Understanding Social Influences on Wilderness Fire Stewardship Decisions

BY KATIE KNOTEK

Abstract: Federal land managers and the public engage in many decisions about stewardship of wilderness in the United States, including decisions about stewardship of fire. To date, social science research lacks a holistic examination of the decision-making context of managers and the public about stewardship of fire inside wilderness and across its boundaries. A conceptual model is presented to guide research on this decision-making context, with emphasis placed on social influences on public and manager decision making.

Introduction

The Wilderness Act of 1964 mandates that the natural conditions of wilderness be protected and preserved while being managed for human uses and values. Wildland fire (any nonstructure fire in a wildland area) is a natural disturbance process in many wilderness ecosystems, and therefore, in these places wilderness stewardship (careful and responsible management) must allow the occurrence of fire to preserve natural conditions. At the same time, wilderness stewardship must also consider how fire interacts with human uses and public values associated with wilderness and adjacent lands. Thus, federal land managers, engaged with the public, must make decisions about the appropriate stewardship of fire inside and across wilderness boundaries (see figure 1).

Katie Knotek. Photo by Jeff Brooks.

Strategies for fire stewardship can include both suppression and use of wildland fire (either naturally ignited or management ignited). Guided by the 2001 Federal Wildland Fire Management Policy in the United States, managers must assess the costs and benefits of these options when making stewardship decisions, taking into account both short- and long-term ecological and social outcomes. For example, managers must consider the impact (positive or negative) of different decisions on ecological elements, such as flora, fauna, air and water quality, and social elements, such as human life, private property, and local, regional, and national values attached to public lands. Members of the public must also consider such impacts when evaluating fire stewardship decisions proposed by land management agencies. This creates a complex decision-making context for managers and the public concerning the stewardship of fire inside and outside wilderness.

This article presents a model to guide research in understanding and facilitating these decisions. Because social factors are among the primary influences on decision making, emphasis is placed on understanding how these factors can influence fire stewardship decisions and how research can facilitate such decisions. A model originally proposed to explain social influences on wilderness policy, human and ecological values, and codes of behavior for wilderness visitors (Watson and Landres 1999) has been adapted to understanding social factors that influence manager and public decisions about fire stewardship. The adapted model (see figure 2) provides insight into social influences on fire stewardship decisions generally, which includes decisions regarding the stewardship of fire in wilderness ecosystems specifically.

Cognitive Disposition toward Fire

Decisions made by managers and the public about fire are directly influenced by their cognitive disposition (see figure 2), reflecting human values, value orientations, attitudes, norms,

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and behavioral intentions. The Cognitive Hierarchy, a theoretical framework (Fulton et al. 1996; Vaske and Donnelly 1999), suggests that an individual's personal view of the environment is shaped by these cognitive components, and that each of these components builds upon the other, from fundamental values (the center of one's personal belief system) to specific behaviors. Thus, the theory holds that fundamental values and value orientations can be used to understand and predict human attitudes, norms, and behavioral intentions with reference to a specific object or subject such as the stewardship of wildland fire.

A large proportion of social science research applied to fire issues has focused on investigating the various components of the Cognitive Hierarchy and their influences on decision making (Machlis et al. 2002). For example, scientists have assessed value orientations (Bright et al. 2003), attitudes (Jacobson et al. 2001; Manfredo et al. 1990; McCool and Stankey 1986), norms (Kneeshaw et al. 2004), and behavioral intentions (Jacobson et al. 2001) related to fire stewardship inside and outside wilderness. Such research has been emphasized because, as purported by the Cognitive Hierarchy, knowledge of human values, attitudes, and norms is critical to predicting human behavior and decision making. This line of research, however, lacks an examination of more broad social influences that ultimately drive cognitive dispositions toward stewardship of fire (see figure 2).

General Societal Trends and Specific Influences

In order to fully understand the context within which managers and the public make decisions about fire stewardship, there is a need to link the study of cognitive components held by individuals, such as values and attitudes, to larger societal influences (Manfredo et al. 2004). Detailed below are a select set of some general societal trends and specific influences and discussion about their relationship to decisions regarding stewardship of wildland fire.

Shifting Orientations toward Natural Resources

Shifting orientations toward natural resources is a societal trend that has significantly influenced public land management, including stewardship of wildland fire. Historically, American society has dominantly displayed utilitarian or anthropocentric orientations toward natural resources, focusing public lands policy and management on the extraction and utilization of natural resources for economic benefit (Williams 2005). In the second half of the 20th century, however, American society has shifted to less utilitarian and more biocentric orientations toward natural resources, valuing resources for their inherent worth as amenities or scarce resources to be protected and conserved (Williams 2005). The former anthropocentric orientation toward natural resources spurred a fire policy of strict suppression emphasizing commodity protection (Pyne 1982; Williams 2005). But today, as society

Figure 1—Fire does not adhere to political or administrative boundaries, thus federal land managers and the public must make decisions about fire stewardship across the wilderness and nonwilderness interface. Photo by Josh Whitmore.

increasingly values natural resources as amenities, there is greater support for decisions to manage fire in ways that will preserve the natural features and functioning of wildlands (Manfredo et al. 1990; McCool and Stankey 1986).

Increased Knowledge of Natural Processes

Another societal influence on attitudes about fire stewardship is an increased understanding of natural processes. Scientific understanding of natural processes, such as wildland fire and its importance in proper ecosystem functioning, has increased over time, particularly since the 1970s (Pyne 1982). For example, fires within wilderness were previously perceived to
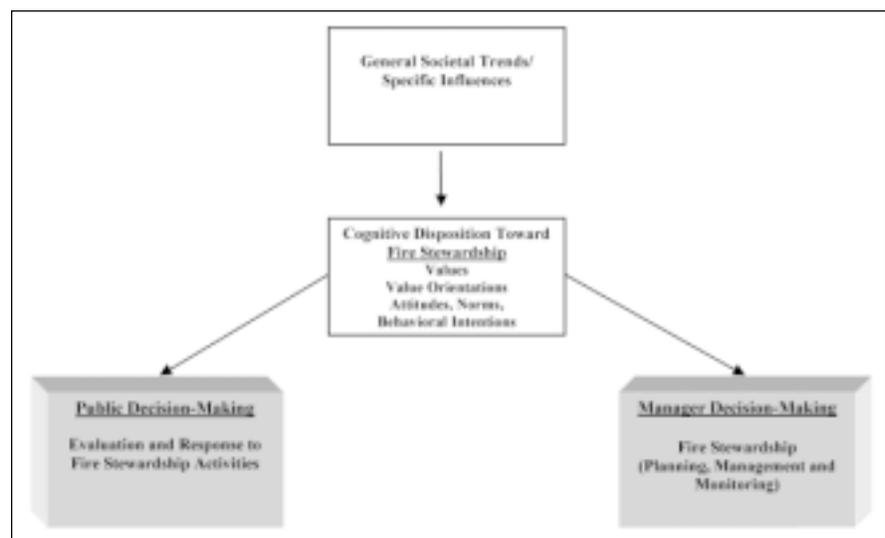

Figure 2—A model for understanding social influences on fire stewardship decisions.

Figure 3—It is important to consider how fire influences human relationships with wildlands and perceptions of appropriate fire stewardship activities. Photo by Josh Whitmore.

be detrimental to public resources and values, causing fire suppression to be viewed as essential for protecting wilderness values (Parsons 2000). Research has shown, however, that fire is indeed a natural process in many wilderness ecosystems, as it provides for nutrient cycling, regeneration of vegetation, and reduction of hazardous fuel loads, among other benefits (Pyne 1982). As a result, federal land management agencies initiated new policies in the late 1960s and 1970s that would allow some wildland fires to burn under prescribed conditions (Pyne 1982). As science produces new knowledge about wildland fire, these policies are being updated and expanded to increase the use of fire both inside and outside wilderness (Aplet, this issue).

Development and Growth of the Wildland-Urban Interface

One of the most influential societal changes that has affected fire stewardship decisions has been the development and growth of the wildland-urban interface (WUI) (Miller and Landres 2004). The growing WUI represents the increase in residential housing and recreational use in urban fringe areas that has occurred over the past several decades. In these areas, society is faced with the necessity and risk of wildland fire, while managers struggle to understand and meet public expectations regarding fire stewardship

(Jacobson et al. 2001; Winter and Fried 2000). At the same time, fire policy (e.g., the National Fire Plan) increasingly emphasizes community protection and risk prevention in the WUI (Glickman and Babbitt 2000), which often constrains decisions to use fire on adjacent areas, including wilderness. Social trends and projected growth in the WUI (Radeloff et al. 2005) is important information for managers and the public to inform decisions about fire and protecting values at risk across the interface of wilderness and adjacent lands. Data such as these, as well as other changes in the WUI environment will become increasingly important in making decisions about fire stewardship as growth of the WUI continues.

Public Trust

Public trust in land management agencies is an example of a specific influence on how the public evaluates and responds to policy governing fire stewardship (Liljeblad and Borrie, this issue; Toman and Shindler 2003; Winter and Cvetkovich 2003). Trust in public land management agencies has been assessed through measurement of perceptions of shared values, direction, goals, views, actions, and thoughts (Earle and Cvetkovich 1995). Trust is facilitated through a collaborative relationship between the public and the agency, in which the agency takes responsibility for protecting the public purpose of public lands (Borrie et al. 2002). Therefore, public perception of the land management agency's ability to reflect public values, goals, direction, and so forth influences support for agency policy and decisions related to fire stewardship. Research to understand public trust in an agency's ability to make fire stewardship decisions that consider local values is crucial. Research of this type equips scientists with the ability to assess and monitor trust levels over time, providing feedback on stewardship decisions (Liljeblad and Borrie, this issue).

Place Meanings and Attachments

The type and degree of attachments that people hold in regard to specific public lands influence their views of fire stewardship. Stewardship practices and environmental conditions acceptable in one setting are not necessarily acceptable in another, depending on place meanings and landscape context (Brunson 1993). Place-based meanings have been investigated through the concept of "place attachment" (Moore and Graefe 1994; Williams et al. 1992), defined as a psychological indicator of a person–place relationship and the meanings that are inherently a part of that relationship. All wildland fires have the potential to impact (positively and negatively) relationships humans have with places, and in turn, how they perceive wildland fire and decisions pertaining to its stewardship (see figure 3). Research has been used to map personal values and meanings across wilderness and nonwilderness lands to understand how place meanings and attachments can influence decisions about fire stewardship (see, for instance, Gunderson, this issue). The results of this research provide social understanding that, coupled with ecological modeling efforts, can be used to evaluate the social and ecological consequences of potential fire stewardship decisions. Research suggests that through the investigation and mapping of place meanings and attachments it is possible to better inform manager and public decisions concerning fire stewardship, providing a valuable tool to facilitate manager and public decision making in the future.

Conclusions

There are other examples of acknowledged, but not understood, social influences on decisions about fire stewardship, such as institutional incentives and disincentives, education initiatives to inform homeowners about personal

responsibility, increasingly urban populations, and cultural differences in place meanings and attachments. Guided by this conceptual framework, however, research should be aimed at not only individual cognitive components that predict decision making, but also these larger changing social factors that influence decisions about stewardship of fire inside and outside wilderness. Investigation of issues on the topic areas and relationships depicted in this model will provide a more detailed understanding of agency and public decision making. Such a research pursuit is timely as federal land managers, engaged with the public, act to restore the natural role of fire to many ecosystems. **IJW**

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