Bright and Burtz 2006; Martin et al. 2007; Cohn et al. 2008</td>
</tr>
<tr>
<td>Social context in which mitigation actions were considered</td>
<td>McCaffrey 2004a; Agrawal and Monroe 2006; Brenkert-Smith et al. 2006; Shirali pour et al. 2006; Blanchard and Ryan 2007</td>
</tr>
<tr>
<td>Individual capacity to implement actions</td>
<td>Kent et al. 2003; Bright and Burtz 2006; Holmes et al. 2007; Martin et al. 2007</td>
</tr>
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Public perceptions of wildfire risk (30 articles)

Findings from research on perception of wildfire risk are consistent with findings in the wider field of risk perception and demonstrate the complex and subjective nature of this topic (Daniel 2007; McCaffrey 2008). Although most people living in the WUI perceive a high wildfire risk, specific assessments and response to the same risk can vary based on an array of factors such as: individual probability calculations; the timeframe and spatial area that are being considered; perceived vulnerability to potential negative outcomes; and type of negative consequences considered (Carroll et al. 2004; McCaffrey 2004a, 2008; Martin et al. 2007; Cohn et al. 2008; Steelman 2008). Personal considerations, such as risk tolerance and balancing trade-offs between the risk of wildfire and the benefits of exposure (i.e. living in the forest), will also affect response to the risk (Daniel 2007; McCaffrey 2008). Previous experience with fire has mixed effects: in some cases prior experience leads to greater perceptions of risk, in others it can have a dampening effect (Winter and Fried 2000; McCaffrey 2004a; Blanchard and Ryan 2007; Flint 2007; Cohn et al. 2008). Ultimately, perceiving the risk is a necessary, but not sufficient, condition to taking action (Daniel et al. 2002; Kent et al. 2003; McCaffrey 2004a; Steelman 2008), as the actual decision to mitigate will also depend on other factors (see ‘Homeowner preparedness’ below).

Homeowner preparedness and mitigation (41 articles)

Numerous studies have examined homeowner preparedness and found that a majority of residents in fire-prone areas are aware of potential risk and have taken some type of action to protect their property (Kent et al. 2003; McGee and Russell 2003; Monroe and Nelson 2004; McGee 2005; Absher and Vaske 2006; Bventer-Smith 2006; Ctvetovich and Winter 2008; McCaffrey 2008). The decision to implement specific mitigation actions is influenced by the interaction of several factors including: social context in which mitigation options were considered; trade-offs with other amenity values such as aesthetics or provision of wildlife habitat; perceived effectiveness of risk reduction activities; and individual capacity to implement actions (e.g. time, money, physical ability) (Table 2). In addition, many fire mitigation measures are undertaken for reasons other than fire (McGee 2005; Nelson et al. 2005; Bright and Burtz 2006). In terms of fire protection responsibility, homeowners tend to see themselves as responsible for mitigating the fire risk on their property, whereas government agencies are seen as being responsible for educating residents about hazards and managing public lands (Winter and Fried 2000; Kent et al. 2003; McGee and Russell 2003; Brenkert-Smith et al. 2006; Weisshaupt et al. 2007; Cohn et al. 2008; Vining and Merrick 2008).

Community preparedness (20 articles)

A smaller body of ongoing work has focussed on how community action shapes preparedness with a particular focus on the role of Community Wildfire Protection Plans (CWPPs), which communities are required to have in place in order to access treatment funds through the Healthy Forests Restoration Act (2003). At the time of the workshop several studies had been completed, but were not yet published in the peer-reviewed literature, and so did not fit our criteria. However, several
general findings could be identified and showed that CWPPs can help build and maintain strong relationships between all stakeholders (agencies, local groups and industry) for sharing resources and overcoming jurisdictional boundaries. Factors that contribute to the success of community response and CWPPs include: active agency involvement; inclusion of community groups, leaders and networks; trust among parties and a common vision or threat (Flint and Haynes 2006; Cohn et al. 2007; Fleeger 2008; Fleeger and Becker 2010*).

Community–agency dynamics

Community–agency interactions (30 articles)

Several studies have identified the importance of effective citizen–agency interactions to citizen acceptance of agency fuel treatments, homeowner preparedness, effective response during a fire event and post-fire recovery (Shindler and Toman 2003; Cohn et al. 2006; Ryan and Hamin 2006; Sturtevant and Jakes 2008; Toman et al. 2008b). Findings from this work provide evidence of the value of both formalised collaborative efforts to develop fire- and fuel-management plans and less-formal interactions that facilitate information exchange (McCaffrey 2004b; Fleeger 2008; McCaffrey et al. 2008; Ryan and Hamin 2008; Toman et al. 2008b). When executed effectively, such activities tend to increase citizen trust and understanding, both of which are, as stated earlier, associated with increased support for management practices (Sturtevant et al. 2005; Toman et al. 2006; Flint and Luloff 2007). Similar to research examining citizen involvement in general agency planning activities, fire research highlights the importance of engaging the public early in the planning process, a commitment of agency leadership and use of an open and transparent approach to decision-making (Sturtevant et al. 2005; Burchfield 2007; Fleeger 2008). In addition, findings also highlight the value of using existing groups, such as homeowner associations, where possible. This can help tailor the communication message to local needs and utilise existing relationships to reach a broader audience, as well as add credibility to the fire-management message (Ryan and Hamin 2006; Burns et al. 2008; Sturtevant and Jakes 2008; Toman et al. 2008b).

Trust (10 articles)

Studies specific to trust and fire management support those found in the larger body of work on trust in natural resource management, which has shown that trustworthy relations are a common thread that runs through effective decision-making processes. These studies and reviews demonstrate that as trust increases, support for management programs also increases (Winter et al. 2004; Shindler 2007; Vaske et al. 2007). Factors that contribute to trustworthy relations include: competence of agency personnel; perception of shared norms and values; perception of fairness and equity in the planning process; and following through on commitments (Winter et al. 2004; Olsen and Shindler 2007; Vaske et al. 2007; Cvetkovich and Winter 2008; Liljeblad et al. 2009*).

Communication and outreach (41 articles)

Although few studies focussed solely on communication, many included research questions related to communication and outreach. Findings from this work support findings from research in other fields (Bier 2001; Toman et al. 2006) showing that well-designed communication programs can be effective at increasing public understanding, influencing attitudes about management activities, encouraging homeowners to adopt fire-safe behaviours and improving relations with local citizens. Fire studies have shown that information content is a key component and needs to provide specific explanations of both what to do and why it needs to be done, while also taking into account local context and conditions (Jacobson et al. 2001; Parkinson et al. 2003; McCaffrey 2004b; Zaksek and Arvai 2004; Monroe et al. 2006; Toman et al. 2006; Winter et al. 2006). Mode of delivery is also important. Although many programs tend to gravitate towards unidirectional methods, such as mass media, the most effective methods for influencing attitudes or behaviour are interactive approaches such as one on one consultations, small workshops, town hall-type meetings, field trips and tours and demonstration areas (Blätner et al. 2001; Kent et al. 2003; McCaffrey 2004b; Ryan and Hamin 2006; Toman and Shindler 2006; Toman et al. 2006, 2008b).

Experiencing a fire

Community actions and reactions during and following a wildfire event (23 articles)

Research in this area has been more limited than that on actions taken before a wildfire event. Research from other hazards has shown that as people seek to make sense of events, obtaining up-to-date information can be an important way to retain some semblance of control and ease anxiety (Kumagai et al. 2004; McCool et al. 2006; Hodgson 2007). Findings from the studies specific to wildfire confirm this dynamic and indicate that during a fire, affected individuals want information about how the fire influences their lives (e.g. effects to their home and property, evacuation information) delivered with greater frequency and specificity than is often available through agency channels. If real-time information (during the fire) is not fulfilled by the agencies, people are likely to rely on alternate, less-formal information networks such as family and neighbours (Cohn et al. 2006; Taylor et al. 2007; Sutton et al. 2008).

Wildfire events can result in a community ‘pulling together’ as residents reach out to help each other. Alternatively, wildfires can extend, and sometimes amplify, pre-existing disagreements and serve to fragment communities (Rodriguez-Mendez et al. 2003; Kumagai et al. 2004; Carroll et al. 2005; Burchfield 2007; Olson and Shindler 2007). Post-fire recovery is influenced by the quality of citizen–agency interactions before and during the fire (e.g. timeliness and accuracy of information, transparency of communication) and community characteristics (e.g. existing relationships, economic stability) (Kumagai et al. 2004; Carroll et al. 2005; Burchfield 2007; Downing et al. 2008; Toman et al. 2008a). Projects that allow citizens to participate in post-fire recovery efforts, particularly those in locally important areas (e.g. around subdivisions or in popular recreation areas), have been found to help citizens recover and reconnect with the forest (Carroll et al. 2005; Hull and Goldstein 2006; Ryan and Hamin 2006; Burns et al. 2008; Toman et al. 2008a).
Recreation (14 articles)

Research specific to the effects of fire and fire management on recreation is limited. Visitation to areas that have experienced a fire (either prescribed or wild) generally decreases immediately after a fire (particularly severe fire), but gradually increases as the forest recovers (Englin et al. 2001; Loomis et al. 2001; Hesseln et al. 2003; Brown et al. 2008). Some forest users prefer restrictions on recreation activities after a fire whereas others do not. Specific response can vary by type of user (e.g. tourists v. local residents), type of activity (e.g. camping v. mountain biking) and level of effect of the fire on the area (e.g. road closures, smoke) (Englin et al. 2001; Loomis et al. 2001; Thapa et al. 2004; Brown et al. 2008).

Institutional considerations
Policy (31 articles)

Papers with a specific focus on wildfire policy have primarily focussed on the evolution of national policy and their contributions to creating or reducing the wildfire risk (Davis 2001; Busenberg 2004; O’Laughlin 2005; Dale 2006; Jensen 2006; Steelman and Burke 2007). From a community standpoint, recent policies to shift wildfire management from a reactive focus on suppression to a more proactive and comprehensive approach have had mixed success; whereas some communities have benefited greatly, others have not (Steelman et al. 2004; Mosley 2007). Research suggests however that rather than focusing efforts on redesigning policies, the current policies could be more effective if fully implemented (i.e. all aspects are fully funded) (Steelman et al. 2004; Jensen 2006).

Planning (29 articles)

Research related to planning was often a by-product of research in other areas (e.g. planning recommendations from studies on the ecological aspects of fire management). Research has highlighted the importance of how the WUI is defined (Stewart et al. 2007) and of working at the appropriate scale and taking local considerations into account (Hann and Bunnell 2001; Gunderson 2006; Knotek and Watson 2006; McCool et al. 2006; Olsen and Shindler 2007). Including local citizens and groups in the planning process has also been shown to facilitate relationships and acceptance (Ostergren et al. 2006; Ryan and Hamin 2006).

Organisational effectiveness (12 articles)

Research in this area has been very limited, but suggests that risk perceptions and attitudes of agency personnel can significantly limit the willingness of managers to actively engage in the full range of pre-fire mitigation activities, from working with communities to selecting more risky practices (e.g. wildland fire use). Lack of internal support (whether money, staffing or leadership) can also be a significant limiting factor (Miller and Landres 2004; Aplet 2006; Arvai et al. 2006; Dale 2006; Doane et al. 2006; Davenport et al. 2007; González-Cabán 2007; Williamson 2007).

Future research needs

Beyond discussion of what conclusions could be drawn from existing research, a focus of the Portland workshop was identifying key research gaps. Subsequent to the workshop the Joint Fire Science staff asked us to refine the research-gap discussion into a list that could help inform future funding decisions. After reviewing discussion notes, a list of 36 research needs was drawn up. As this list did not neatly fall under the original twelve themes (for instance some themes had no identified research needs) the needs were organised into six new topic areas: fire management and public response, fire preparedness and mitigation, temporal connections, coordination of planning efforts, organisational effectiveness and community capacity and sustainability. The resulting list of research needs was sent to all scientists who attended the workshop, three additional scientists external to the workshop and a small group of 11 managers. Managers who completed this review worked for federal, state and local government agencies, and one non-governmental organisation, and included representatives from western, mid-western, southern and eastern states. Each reviewer was asked to assess validity and completeness of the list and to identify the six research needs they deemed most important.

Comments from both scientists and managers indicated that the identified needs were comprehensive and well reasoned. All items received some level of support; however, five received such limited support that they are not considered in the final discussion below. Although most needs received approximately equal levels of support from managers and scientists, a few were supported more by managers than scientists (indicated with a superscript letter M), whereas others were supported more by scientists than managers (indicated with a superscript letter S). The following presents a brief summary of research needs for each of the six topic areas. Within each topic area, specific research needs are presented according to general order of priority, with needs receiving more support reported first.

Fire management and public response

The research focus to date on understanding public response before fires means that there is a need for more work on public response to and understanding of the entire fire-management cycle. This is particularly important as the emphasis shifts away from full suppression to encompass broader goals. New research therefore needs to assess factors that influence agency fire-management decisions during and after a fire and interactions with local residents and groups. This topic had the most identified research needs (eleven). Of these, the top five were:

- Identifying smoke communication best practices;
- Understanding the dynamics of evacuation and alternative models to evacuation;
- Developing more-detailed knowledge of the multiple components of trust specific to fire management;
- Assessing public views of different fire-suppression strategies and tactics including wildland fire use;
- Evaluating the role of volunteer fire departments in the wildfire-management system.

Fire preparedness and mitigation

Research needs in this area focus on building upon the existing body of research in relation to mitigation and preparedness on both public and private property. These include:

- Developing a synthesis of the existing work to help clarify factors influencing preparedness activities;
• Examining the effect of variations in risk perception (public v. agency and across cultural groups)M, Comparing differences in approaches and effectiveness of CWPPs across locations; Understanding the influence of different policies on preparedness activities; and Identifying factors that influence maintenance of mitigation activities over time.

Temporal connections

Research to date has tended to focus on problems and decisions that reflect a single point in time. However, managers could benefit from insights about how current actions and choices may influence future events and citizen beliefs, attitudes and behaviours. Longitudinal research will provide a better understanding of the temporal connectivity of a range of fire issues from prevention and fuel-reduction activities to decisions and experiences during an event, to post-fire decision making and recovery. Specific topic areas identified were:

• Examining the ability of intermediary organisations and social networks to help build community capacity for wildfire risk; Identifying factors that contribute to the willingness to pass ordinances requiring mitigation measures and the effectiveness of such measures; and Understanding the effect of variations in risk perception (public v. agency and across cultural groups)M.

Community capacity and sustainability

Finally, research has highlighted the importance of local capacity in successful implementation and maintenance of wildfire-mitigation activities. A better understanding is needed of how different community characteristics (e.g. human capital, social networks, physical infrastructure) can affect community capacity to adapt to fire. Although receiving less overall support than other topic areas, specific topics that received support were:

• Understanding the consequences when federal land-management agencies focus an increasing number of functions around wildfire, particularly during unusually active fire yearsM; and Assessing the implications of shifting more fire costs to local governments; and Understanding the effect or effectiveness of stewardship, or both, contracting authorityM.

Coordination of planning efforts

With the rapid expansion of the WUI into fire-prone ecosystems, coordinating planning efforts at all levels of government has the potential to improve fire risk-reduction efforts. However, little research has looked at how planning activities actually affect wildfire risk. Specific topics to address this gap were:

• Understanding how local, state, county and multiscale land-use planning increases or decreases wildfire exposure; and Identifying factors that hinder agency managers from working with communities.

Organisational effectiveness

Existing findings suggest that internal barriers can significantly limit an agency’s ability, willingness, or both, to engage in the full range of fire-mitigation and restoration activities. Further research could help agencies develop internal policies and practices that will best support effective fire management. Specific topics identified were:

• Building a ‘map’ of the fire-management system (i.e. pre-fire, during an event, post-fire) in order to understand the interactions of the different players and help identify potential synergistic effects of any structural change; and Understanding the consequences when federal land-management agencies focus an increasing number of functions around wildfire, particularly during unusually active fire yearsM; and Assessing the implications of shifting more fire costs to local governments; and Understanding the effect or effectiveness of stewardship, or both, contracting authorityM.

Conclusion

Since 2000, a substantial body of work has been undertaken on social issues of fire management. The work has shown that at a general level there is substantial public support for mitigation efforts before fires, whether they are treatments on public land (i.e. mechanised thinning, prescribed fire) or actions taken by homeowners on their property. Results from this work have provided important information that can help managers identify the most effective ways to begin to address the diverse social issues of fire management. However, there is also a clear need for additional research, to address existing gaps in our understanding and to address new and emerging fire-management challenges. Although fire itself is a biophysical process, fire management is essentially a social one. Having an accurate understanding of key dynamics whether before, during or after a fire event will be integral to ensuring that future fire management can most efficiently ensure safety and minimise negative effects on communities, while at the same time fostering both ecologically beneficial and cost-effective use and management of fire.

References


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