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Citizen-Agency Interactions in Planning and Decisionmaking After Large Fires

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Abstract

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This report reviews the growing literature on the concept of agency-citizen interactions after large wildfires. Because large wildfires have historically occurred at irregular intervals, research from related fields has been reviewed where appropriate. This issue is particularly salient in the West where excess fuel conditions indicate that the large wildfires occurring in many states are expected to continue to be a major problem for forest managers in the coming years. This review focuses on five major themes that emerge from prior research: contextual considerations, barriers and obstacles, uncertainty and perceptions of risk, communication and outreach, and bringing communities together. It offers ideas on how forest managers can interact with stakeholders for planning and restoration activities after a large wildfire. Management implications are included.

Keywords: Postfire, citizen-agency interactions, public involvement, federal forests, communication strategies, risk and uncertainty, context.

Introduction

Wildfire is a significant threat to forests and surrounding communities throughout the United States. The issue is particularly salient in the West where excessive fuel conditions indicate that the large (>100,000-acre) wildfires now occurring in many states are expected to continue to be a major problem for forest management personnel in the coming years. Consequently, the process of recovering from large wildfires will become increasingly important to forest management agencies and communities. However, many forest management personnel are largely unprepared to cope with the ecological planning and public interactions that follow such events. At least four factors converge that make this situation especially problematic: (1) wildfires at this scale may be a one-time event in the career of a line officer or technical specialist on a particular national forest or ranger district; thus individuals have little personal experience to draw upon; (2) although forest management personnel understand much about silvicultural systems and harvest operations, there is less understanding about ecological restoration of lands affected by major wildfire; (3) local residents have even less experience in these matters but possess a high degree of concern about the risk and uncertainty of ecological and social conditions surrounding their communities and look to forest managers for visible leadership; and (4) because timely response is essential for many postfire decisions, forest management personnel should have reliable information in hand and be prepared to initiate a planning process.

Postfire restoration and rehabilitation can refer to a broad range of management actions in the affected forest area and adjacent communities. To be effective in their response, forest management personnel and scientists should agree on which measures (e.g., culvert installation or replacement, road decommissioning, salvage logging, reforestation, no action) appropriately constitute restoration activities once the Burned Area Emergency Response (BAER) team has left and the situation is completely in the hands of local forest management personnel. These measures are likely to include both short- and long-term actions as well as the information required to guide the planning process. Just as important is the need for plans that garner broad public acceptance, especially by members of affected communities. For example, the wildland-urban interface (WUI) is where many decisions will be implemented and where resulting actions will be either supported or opposed by local residents. Ultimately, agency personnel will need to consider a range of ecological, economic, and sociopolitical information in their deliberations (Dombeck et al. 2004). One goal then, would be to design a systematic approach that will enable these individuals to address commonly encountered conditions as well as to account for the uncertainty and risks of new problems. However, relatively few postfire plans

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have actually matured, and identifying a universal “model for success” is unlikely. Thus, this report provides an indepth discussion of the most relevant contributing factors from existing efforts and related research.

In this paper, our focus is on summarizing research useful to federal agency personnel (technicians, managers, decisionmakers) who address the range of sociopolitical concerns in forest communities after wildfires. Throughout this document, we refer to “forest management personnel” as the primary audience. We use this term to refer to forest technicians, managers, and decisionmakers (i.e., line officers) who are responsible for federal forest management—namely, individuals in the U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management (BLM) and Park Service. We have reviewed available literature on postfire planning, decisionmaking, and management, as well as literature in related fields such as habitat restoration, forest health, fuels management, and natural hazards and disasters. We focused the major points in a manner suitable for forest management personnel facing management decisions after a large wildfire, grounding the discussion in the literature and our research experience. Thus far, very little decision analysis for postfire responses has taken place because large wildfires have, until recently, occurred at irregular intervals and are largely unpredictable. However, one team (McCool et al. 2006) has set the stage for more indepth research by providing an event-based framework for examining the effects of wildfire on communities. Our intent here is to use these efforts and expand informed, rational deliberation in this critical area of emerging importance. We have five objectives that are most relevant to current sociopolitical concerns:

- Identify local contextual considerations that influence citizen-agency interactions.
- Identify common barriers and obstacles encountered by forest management personnel.
- Describe the uncertainty and perceptions of risk that surround these events.
- Identify communication strategies that have been effective in forest management planning processes.
- Explore factors that bring communities together to reach agreement.

From this summary, a set of management implications have been organized to help guide planning in the new era of postfire decisionmaking.

Management Setting

Fire has been an important disturbance element influencing forests across North America for millennia (Arno and Allison-Bunnell 2002, Pyne 1982). Because small wildfires routinely removed fuels, large wildfires (100,000+ acres) have historically

been infrequent and unpredictable (Agee 1997a). However, fire suppression efforts in the last century altered these historical fire regimes and caused an increase in fuel loading across many forests, particularly in the Western United States (Agee 1993 and 1997a). As a result, a number of large wildfires have occurred in the past decade, including record-setting wildfires in five Western States. Current drought cycles and the occurrence of wildfires that burn at high intensities are additional factors that make it difficult to effectively suppress these fires (Agee 1997b, Dombek et al. 2004). Future fire conditions are expected to be further exacerbated by climate shifts associated with global warming (McKenzie et al. 2004).

The prospects for reaching sound, well-supported decisions following large-scale fire events appear tenuous. The federal forest management agency planning and decision process for traditional forest activities (i.e., timber sales) is often fraught with pitfalls (Cortner et al. 1998, Shindler et al. 2002). Interest and community groups frequently line up on each side of such decisions, making planning an arduous and lengthy endeavor. Forest management personnel often look to science for guidance, but in postfire settings help is elusive; research on these landscapes is scarce and offers conflicting interpretations (Beschta et al. 2004, Lindenmayer et al. 2004, Sessions et al. 2004). The spread of exotic species and increasing impacts in forested areas can further complicate the issue (Dombek et al. 2004). Additionally, emotions are high and much is at stake in these situations, including valuable timber, wildlife habitat, private property, recreation sites, and so on.

Of course, part of the challenge is the time-sensitive nature of these decisions. Merchantable timber volume and profit is likely to be higher if salvage occurs in the first few years after a wildfire (Lowell et al. 1992, Sessions et al. 2003). Other activities, including erosion control measures such as contour felling for slope stabilization or sediment traps along roadways, are also most effective when conducted soon after a wildfire. However, decisions about active forest management (i.e., harvesting) or more passive approaches (i.e., monitoring, limited management activity, restricting human use) to rehabilitation are certain to be contentious and require time for thoughtful deliberation. To move to timely implementation, both accurate information and a well-crafted public process seem essential.

A dominant question then is determining the appropriateness of salvage operations. The current debate centers largely on whether salvage logging is ecologically sound and what part economics should play in deciding if and where these activities occur (e.g., Donato et al. 2006). Wilderness areas are excluded because salvage logging is not consistent with management objectives for these areas, but roadless areas and late-successional reserves are central in this argument right now. For example, the postfire recovery project for the 499,000-acre Biscuit Fire in southern

Oregon has been contentious because the plan incorporated salvage on land that was previously designated for either late-successional or roadless area management. Although many industry groups and some scientists assert that salvage is necessary for species recovery of desired forest types and for economic gain (e.g., Sessions et al. 2004), other researchers and many environmental organizations do not believe salvage is ecologically consistent with late-successional goals (e.g., Beschta et al. 2004). Public protests of salvage sales are common and the media provides a forum for controversy. Not only do forest management personnel operate within a controversial planning process, they often do so with scientific uncertainty and under scrutiny of a watchful public representing numerous points of view.

Infused in this context is the amount of media coverage given to these events. As the relative size of the wildfires—and the corresponding threat to people’s homes and lives—has increased, so has media attention. Television coverage of the 2003 California fires, for example, brought national prominence to wildfire and forest health conditions; cameras recorded entire communities being evacuated while more than 2,400 homes burned (North County Times 2003). Under such elevated levels of public awareness, much is at stake for forest management personnel in the recovery process.

Postfire planning also becomes more difficult as the needs and expectations of local residents increase. Some people have been displaced from their homes, while others are just uncertain about what happens next and look to forest management personnel for leadership and guidance. This puts new pressures on the agency-community relationship (Shindler et al. 2002) as local personnel attempt to determine what to do with burned landscapes, how to manage surrounding (unaffected) forest lands, and how best to communicate with citizens. Trustworthy relations and credible information can be essential throughout these planning efforts (Shindler and Toman 2003, Winter et al. 2004).

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Research Summary

To help address the challenges to postfire planning and decisionmaking, recent literature was focused into five major areas for examination.

- Contextual considerations and their influence on citizen-agency interactions including spatial, temporal, and social factors.
- Common barriers and obstacles encountered by land management personnel.
- Uncertainty and perceptions of risk.
- Communication strategies for effective planning.
- Factors that bring communities together to reach agreement.

Where a shortage of research in postfire settings exists, we draw from related literature in fields such as habitat restoration, forest health, fuels management, and natural hazards and disasters to help expose potential concerns and opportunities.

Contextual Considerations

Each wildfire occurs under its own set of ecological conditions and within a unique social setting. The notion of context implies that whatever postfire solutions are acceptable in one community may not necessarily be so in another, even when problems are similar (Kneeshaw et al. 2004). Local contextual conditions are significant to citizens because this is how they understand and prioritize the spatial, temporal, and social factors surrounding an event. Forest management personnel usually think in terms of the first two factors, and most often from an ecological standpoint. But for most citizens, ecological restoration (or rehabilitation) over large spatial and temporal scales is not an intuitive concept;¹ local residents are much more likely to think in terms of familiar places or specific sites. Thus, an initial consideration for forest management personnel is that the public usually does not consider time and space attributes in the same manner as managers, nor do they use the same terminology to describe them (Magill 1991, Shindler 2000).

Fire ecology researchers typically advocate for landscape recovery at appropriately large spatial scales (e.g., Kauffman 2004). But for citizens, spatial context will require consideration of known, identifiable places. These might be long-time family recreation sites, particular scenic views, or forest places that hold particular relevance to the community. Because the public's interests lie at specific local scales (e.g., parks, recreations sites, etc.), planning at larger watershed or regional-level landscapes may be beyond their initial scope. Many will find it difficult to relate to policies without recognizable boundaries or geographic significance (Stankey and Shindler 2006) and may be reluctant to give full support to restoration of forest lands across a broad landscape. For example, in southwestern Oregon, old-growth forests used by local residents for recreation were burned in the 2002 Biscuit Fire. Plans to salvage timber from these areas met significant opposition for a variety of reasons, one of which was public expectation that the area would continue to be forested and available for wildlife and recreation purposes (Associated Press 2005, Barnard 2005).

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¹Geyer, K.; Shindler, B., eds. 1994. Breaking the mold: global change, social responsibility, and natural resource policy. Unpublished report. On file with: B. Shindler, Department of Forest Resources, Oregon State University, Corvallis, OR 97331.

Confrontations about spatial scale also underlie NIMBY (not in my backyard) arguments. Although they may be viewed as selfish responses from property owners, these arguments can reflect a fundamental dissatisfaction with decisionmaking processes judged to be unresponsive to local concerns (Stankey and Shindler 2006). Such concerns can also reveal place attachments that hold meaning to citizens and affect how people define appropriate actions in those places (Williams and Patterson 1996). Thus, taking time to become intimately familiar with community meanings and feelings about a locality (known as constructing a “sense of place”) offers forest management personnel a way to identify, anticipate, and respond to the attachments people form about the landscapes surrounding them (Williams and Stewart 1998) and can strengthen planning and management efforts (Raymond and Brown 2006). Outreach strategies such as community forums, neighborhood meetings, site visits, and mapping exercises can be used effectively to discuss these places while also providing opportunities for local connections to be forged and strengthened (Beverly et al. 2006, Brown 2006, Kruger and Shannon 2000). On the Deschutes National Forest, for example, landscape architects provided geographic information system (GIS) maps and encouraged residents to mark up sites they “identified with” prior to planning a large thinning project. Also, just 2 weeks after the 90,000-acre Bear & Booth (B&B) Fires in 2003, Deschutes personnel conducted a bus tour of the burned area so that local property owners could see the wildfire event for themselves, ask questions to better understand what happened on this familiar landscape, and begin to discuss the forest recovery process.² These forms of site-specific attention can facilitate a connection between the ecological and social importance of a place.

The temporal context of managing landscapes also has recently received much attention by researchers. For example, ecosystem management has spurred interest in strategies that focus on dynamic natural processes (Perera and Buse 2004, Rapp 2003), particularly historical fire regimes (Cissel et al. 1999, Kauffman 2004). But temporal context is especially problematic for citizens who are challenged to understand complex ecological processes, such as natural disturbance and succession, and to evaluate the long-term consequences of such processes. In this regard, science has been slow to provide the necessary long-term data. Magnuson (1990) has criticized the lack of time-series analysis in ecosystem research, arguing that too often we produce landscape snapshots in time and as a result, underestimate the degree of change that occurs. Of course, one of the problems for researchers is that

²Toman, E.; Shindler, B.; Absher, J. [N.d.]. Postfire communications: the influence of site visits on public support. Manuscript submitted for review. On file with: E. Toman, Department of Forest Resources, Oregon State University, Corvallis, OR 97331.

it is difficult to address long-term ecological change on predominantly short-term funding cycles. Just recently, primarily through the multiagency Joint Fire Science Program, we have begun more long-term studies at wildfire research sites.

On the management side, federal forest agencies have also been criticized for a lack of institutional memory about forest practices (Cortner et al. 1996). For example, when a new ranger arrives on a district, frustration may be expressed by the locals who feel they have to “break in” the new forest manager to specific community conditions and concepts. Frequent moves by personnel between jobs or from region to region are only part of the equation. The lack of monitoring and evaluation programs is also to blame. Because these activities are both costly and time consuming, they often may be set aside as thinly stretched forest management personnel move on to other duties.

If forest management personnel are unable to provide solid details about cause-and-effect relationships following postfire management activities, we cannot expect citizens to understand the dynamics involved nor might we expect them to simply go along with untested management plans. For the public, much of the misunderstanding surrounding temporal concerns (e.g., rate of implementation, length of time until results are known) stems from the uncertainty and risk surrounding forest management decisions (Brunson 1996). However, after a wildfire, planning situations are often influenced by the pressure to make decisions quickly, as certain activities have ecological or economic time constraints on effective implementation. For example, the goal of recovering value from burned stands means salvage activities should take place within a few years (Lowell et al. 1992, Sessions et al. 2003). Thus, tension is created between public expectations and management necessity. When agency planning timeframes span several years, options become limited. Although legislation has been proposed to speed up postfire decision processes, public concerns will likely persist over the uncertainty of specific actions. Forest managers and decisionmakers are in the challenging position of balancing these demands. As with spatial context, action taken for restoration or rehabilitation purposes for which the long-term consequences are not apparent—or at best, uncertain—can face public resistance.

The social context surrounding postfire planning may be the most important of all. Forest management personnel understand that resource decisions are not made in a contextual vacuum, but rather they play out among a community of citizens and forest management personnel who often have a history together (Shindler et al. 2002). For example, McCool et al. (2006) contended that attending to postfire social issues requires an understanding of what occurred before and during the event as well. The level of agency-community interactions for wildfire awareness,

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preparedness, prior planning, evacuation, and suppression all contribute to the postfire planning environment. This contextual culture will strongly influence how management alternatives are considered. Thus, it is not just about the options on the table in the postfire moment. The public's acceptance of resource policies will be directly linked to how they view the quality of previous decisionmaking procedures, especially opportunities for their participation (Shindler et al. 1999, Tuler and Webler 1999). Over time, these collective interactions also help determine how people feel about the decisionmakers. In the end, trust in forest management personnel and their agencies is fundamental to social context; and it has played a particularly strong role in communities during other disaster recovery efforts (Pettersen 1999).

At least in one regard—at the wildland-urban interface—social and spatial context are interrelated, which adds to the complexity. When a practice like prescribed burning is implemented “somewhere else” it may be a non-issue; or at least it may affect people so slightly that they pay little attention (Shindler 2000). To illustrate, several years ago the Mayor of San Diego attended an agency-sponsored ecosystem management workshop in Portland, Oregon. After 2 days of speakers, he acknowledged that these were indeed interesting issues, but for the citizens he represented, ecological problems such as poor forest health were often low-level concerns. His constituency was more worried about their daily freeway commute, getting the kids off to school, paying their bills, or crime in their neighborhood. Shortly thereafter the national forests surrounding San Diego experienced some of their most devastating wildfires in recorded history. Now conversations with local forest management personnel and citizens indicate that fire conditions and recovery programs have new meaning for residents in these communities.³ The point is that forest communities and the WUI are where citizens are most affected by forest management decisions, particularly when residents are aware of the consequences. The extent to which a management practice or policy will affect their personal property, alter traditional community economies, or change unique places can hold considerable contextual importance for those involved (Shindler 2000). Much is at stake in these settings—ecologically and socially. This is also where forest management personnel can make a difference by recognizing relevant concerns and focusing the issues for residents (Toman et al. 2006, see footnote 2). Alternatively, when managers do not make it obvious to locals that they fully considered the

³Olsen, C.S.; Shindler, B.A. 2006. Postfire research trip summary, April-July 2005. Unpublished report. On file with: C.S. Olsen, Department of Forest Resources, Oregon State University, Corvallis, OR 97331.

social consequences of wildfire policies, it can hinder their ability to achieve broad acceptance of management plans.

Barriers and Obstacles

The postfire planning environment is filled with numerous obstacles. We address a core set here; no doubt, additional ones will continue to surface in forest communities with each fire season. The first barrier involves how forest management agencies and citizens communicate about the fire message. Planning and decision processes are often characterized by a lack of common language between those involved. For example, forest management personnel typically use terms such as “restoration,” “recovery,” “rehabilitation,” “stabilization,” and “salvage” to describe their efforts and intentions; yet understanding (and consequently acceptance) of these management approaches does not exist across all stakeholder groups.⁴ Indeed, conflict can arise when people derive different meanings from terminology (Hull and Robertson 2000). In the extreme, citizens may perceive the agencies’ use of unclear or confusing terms as deliberate with the intent to disguise the truth about planned management activities (Brunson 1992). For example, some citizens who do not believe ecological recovery should include certain management activities (i.e., removal of big trees) have criticized the use of the word “recovery” in the Bitterroot Burned Area Recovery Plan, suggesting instead that the term was deliberately used to garner support for the plan while keeping hidden the economic focus (Friends of the Bitterroot 2005).

This leaves us with the question: Where does responsibility lie for creating a clear, more easily understood dialogue about natural resource problems? Ordinary citizens have a stake in the outcomes of local decisions, but they do not come with a ready-made ability to engage in constructive, deliberative discussion. Thus, the job falls to forest management personnel. Managers should consider their own communication capabilities (refer to section on “Communication and Outreach”) and strive to also develop a basic competency (i.e., increase awareness and knowledge) in those with whom they engage.⁵

⁴ Mowrer, T. 2004. Postfire restoration, rehabilitation, and salvage logging in the West. Internal agency report. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. On file with: C.S. Olsen, Department of Forest Resources, Oregon State University, Corvallis, OR 97331.

⁵ Jamieson, D. 1994. Problems and prospects for a Forest Service program in the human dimensions of global change. In: Geyer, K.; Shindler, B., eds. *Breaking the mold: global change, social responsibility, and natural resource policy*. Unpublished report. On file with: B. Shindler, Department of Forest Resources, Oregon State University, Corvallis, OR 97331: 23–28.

A second barrier involves the focus on “natural conditions” and how they are defined by forest management agencies. Efforts abound, particularly after wildfire events, to return landscapes to their “natural” condition. However, after 300 years of manipulation including 100 years of extinguishing wildfires, what is perceived to be natural about American forests is not necessarily what is natural (Kay 1997). A lack of scientific consensus about what constitutes natural conditions only contributes to the situation (Shindler et al. 2002). Underlying the problem are differing standards of naturalness and agreement on what our “natural” forests should look like (Williams and Stewart 1998). In a postfire environment—where landscape conditions may dictate a start-over mentality—agreeing on desired future conditions is important, but may only be half of the discussion. The intended management plans and activities used to achieve those desired future conditions are also part of the deliberations. Ample time and resources should be available for forest management personnel, citizens, and other stakeholders to observe and openly discuss the alternatives, as well as great patience for resulting decisions to play out.

Closely related to the natural conditions dilemma is another barrier—overcoming the dominance of forest aesthetics in decisionmaking. Visual quality has long been a concern for most citizens in forest management and, consequently, for managers as well. Indeed, public dissent about forest management at times seems concerned only with appearance. This may be symptomatic of more serious underlying problems; Ribe (1999) suggested some individuals may interpret a landscape that looks bad as not being ecologically sound. Although the visual appearance of forests after a large wildfire is much different than that which existed before, we will need a way to come to terms with these conditions. If the long-term view of ecosystem stewardship is to be promoted, it will mean instilling an expanded set of factors for evaluation, one that encourages people to look beyond the scenic aesthetic to an ecological perspective (Gobster and Hull 2000). Gobster (1996) argued that most reliable measures of public acceptance for forest management activities may be those made onsite, where people can observe with all five senses and consider the context of management decisions. Thus, forest landscapes following large wildfires may actually provide good opportunities for getting people on the ground while simultaneously fostering an appreciation of biologically diverse and dynamic environments.

The fourth barrier can be one of the most serious constraints on forest management personnel in postfire planning—the pressure for rapid decisionmaking. Determining whether to salvage log is extremely time-sensitive, driven by politics and high expectations of the players involved. As mentioned previously, science offers conflicting evidence as to the proper course of action in these cases (Beschta et al.

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2004, Sessions et al. 2004); thus, forest management personnel are left with little scientific guidance in this political debate. Much like the Healthy Forests Restoration Act (HFRA 2003) offers methods to expedite thinning projects, lawmakers are likely to devise additional regulatory remedies to hasten the planning process and allow timely entry onto lands disturbed by wildfire. However, Stankey and Shindler (1997) warned that rushing to judgment could deter building of long-term support for solutions. Given the high level of distrust among stakeholder groups and forest management personnel and their organizations, sufficient time should be invested to develop credible planning frameworks that are acceptable to the parties involved. One potential remedy in the need for quick decisions is to already have strong community relations in place. This has been the case for the Deschutes National Forest following the 2003 B&B Fires. The fires were preceded by a period of relationship building in which a number of cooperative agency-citizen group fuel-reduction projects were accomplished. This has made postfire recovery efforts and additional thinning programs far less contentious than in other locations.

A final barrier we describe here is also significant. The importance of trustworthy relations among citizens and forest management personnel is the common thread that runs through all decisionmaking processes. At a basic level, trust refers to predictable behaviors, reciprocity among parties, and an agency that follows through with its promises (Fukuyama 1995). As Winter et al. (2004: 9) noted “trust is the willingness to rely on those who have the responsibility for decisions and actions related to risk management.” In an atmosphere requiring rapid agency response, public trust hinges on relationships built well before the wildfire event (McCool et al. 2006). Unless communities of individuals (forest management agencies, homeowners, business leaders, etc.) have previously built strong relationships through joint planning for forest management, they are not likely to come together quickly after a wildfire event and agree on a course of action.

Approaches to building trust are often unique to individuals and communities, but there is little doubt they are centered on frequency, reliability, and predictability of contact over the history of a relationship (Blatner et al. 2003, Boon and Holmes 1991, Fukuyama 1995). After extensive examination of citizen-agency interactions, Shindler and Cheek (1999) concluded that such contact includes six common factors: (1) sincere leadership, (2) sound organizational and planning skills, (3) early commitment to citizen participation and continuity of efforts, (4) inclusiveness, (5) innovative and flexible methods for interaction, and (6) efforts that result in action. These are all characteristics of sound management that can be achieved at the local level, where the best opportunity for building strong relationships exists. The key to finding acceptable solutions is in the genuine discussion and real listening that

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occurs when people begin to discuss specific problems, lay out the range of options, and eventually see positive patterns in their interactions (King 1993).

A recent example sheds some light on this issue and potential outcomes of forest management agency interactions with the public. After one Forest Service ranger district organized public bus tours of the 2003 B&B Fires on the Deschutes National Forest, citizens were asked their opinions about the onsite discussions.⁶ Overall, 92 percent rated the tour as very useful, 98 percent felt the information was fair and balanced, and 100 percent believed it was credible and trustworthy. As a result of the tour, 60 percent said they were now more confident in the ability of the Forest Service to implement an effective fuels program, and 84 percent indicated they were more confident that the agency would incorporate citizens' concerns into future plans. The tours were obviously well-received by participants. In the year following this fire, a 14,000-acre thinning program proposed by the ranger district in this community has received broad local support.

However, the nuances of achieving and maintaining trust can be elusive (Kramer 1999). To help in understanding the conceptual nuances, one recent research effort has identified three primary dimensions of trust: shared norms and values (perception being similar), willingness to endorse (built on confidence, expectation of reciprocal behavior, and trustworthy behavior), and perceived efficacy (belief about the way others will act and other's capacity to act) (Liljeblad 2005). The author argued that these dimensions and the attributes that they encompass can be used effectively for conceptualizing and measuring trust—a task that has been difficult for forest management personnel and research scientists. Once earned, trustworthy relations need to be protected too; they can quickly be destroyed by insincere or deceptive behaviors (Slovic 1993, Zimmer 1972). On-the-ground success can be most easily achieved by organizations that encourage the building of trusting relationships as the long-term goal of public interactions.

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Uncertainty and Perceptions of Risk

Although they are very real concerns, uncertainty and risk are not easily addressed in a postfire context; often, few concrete answers exist. Recent public opinion research on the topic found views from across the risk spectrum. “Years of successful fire suppression by management agencies contribute to a feeling of control; the extent of most wildfires is reasonably limited and there is generally enough warning to be able to evacuate, thereby avoiding fatalities” (McCaffrey 2004b: 511). In other

⁶Shindler, B.; Miller, K.; Toman, E.; Olsen, C. 2004. Citizen bus tour of the B&B Complex Fires: survey summary. Unpublished report. On file with: B. Shindler, Department of Forest Resources, Oregon State University, Corvallis, OR 97331.

disaster situations, there is considerable evidence that people who survive one event believe it will not happen to them again, thus underestimating the potential risk and magnitude of a second event (Burton et al. 1993, Halpern-Felsher et al. 2001, Sattler et al. 2000). Repeated exposure to a hazard may even lead some to adopt a “disaster subculture” attitude where the event is normalized and residents become used to dealing with it (Tierney 1993). At the same time, the increase in fire awareness and preparedness after recent fire events and campaigns has also probably led to an increase in the perception of risks associated with living in or near forests.

It is likely that different parties will focus on different aspects of risk in making decisions after a wildfire. Forest management personnel and research scientists necessarily will be concerned with followup actions to reduce further risk to a forest ecosystem. Despite generalized public support for such ideas, when specific proposals are introduced for local landscapes, apprehensions may emerge. Some decisions will be easy to support, such as soil stabilization and minimizing flood damage near developed areas (Ryan and Hamlin, in press); other decisions with greater uncertainty of actions may be less likely to receive broad support. Judgments are likely to be related to personalized factors such as impacts on the source of peoples’ livelihood (e.g., decisions favoring or prohibiting harvesting), changes to important recreation sites (e.g., new use limits, treatments in wilderness or roadless areas), effects on private property in the WUI, or concerns that forest management agencies are acting too quickly and without adequate information to support their plans (McCool et al. 2006, Wondolleck and Yaffee 2000). From the public standpoint, central questions in these decisions will involve which actions will be taken and where, as well as how serious, how certain, and how soon the consequences will be experienced (Shindler et al. 2002).

Addressing uncertainty and risk is difficult—largely because results are unknown and risks can only be calculated on the probability that an undesirable result will occur. However, two ideas seem helpful: (1) knowledge among individuals about existing forest conditions and management activities and (2) citizens’ trust and confidence in forest management personnel (Fischhoff et al. 1981). Shindler et al. (2002) argued that the public’s recognition of forest management problems and citizens becoming comfortable with potential outcomes are likely to best evolve from interactions in forest communities **prior** to major wildfire events—simply, residents become more at ease as they learn about the proposed alternatives as well as the individuals who will implement them. McCool et al. (2006) called this part of a “fire auditing” process, where an appraisal is conducted of the event itself including decisions before, during, and following the wildfire. The purpose is for forest management personnel and citizens together to examine these decisions, learn from

them, and recommend changes in policy. Thus, the effort becomes an important component of community recovery. Collectively, these ideas underscore the importance of building a mutual literacy of local ecology, as well as an understanding of the economic and social influences in a community, and then using a thoughtful public planning process—in effect, giving the uncertainty some certainty (Stankey et al. 2005).

We warn against the temptation to underestimate the uncertainty issue, particularly as it relates to relationships in forest communities. Overall, the general trend in the United States has been for citizens to be less tolerant of government personnel taking risks (Shapiro 1990). However, even when individuals have a low level of understanding about a potential threat or a new program is introduced, their apprehension over management decisions can be mitigated by trustworthy, reliable relations with those responsible for implementation (Earle and Cvetkovich 1995, Jacobson and Marynowski 1997, Siegrist and Cvetkovich 2000). In short, people will tend to perceive less risk and more benefits associated with proposed solutions. The greater the trust, the more citizens are likely to believe that wildfires can be controlled, that the extent of the wildfire will be limited, evacuation plans can save lives, and any resulting risks will be low (McCaffrey 2004b).

We also recognize that most postfire settings carry a certain stigma where creating additional risks is to be avoided. In these risk-averse environments, attempting new or untested ideas is not easily achieved, and resistance can come from politicians, regulatory agencies, and citizen groups (Stankey et al. 2003). Wildavsky (1988) contended the most effective strategy for reducing this uncertainty involves visible, local trial-and-error experimentation. In short, to overcome uncertainty, risks may need to be taken. Jamieson suggested that, in these cases, we should think small and long term; that is, it is better to put many small boats out to sea than a single Titanic (see footnote 5). Consider diverse projects and approaches and monitor the outcomes. Even in the best scenario, some things may not happen quickly or efficiently.

A good deal of the postfire uncertainty, as well as questions about risk, can be mitigated by multipartner relationships in forest communities. This suggests forest management agencies will need to be forthcoming about difficult decisions as well as the choices involved and engage the many stakeholder groups that show interest in forest management activities. On-the-ground evidence indicates the benefits of mobilizing citizens far outweigh shortcomings of their involvement. For example, in the aftermath of large wildfires in southern California in 2003, citizens renewed their efforts to organize their neighborhoods, protect homes, and

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communicate about effective risk-reduction strategies. Fire Safe Councils (and similar groups throughout the West) are devoted to providing information and resources to citizens (Fire Safe Council 2005). Although these groups can serve as an organizing mechanism, they have been most successful when forest management agencies work in cooperation to provide leadership, continuity, seed funding for small projects, and expertise for clarifying and addressing risks (Curtis et al. 2002, Shindler et al. 2002). Such efforts often reduce uncertainty and perceived risks by providing individuals with experience, familiarity, and a perception of control over the situation (Palm 1990, Perry and Greene 1983).

Communication and Outreach

The need for “effective communication” in the context of natural resource management is heard frequently these days. We pose no arguments with this premise here, but a basic understanding of the two components of communication is useful. **Content** is what the communication is about; in other words, the information being conveyed. In most cases, this has been the focus of forest management agency communications. For example, McCool et al. (2006) outlined several areas where information can be useful to local citizens including descriptions of the extent of the ecological and social impacts incurred; new potential hazards such as floods and mudslides; needs for salvage, restoration, repair, and reconstruction; and lessons learned for future events. All such communications may be useful in postfire settings.

The second component of communication involves **process**, or how and why information is conveyed. Some authors claim that once content has been identified, everything else becomes process (Clark and Stankey 1991), intimating the importance of communication skills, public outreach, and knowing the target audience. However, good public process has typically been a shortcoming of our federal forest management agencies (Cortner et al. 1998, Shindler et al. 2002), although in wildfire situations some phases are handled more adeptly. For example, during and immediately following a wildfire, communication is important for conveying information about emergency supplies, disaster assistance, and identifying potentially dangerous areas (Taylor et al. 2005). Accessible, accurate, and easily understood information can help alleviate public concerns and questions about what will happen next (Kumagai et al. 2004b, Taylor et al. 2005). Phone trees and the Internet have become invaluable tools at this stage; citizens want real-time information about their community. They also want reassurance about management activities and short-term actions; thus, the ability to have personal contact with forest management personnel seems essential.

Beyond this initial dissemination of information, the communication process for planning and decisionmaking is a multifaceted job—one for which forest management agencies have come under considerable scrutiny (e.g., Cortner et al. 1996, Toman et al. 2006). Standardized, one-way messages are widely criticized, as are meetings that follow traditional government testimony-style format with little two-way interaction (McCaffrey 2004a, Toman 2005). In short, people just do not like being “talked at.” As Shindler et al. (2002) argued, a common mistake for forest management personnel is confusing the provision of information with increased public understanding, and ultimately with public acceptance of forest management programs. This is not to suggest that technical information about forest conditions or restoration treatments is not necessary or useful for citizens. Particularly after a wildfire event, accurate details about potential next steps will be essential. But how and why information is presented, as well as the ensuing discussion, are just as important. Substantial research (e.g., Winter et al. 2002, Yaffee and Wondolleck 1997) indicates that any practice, especially new or untested ideas in local communities, is more likely to succeed if the public understands the rationale for it, if citizens have been genuinely engaged in a hands-on give-and-take process (before implementation), and if they recognize the potential outcomes. Jamieson (p.26; see footnote 5) saw the need for meaningful forms of communication that fit the target audience as a way to understand citizen concerns and to positively alter behavior:

Facts do not speak for themselves. They must be interpreted and appreciated. Generally programs that provide information are not very successful in improving understanding or changing behavior. Serious thought must be given to what it means to educate both the public and policy-makers. As opposed to brochures and reports, people tend to respond to stories, analogies, examples, and so on. Education is more likely to occur in the context of a personal relationship than in anonymous information provision.

In postfire environments, forest management personnel can choose how they provide information and what the experience will be for citizens. The most positive public responses come from situations where managers are able to articulate in clear terms the purpose of a particular restoration treatment, including the ecological basis for it (Hull and Robertson 2000; Ryan and Hamin, in press). But forest management personnel have limited resources to spend across the spectrum of outreach activities, and different tools work better for different objectives. In wildfire situations, Toman and Shindler (in press) identified that both one-way devices (i.e., brochures, newsletters, public service announcements) and more interactive approaches (i.e., interpretive activities, demonstration sites, guided field

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visits) contribute to successful public communication strategies. Broad mass media formats are useful for general audiences and delivering large-scale (Smokey Bear type) prevention messages, whereas targeted, more interactive formats tend to be better for developing understanding and building people's capacity to participate in solutions. Additionally, information that focuses on local conditions and concerns can decrease citizen uncertainty and the tendency to blame someone (Kumagai et al. 2004b, Tennen and Affleck 1990). In sum, plans and practices that result from a well-crafted communication process are viewed as more credible and reliable.

The notion that effective communication is a product of effective planning cannot be overstated. This is particularly true in forest communities where communication strategies now often include developing community fire plans and relationships with property owner groups for fuel reduction and restoration activities (Toman and Shindler, in press). In such cases, it is important to organize an outreach plan **within** the management unit before approaching the public (Shindler and Gordon 2005b). Although it is important to bring the community into the planning process as soon as possible, initial internal planning by a core management team is a key element. Just as in planning any treatment or project, time should be devoted to organizing the outreach approach (Knotek and Watson 2006, Toman 2005). This initial step involves forest management personnel agreeing on how community members will be included and how to communicate with them in an organized and effective manner. By clarifying outreach objectives, personnel can focus on the most suitable forms of communication. For example, this process allows management units to identify their relevant publics, what people might need to know to participate, the most useful timing of communications, the role citizens will play, where established relationships already exist, any planning constraints or apparent risks, which personnel are best suited to be the public contact lead, and so on. When it comes time to meet with citizens, the agency will appear better organized, be more capable of providing sound leadership, and be better able to respond to unanticipated events or challenges inherent in every wildfire event.

To summarize, steps to a more successful communication program include (1) going in with a plan, (2) choosing the right leaders and then supporting them, (3) taking advantage of existing resources, (4) getting out on the ground and into neighborhoods, (5) letting actions speak for intentions, (6) keeping in touch with the community, and (7) staying in it for the long term (Shindler and Gordon 2005b). A comprehensive presentation of these ideas is provided in a recent DVD production, *Communication Strategies for Fire Management* (Shindler and Gordon 2005a), which draws from effective citizen-agency partnerships in forest communities. A

companion field guide (Shindler and Gordon 2005b) outlines the stepwise approach for implementing these public outreach strategies.

Bringing Communities Together

Although large wildfires occur in forests, their most profound effects are felt by citizens in communities. This relationship is becoming most evident as forest management agencies attempt to plan their postfire approach to rehabilitation and restoration. Researchers have provided extensive discussion about the human community response to natural hazards and disasters but, until very recently, little has been specific to wildfire. When faced with natural disasters such as hurricanes and floods, local residents tend to unite with the feeling that “we’re all in this together.” This cohesion phenomenon results primarily because these disasters tend to be viewed as uncontrollable events where victims are more-or-less randomly chosen (Burton et al. 1993, Slovic et al. 1987). Although often short-lived, this cohesion serves as a coping mechanism for victims and can enable local leaders to reach agreements with citizens on postdisaster recovery activities and priorities (Burton et al. 1993). In some cases, however, the temporary nature of citizen attention has a negative effect. Studies indicate that after disasters, there is a tendency for some residents to become apathetic to the possibility of future events, particularly if they have fared well or experienced so many other events as to normalize the aftereffects (Palm 1990, Tierney 1993).

Human-caused disasters, on the other hand, can result in blaming behaviors because they are seen as preventable and provide a subject for finger pointing (Cuthbertson and Nigg 1987). For citizens, major wildfire events may have elements of both natural and human-caused disasters; thus, postfire planning efforts may experience mixed responses (Carroll et al. 2000, 2005; Kent et al. 2003; Kumagai 2001; Kumagai et al. 2004a). For example, differences in how citizens view who is responsible for fuel reduction and defensible space programs that protect homes, as well as the importance of these activities, may divide communities. Basic beliefs about more/less involvement by government and whether citizens should accept greater personal responsibility for property are at the root of these concerns (Bright and Burtz 2006). Responses after Montana’s Bitterroot Fires and Oregon’s Biscuit and B&B Fires show communities on both sides of these issues (Campbell 2004, Friends of the Bitterroot 2005, see footnote 3).

Forest management personnel are thrust into this difficult and complex social dynamic. They are often called upon to create plans to improve ecological conditions and recognize their chances of success will be greater if citizens pull together in support. Research indicates that the job will be easier when cohesiveness already

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exits within a community, demonstrated by an initial well-being and a capacity to respond to both internal and external stress (Carroll et al. 2005). Well-being simply refers to the existing general components (social, economic, political) that contribute to the community maintaining itself (Kusel 1996, Nadeau et al. 1999). Capacity involves the community's ability to meet the needs of residents, respond to changes, minimize impacts, create opportunities, and take advantage of changing conditions (Kusel 1996). Both terms suggest that good leadership and a well-informed, motivated set of stakeholders are integral for success.

McCool et al. (2006) make a strong case that fire management agencies should provide the organizing framework for bringing communities together and that much of this organizing should manifest as planning before an event occurs. They describe steps to bridge the sociopolitical and environmental context including actions prior to, during, and after wildfire events. Their basic premise involves the need to (1) accept the "uncontrollable" elements in the fire equation (i.e., drought cycles) and identify variables that can be controlled (i.e., fire risks, mitigation measures), (2) consider the consequences to communities, and (3) foster longer term planning. Their framework is intended to help all parties better understand the consequences of wildfire and build the capacity for communities to link decisions that occur at every stage of these events. This (admittedly) is a broad-scale conceptual approach; however, Ryan and Hamin (in press) found considerable support for these ideas in assessments following the Cerro Grande Fire in New Mexico.

Other researchers have suggested more specific approaches can also contribute to a community's ability to come together and reach agreement. For example, Shindler and Gordon (2005b) urged forest management agencies to take advantage of existing community networks that can carry the fire message to a larger audience. Property owner associations, watershed councils, and "friends" groups that already have a constituent base can be allies in building awareness and increasing public acceptance of management practices. Important, respected community members can help focus the message for citizens, effectively sharing the load and taking forest management personnel out of the perpetual "hot seat" of forest planning. Community members are particularly useful in identifying local trouble spots in need of active management. For example, Fire Safe Councils in California have been successful owing to the side-by-side work between citizens and forest management personnel. In other postfire settings, many such efforts are emerging throughout the Western United States. One community group in southern California was formed after the 2003 wildfires and has the mission of coordinating "financial, economic and social resources, and enhancing information sharing to help vulnerable mountain area families to improve their quality of life" (Rebuilding

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Mountain Hearts & Lives 2006). Groups in other fire-prone regions in Montana, Idaho, Colorado, and Arizona are coming together with a similar mission—better preparedness for wildfire. In Oregon, citizens who participated in an agency/public tour of a wildfire site joined together to support a restoration plan that included erosion control and salvage logging (see footnote 6). These examples and the early success of community fire planning teams in response to the Healthy Forest Restoration Act (HFRA 2003), offer guidance on how to build capacity among citizens and bring communities together.

In a postfire environment, program development and use of local resources such as established social networks will be an essential part of community recovery (Carroll et al. 2005, Petterson 1999). These processes can help address concerns about uncertainty (Lang 1990) and bring local stakeholders together in both a physical and emotional sense (Daniels and Walker 2001, Gray et al. 2001). By promoting face-to-face interaction, humanization of the concerns of others, and acknowledgment of diverse viewpoints, collaboration leads to more cohesive communities and an increased sense of ownership in outcomes (Wondolleck and Yaffee 2000). These conditions are best achieved through local programs, rather than dictated from the regional or national level, and form the foundation for wildfire recovery efforts (McCool et al. 2006).

For these reasons, it is important to create opportunities to meet local citizens in their neighborhood setting (Shindler and Gordon 2005b). Residents care deeply about their home site, their backyards, and other familiar places in their community. They have a stake in what happens there. Forest management personnel can help these committed individuals develop a better understanding of the surrounding resources and potential options, enabling them to work together to accomplish mutual objectives. But the problems considered need to be urgent to the community, not just to the forest management agency (Sirmon 2001). Issues such as erosion and flooding potential, continued recreation access, or protecting wildlife habitat may be the most pressing concerns for community members following a wildfire. Listening skills and patience are important attributes for forest management personnel; creating effective community partnerships reflects an iterative process. It is one that builds on itself and commonly requires continual “care and feeding” (Shindler and Gordon 2005b).

Management Implications

Forest management personnel are faced with many challenges after a wildfire. Questions persist about how natural resources will be restored, extracted, or left alone, as well as how the planning process will be conducted to reach decisions that

will be broadly supported. Although each occurrence is different, made so by its own set of unique conditions and circumstances, we have summarized research and management experiences that can be useful in crafting postfire forest management plans. This section identifies a set of management implications that may be common across jurisdictional settings.

Acknowledge the Reality and Importance of Public Acceptance

The ability to adequately address citizens' concerns about postfire forest management efforts will influence a community's acceptance of resulting decisions. It will be important to acknowledge the reality of public opinion and the need for multiparty relations. Although most researchers and forest management personnel recognize the value in working toward public acceptance (Kneeshaw et al. 2004, Mascia et al. 2003, Thornhill 2003), skepticism still remains among the federal agency culture about the need to include citizens (Shindler et al. 2002). Yet, there is no denying that citizens will have numerous questions and concerns after a wildfire event and, in many cases, will have an expectation that their views will be included in recovery and rehabilitation plans.

To legitimize efforts for postfire planning, forest management personnel will need to recognize the factors that shape, sustain, and alter citizens' judgments about policies and the forest management agencies who will implement them. Three ideas may be useful. Stankey and Shindler (2006) noted that public judgments are **conditional**, often based on whether actions are fair to all stakeholders and if decision processes are inclusive of those who may be affected. They also noted that public judgments are **contextual**, based on familiar, identifiable places that hold meaning for citizens. Thus, planning is ideally built around these places where people can see the relevance in proposed practices and become comfortable with the longer term consequences. This will involve discussions of uncertainty and perceptions of risk. To the extent forest management personnel can tell them, people will want to know how certain and how soon the effects will be, particularly the "no action" decision of leaving burned landscapes alone.

Public judgments also are **provisional** (Stankey and Shindler 2006). Plans and decisions that people find acceptable today may fall out of favor depending on new factors that emerge. For example, judgments can change based on new science, success of on-the-ground treatments, or the performance of forest management personnel. Thus, maintaining a balance point among parties involves a continual process of monitoring, evaluation, and adjustment (Westley 1995).

In the postfire context, it will be useful to think of multiparty relations not as barriers, but as opportunities to ensure public access to planning processes and

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as a way to build an ecological literacy among the community (Orr 1992). These programs can provide a method to communicate with the public about important concepts as well as a way to learn from citizens about their concerns and priorities (Yankelovich 1991). It is also useful to recognize that public acceptance is not something an agency can directly control; instead it is more likely to evolve from an informed citizenry. Public opinion that derives from an understanding of the issues and the implications of actions is more responsible, stable, and consistent (Shindler et al. 2002). By giving credence to the idea of public process, forest management personnel acknowledge the constant tension between citizens, interest groups, and themselves and provide a method for reaching durable decisions (Wenner 1990).

Building Public Understanding and Agreement Requires a Long-Term Commitment

Building public support will require commitments of time, resources, and leadership to develop a shared understanding of forest conditions and practices. Postfire planning is an ongoing process that begins long before a fire occurs. The learning environment that evolves through all phases of fire (pre, during, post) can help citizens understand the implications and potential consequences that must be dealt with in the aftermath (McCool et al. 2006). Even when events result in unanticipated outcomes, the community is better prepared to respond if they have worked through the entire cycle together.

Large fire events may alter the questions we typically address in land management planning. In effect, the area has become a new landscape with different attributes. The old practices of planning and management may not be appropriate for this new landscape. Accordingly, personnel might ask, “What do we have now and what are the options available to us?” This also seems like a good opportunity for an open discovery process and finding community agreement on a suitable course of action. Deliberations will not only involve the options, but also questions about the potential risks, tradeoffs, and costs of each, as well as how long they will take to achieve desired outcomes. This is not likely to be a short discussion. It is rare that such information is readily available and, rarer still, when it can be laid out clearly. This will involve a commitment of resources and leadership to work through these new questions. Likely benefits include more than just finding potential answers. Discussion of problems and plans results in more stakeholders surfacing, who then learn, interact, and enrich the pool of potential solutions (Shindler and Gordon 2005a, 2005b). Effective leadership is needed to structure the conversation and allow for a common understanding of environmental complexities. Such activities are costly, but a failure to attend to these questions and concerns is likely to be even more so.

Uncertainty and Risk are a Natural Part of Postfire Planning

For many citizens, it is the uncertainty of proposed actions that gets them excited. Forest management agencies will need to help all parties become comfortable with this idea, including some of their own personnel. The presence of risk will challenge forest management personnel to be forthcoming about difficult decisions and choices. It will not be enough to talk about 40-year fire-return intervals and expect this to have much relevance for citizens. We live in an era when postfire science is inconclusive and definitive answers are rare. This means acknowledging the limits of scientific understanding and the importance of on-the-ground experimentation, despite our inability to specify outcomes with precision (Stankey and Shindler 2006). This also means that scientists may need to play a more active role in public deliberations about postfire options. Opinion research from the Pacific Northwest shows that citizens and natural resource managers alike believe better decisions result when ecological scientists are involved (Lach et al. 2003).

There is another important component to this rationale. Because natural resource problems are complex and technical, and people have difficulty judging the accuracy of information, they often base their judgments on how much they trust the information provider (Steel et al. 1992-93). Instilling public confidence is not easy, but it is important to managing in the face of postfire uncertainty. Thus, an atmosphere of meaningful, interactive disclosure greatly contributes to public perceptions of openness and honesty. Such an approach also helps everyone come to terms with the idea that forest management personnel do not know all the answers and that methods are needed for reaching agreement on “acceptable risk.”

Communicating the Wildfire Message Is a Complex Task

Forest management agencies often think their job is to develop information and deliver it to the public. However, confusing information provision with understanding, and ultimately public acceptance, is a mistake (Shindler et al. 2002). Information alone is rarely sufficient to produce change. Instead, citizen acceptance of planning decisions is most often linked to the quality of communications that stem from forest management agencies. Poorly communicated management plans are certain routes to frustration and disapproval. Alternatively, the ability to clearly articulate the purpose for a practice and its ecological basis is one crucial trait for achieving positive public responses.

Most all recent research in fire-prone communities indicates that interactive communication methods facilitate greater connections to local problems and are better at addressing citizens’ concerns (Toman et al. 2006). Simply, interactive approaches (e.g., field tours, demonstration sites, townhall-type meetings) provide

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greater flexibility to incorporate residents' questions and to tailor forest treatments to the local context. Addressing questions together also gets everyone working on the same problem. It is the give-and-take of these exchanges that helps citizens become comfortable with the options and reinforces a belief that forest management agencies can carry them out. Thus, it is not the information itself that leads to understanding. Scientific and technical facts do not speak for themselves; they need to be appreciated and interpreted (see footnote 5). This is best accomplished by well-planned, coordinated public outreach strategies that provide opportunities for personal contact and citizen involvement with forest management personnel (Knotek and Watson 2006).

Problems Are Always Local

Focusing on communities and the ability to adequately address familiar settings is essential to local participants. It is easy for people to agree on a **general** course of action; for example, national polls indicate that people support the concept of basic wildfire management and the need for fuel reduction (Brunson and Shindler 2005). However, a specific local policy that proposes to salvage log a well-known roadless area or to close a favorite recreation site can dramatically change the situational context in which judgments are framed (Milstein 2006).

To clarify concerns, Zinn et al. (1998) identified five questions that help explain how this contextual specificity plays out: (1) What target is involved (the site)? (2) What issue drives the action? (3) What actions are proposed? (4) What time factor is involved (when will it occur and for how long)? (5) Where will it occur? By increasing the specificity of plans for citizens, the likelihood of improving public understanding will also be increased. Although such detail can also mobilize opposition to a project, it is likely that this opposition would emerge at some point in any case. The benefits of addressing these questions are apparent: plans and associated impacts are open and explicit, and there is opportunity for discussion, informed debate, and learning (Stankey and Shindler 2006). When focused on identifiable, local resources, these steps all serve to bring communities together to more effectively respond to postfire problems.

Shared Experimentation Allows for Cooperative Solutions

Meeting the challenges of postfire planning will require innovative solutions among federal forest management agencies, including the willingness for shared experimentation within communities. This will mean inviting the public into planning efforts and trying new management approaches, effectively giving citizens a sense of responsibility about decisions that are made. One of the best outcomes

of a recent wildfire event might be that it paves the way to plan for the next one; or rather, it motivates people to take steps to prevent or reduce the severity of the next one. When communities escape a close call or have only minimal property loss in a wildfire, this can provide a window of opportunity to organize residents (Shindler and Gordon 2005a, 2005b). For example, tours of affected lands after a major wildfire event can help citizens understand the necessity of decisions, both for restoration and for additional fuel reduction. These discussions are particularly effective when technical specialists are included to elaborate on conditions and outline the alternatives.

There is strong evidence in southern California, Oregon, Montana, and Colorado—all places where large wildfires have occurred—that individual communities are taking seriously their commitment to defensible space activities, including support of agency programs to treat public lands at the WUI (Deau and Vogt 2003, Vogt et al. 2005). The upsurge in community fire planning efforts after recent large wildfires in the West is a good indication of homeowner groups and forest management agencies working together. Projects at the WUI take on the character of shared experimentation. Within this atmosphere, more innovative ideas that go beyond “one-size-fits-all” policies become possible. In forest communities, this can also make them more achievable.

Participatory Processes Are Essential to Long-Term Success

Public responses and support are intricately linked to the processes used to involve (or exclude) citizens. After all, a major wildfire event has affected everyone’s forest community, not just the forest management agency responsible for managing these lands. How citizens are incorporated into decisions that affect their livelihood and quality of life is critical to their judgments (Shindler et al. 2002). One route is to listen to individual preferences and attempt to assuage individuals or interest groups independently. Another is to structure public processes to determine what a community of people acting together believe is right, not just merely what vocal individuals prefer. Policies based on shared community values often require engaging all relevant parties about what is best for a particular setting (Sagoff 1988). It follows that the public’s idea of fair treatment includes the quality of these procedures and the ability to be active participants (Tuler and Webler 1999). This ultimately translates to how citizens will feel about the decisionmakers.

A forest management agency’s ability to publicly articulate objectives and to lead its stakeholders through a decision process is one key factor for achieving more fundamental, tangible on-the-ground results. Most interested people like to be part of the solution, and citizens respond much more favorably when they feel ownership

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in ideas. We understand that public process is seldom swift; in some cases progress will be frustratingly slow. Here, it is important to recognize small victories; remember, the cumulative effect of group experience is a tangible dividend. Sometimes getting to know others around the table, realizing their concerns are common concerns, and building relationships are the only measurable benefits that accrue (Shindler and Neburka 1997). These should not be underestimated, as they often mean the difference between success and frustration. Each successive project then builds on the experience of previous ones. In the end, management programs that result from public partnerships are more likely to gain broad citizen support. The common thread that runs through all successful resource management decisions is the importance of trustworthy relations among citizens and agencies.

Conclusion

This summary has shown that planning in a postfire environment is replete with challenges. These forest landscapes are different from those forest management personnel typically administer, with different attributes requiring divergent strategies. Technical complexity and uncertainty characterize the problem, varied levels of public knowledge and interests are involved, and efforts to frame solutions often face an interest-ridden political context. This mixture almost guarantees that finding common understanding and agreement will require multiparty remedies involving forest management personnel, scientists, policymakers, and citizens. By its nature, and the promise of more large wildfires in our future, the problem of postfire decisionmaking will be a continuing, long-term concern. It will require arrangements for innovation, experimentation, and collaboration that contribute to our knowledge base and influence our collective judgment.

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