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Trust in Wildland Fire and Fuel Management Decisions

BY ADAM LILJEBLAD and WILLIAM T. BORRIE

Abstract: Public land managers are stewards of public lands and of the relationship between the public and these lands. Maintaining one aspect of this relationship, trust in the agency, can be challenging. Lack of trust can influence public response to management decisions, including about wildland fire use. By considering the factors that influence trust, managers can be more effective in accomplishing fire stewardship objectives.

Trust—An Essential Element of Fire Stewardship

Today, resource managers are likely to consider social, economic, and ecological effects when making or implementing fire management decisions. However, recent studies have shown that significant portions of the public do not fully trust the fire and fuels decisions that managers make (Shindler and Toman 2003; Winter et al. 2004). This lack of trust is one of the primary factors influencing public evaluation of these decisions (Knotek, this issue; Brunson and Evans 2005; Vogt et al. 2003; Winter 2002).

Without trust, it is easy for the public to become disenfranchised and withhold their support for decisions regardless of the merit of the decisions (Shindler et al. 2002). Many of the political barriers to wildland fire use (WFU) described by Aplet (this issue) may be remedied by addressing issues of trust between the public and managers. Not only is wilderness fire management a matter of assessing what to do, but also of having the necessary public support to carry it out. Managers need, therefore, to maintain or increase public trust in wildland fire decisions if they are to be fully effective as public land stewards (see figure 1). As Shindler et al. (2002) suggest, trust building should be "the central long-term goal of effective public process" (p. 44).

Trust affects the public's evaluations of public lands policy (Borrie et al. 2002). Although federal lands are national resources and need to be managed to meet intended national public purpose, managers are increasingly concerned about protecting the meanings that local residents attribute to these places, as well (Gunderson, this issue). Because of their prox-

Adam Liljeblad and Bill Borrie. Photo by Adam Liljeblad.

imity to wildlands, local residents are disproportionately impacted by fire management decisions (Danks 2001). Local community members frequently take issue with fire managers' prioritization of available resources, have long-held beliefs about the desired conditions of the forest, and tend to be suspicious of outside influences on local land management decisions (see, for instance, Gunderson, this issue).

Recent research has shown that public attitudes toward fire management decisions are at least partially dependent on perceived impacts (Kneeshaw et al. 2004; Winter et al. 2003; Winter et al. 2004). In general, the greater the benefits the public perceives to be associated with each fire management option, the more trusting the public is likely to be. Similarly, the greater the perceived risk associated with each option, the less public trust. Using fire and fuel management techniques that the public considers to be unacceptable or believes to pose high risk will likely

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Figure 1—Having the trust of the public allows managers to be more effective stewards of the land. White Knoll Wildland Fire in the Manti-La Sal National Forest in 2005. Photo from U.S. Forest Service.

lead to a decrease in the public's trust in the agency (Winter et al. 2004).

In order to get support for management decisions, such as WFU, it requires a significant extension of public trust. WFU is inherently risky, and the public must have confidence that wildland fire managers will not let fires escape to threaten homes, lives, or other values at risk. Local residents also sometimes express distrust of fire and fuel managers because many incident command teams managing large fires are from outside the area and are less likely to understand local values or utilize local knowledge (Black et al. 2004; Carroll et al. 2005; Kent et al. 2003). These transient teams possess the level of experience and skill needed to manage larger fires—something local firefighters rarely have. However, as these managers take the firefighting reins, utilizing the knowledge and expertise of local firefighters and managers may contribute to trust. Local fire departments have much greater knowledge of the tradeoffs associated with decisions, are able to provide continuity, and have an understanding of historical events that transient managers do not (Danks 2001; McCool et al. in press).

Currently, some mechanisms do exist for considering local knowledge in the decision-making process. During the scoping process under National Environmental Policy Act, for example, there are numerous opportunities for local community residents to comment on proposed plans and policies. Most current methods of engagement, however, are not typically systematic attempts to incorporate knowledge about contributors to trust into this process.

Systematic Consideration of Trust Contributors

The public's trust is critical to long-term success of fire and fuel management decisions. Trust exists on multiple levels, from trust in an individual to trust in an institution (Kramer 1999). When the public trusts a management agency, it suggests managerial success through the implementation of effective policies and practices, a strong and attentive relationship between resource managers and the public, and perhaps most importantly, that managers are fulfilling their public purpose mandate to be stewards of natural resources as well as stewards of the relationship the public

has with public places (Watson and Borrie 2003).

Having a trusting relationship between a managing agency and the public not only directly benefits public lands but also the government as a whole, the specific managing agencies, and the public (Hardin 1993). Trust contributes, for example, to overall governmental effectiveness by minimizing transaction costs, the external costs associated with any interaction or exchanges between parties. With trust, there is a measure of faith in the actions and intentions of others, so there is reduced need for extensive regulation, contractual agreements, or litigation (Fukuyama 1995; Putnam 2000). Through these actions of voluntary compliance, parties are able to cooperate in a more open, honest fashion, consequently developing a moral consensus, which results in more mutually agreeable decisions. Relationships of all types are built around the notion of social capital, referring to the bonds of honesty, reciprocity, and trust that form between parties as they interact openly. Organizations high in social capital are believed not only to be more effective and innovative, but also are perceived as having greater legitimacy than organizations with lower levels of social capital, because there is an increased sense of a collective good (Putnam 2000).

A recent study examined the public's trust in one national forest's fire and fuel management program (Liljeblad 2005). Seventeen hypothesized contributors to trust were identified in a broad-reaching review of social science literature. Although each of those 17 items contributed significantly to trust, seven were determined to be the most influential. These seven interrelated items reflected the public's level of agreement with the actions of fire managers; their perceptions of the fairness and equity in the fire and fuel management pro-

cess; the public's willingness to endorse agencies to act as stewards on their behalf; how well managers are doing their job; the degree of confidence that the public has in the actions of fire and fuel managers; the extent to which managers can be relied upon to perform in a consistent manner; and the public's perceptions of how deserving managers are of trust.

The contributors to trust are specific to each particular set of circumstances, involved parties, and their histories with one another (Liljeblad 2005). Paired with the fact that fire and fuel management is by its very nature complex, controversial, rife with uncertainty, and varies as social and biological systems change (McCool et al. in press), it becomes impossible to definitively and precisely know the requirements for trust for each set of circumstances. The seven most influential contributors to trust in this landscape-level fuel treatment project, however, can be illustrated using an example from the 2005 fire season.

Under the 1998 Alaska Interagency Wildland Fire Management Plan, fires in limited suppression zones are lowest management priority and are generally not suppressed unless human life is in danger. Areas are designated as limited suppression based on three possible criteria: (1) when the cost of suppression may exceed the value of resources to be protected, (2) the environmental effects of suppression may have more negative impacts than the fire, (3) or if excluding fire is detrimental to fire-dependent ecosystems.

In interior Alaska, a lightning-ignited fire started in a remote, limited suppression fire management zone. Eighteen recreational cabins exist along the shores of a nearby fly-in-only lake. As the fire approached the cabins, landowners were concerned that the fire was not being

suppressed, especially since their cabins were threatened and they believed there were idle fire crews available. An attempt by one of the landowners to persuade suppression was not successful. Seeking to protect the structures themselves, landowners flew out to the lake with rudimentary firefighting equipment, with the hopes of protecting the structures (Dillon 2005a). Once landowners arrived at the lake, their lives were considered to be in danger due to their proximity to the fire, and smokejumpers and air tankers were then dispatched to suppress the fire. Only one small cabin and a cache were destroyed by the fire (Dillon 2005b).

The example of this 2005 fire presents a fitting lens through which to examine each of the contributors to trust in fire and fuel management decisions. *Agreement* is simply the belief that the objectives and actions of managers coincide with those of the public. According to newspaper reports, cabin owners did not agree with the state's policy of not protecting recreational structures in limited suppression zones. In order to maintain trust, managers would need minimally to acknowledge and address these opinions of residents when making decisions.

Procedural justice refers to the fairness, equity, and legitimacy of the fire management process. Property owners wanted an exclusion from the policy of limited suppression and protection of their recreational cabins surrounding the lake, prompting accusations of favoritism and inequity from the local media A sound fire policy 2005). Because other remote property owners could most likely not receive the same treatment, a suppression decision would likely harm the general public's trust in fire decisions.

The public's *willingness to endorse* managing agencies to act on their behalf refers to the extent to which people extend their

Figure 2—Public confidence in the actions of wildland fire managers is important to management. Photo from U.S. Forest Service.

trust to agencies based on their perceptions of how the agency will perform. That is, in order for the public to trust the agency, the agency needs to fulfill the public's expectations. For example, the cabin owners likely would not be willing to endorse the fire managers' decisions to not suppress fires to protect recreational structures in the limited suppression zone. The public's willingness to endorse managing agencies reflects trust's voluntary nature, which is inherently contingent on perceptions of what managers will or will not do.

Effectiveness is the ability of managers to successfully accomplish their management decisions, or have the impact they intend. It implies that managers are productive, not just active. Managers were working within the restrictions of a limited suppression zone, which prevented the protection of recreational structures. However, once people's lives were put in danger, managers were obligated to do whatever possible to protect them. Managers were effective at adhering to both the restrictions of limited suppression, and then the need to protect the public, likely strengthening public trust.

Confidence is the degree of faith, certainty, or assurance that the public has in the actions of wildland fire managers (see figure 2). People expect a certain outcome or range of outcomes when managers make or implement a

decision. In the example, landowners were likely confident that if wildland firefighters were to respond to suppress the fire, they could and would protect the structures.

Reliability is a characteristic of managers themselves. It refers to the extent to which managers can be counted upon to perform a given function or behave in certain predictable manners, and reflects consistency of acting. If, for example, fire managers had been permitted to suppress the fire soon after it began, their swift response on that fire, like on dozens of fires previously, would be considered to be reliable because they had behaved in a consistent, predictable manner.

The last of the most influential contributors to trust is *trustworthiness*, which is the notion that fire managers conduct themselves in a manner deserving of trust of others. Conceptually, trustworthiness intertwines with the other contributors, and is a reflection of fire managers' general reputation, implying managers deserve the trust the public offers, and is suggestive of future behavior. These managers showed that they were worthy of the trust the cabin owners placed in them when they responded to suppress the fire to protect the owners. It suggests that they likely would respond in a similar manner were the situation to arise again.

It is possible for managers to foster *some* of the attributes of trust and *not all* of them. In the preceding example, managers behaved in a manner that likely harmed the trust of the cabin owners while building the trust of the general public, but also did things that likely harmed the trust of the general public, but built trust among cabin owners. There are times when managers must abrogate the public's trust in order to accomplish some higher level objective, such as conducting a back-burn through a prized recreation area (normally associated with negative social implications) in order to protect a town (normally associated with positive social implications).

Conclusion

The contributors to trust presented here are an important subset of factors identified by Liljeblad (2005), and are believed to be the most critical to developing and maintaining trust in fire and fuel management decisions. In order to be effective stewards of wildland fire, managers need to be cognizant of the potential effects of each and every one of their actions. Resource managers have a public purpose mandate to consider the ecological, economic, and social implications of all decisions. If they can incorporate these considerations into how they manage fire, they are likely to be able to increase the public's trust in their decisions and in so doing, improve their overall managerial effectiveness. It is not a simple task, and requires managers to continually consider the effects of each action. In a time where forest management by lawsuit is becoming the norm, greater public trust means that lawsuits may be reduced, managers can be more effective stewards of public lands, and the benefits of fire can be assured on wilderness and nonwilderness lands alike. **IJW**

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There are several studies at various stages of completion in Glacier National Park investigating the relationship between wildfire, amphibians, and their habitats. Most of these studies were instigated by wildfires in 2001 and 2003 that burned areas where the area has been monitored for the distribution of breeding populations since 1999, providing the rare opportunity to document potential changes using prewildfire data. A general pattern that has emerged is the number of wetlands used for breeding by the western toad increases the year after wildfire, sometimes in areas where we had found few adults and no breeding activity in years before the fires, followed by a decline toward prefire numbers over subsequent years. The response of widely distributed pond amphibians in the park, the long-toed salamander and Columbia spotted frog, seems minimal, with no apparent increases or decreases in the proportion of wetlands occupied by breeding populations in burned areas. We have tried to determine why toads rapidly increase their numbers in recently burned areas. We found few changes to the wetland environment (e.g., temperature, nutrients) that would explain the colonization and expansion, but radio tracking of adult toads and GIS modeling of vegetation gradients suggest they may be responding to changes to the terrestrial environment rather than to the wetlands. Based on similar colonization events in other areas of the Northwest, we suspect the western toad is a habitat generalist that responds to a wide variety of disturbances. Exactly why disturbed habitats are preferred and whether or not the larger population of the area actually benefits from the colonization of new breeding sites is still uncertain and will be the focus of future research.

The 2003 wildfires in Glacier National Park burned half of a group of streams we had sampled in 2001 for Rocky Mountain tailed frog larvae. Postfire reductions in relative abundance and a shift in age structure of the populations were consistent with a moderate fire effect. We do not think the fire represents a long-term threat to the populations. Results from this study will be an important counterpart to the larger study of wildfire and stream amphibians described above. Wildfire studies are never truly replicated, but similar results from different areas and fires increase our confidence that conclusions we may draw are robust.

Scientists are in the early stages of determining the relationship between wildfire and conservation of amphibians in the Northwest. It will not be surprising if we find that amphibian communities are healthier in areas where fire regimes more closely resemble those prior to European settlement, similar to the relationship between wildfire and amphibians in the Southeast. Also, because fire has often been managed differently in wilderness and national parks during the last 30 years or so, compared to actively managed forests, protected lands may be important to the conservation of many amphibians. **IJW**

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