

Wildland Fire and Fuel Management: Principles for Effective Communication

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Introduction

Federal agencies have many options for communicating with the public (e.g., brochures, newspapers, Web sites, public meetings, demonstration sites), but often have limited resources for completing the outreach job. Ultimately, agency professionals have to make difficult choices about the most effective use of personnel and financial resources. The purpose of this paper is to highlight successful communication strategies and illustrate a set of four guiding principles for building successful fire and fuels management outreach programs in forest communities.

Public support for fire and fuels management is greatly enhanced through effective public communication and outreach programs. Many management units are well along in their own communication programs and are finding success through multiple methods and support of outreach personnel (Toman *et al.* 2006). The communication principles presented in this chapter, developed from research examining wildfire outreach efforts, suggest how programs can be focused to encourage citizens to share the responsibility for fuels management. We believe a long-term commitment to outreach and education will yield positive outcomes for managers and citizen stakeholders. Not all outcomes will be achieved immediately, nor will each one be achieved everywhere. But as this paper demonstrates, a set of guiding principles can be used to organize outreach activities for effective communication. When implemented, outcomes of outreach and education will include the following:

Internal

- Management units will have an internal planning process for public outreach.
- Personnel will reach agreement on how to proceed and avoid surprises later on.
- Public information materials and programs will be refined; financial resources can be directed at the most productive and useful methods.
- The best personnel for leading the outreach effort will emerge, and resources for doing the job will be identified.
- The agency will appear better organized and ready to respond to citizens' concerns.
- Units will focus on methods that achieve local solutions and be less concerned with national or regional agendas.

External

- A more supportive, more action-oriented constituency will emerge within the community.
- Other citizen groups (homeowner associations, watershed councils) will help carry the fuels reduction message and move the agency off the perpetual hot seat.
- Community capacity will be built for responding to fire and fuels reduction problems.
- Citizens will help identify trouble spots that need active management.
- Community residents will take greater responsibility for defensible space and fuels reduction activities on their own property.
- Citizens will demonstrate greater support for agency fuels reduction programs on adjacent public lands.

Principles for Effective Communication

Four principles of effective communication have emerged from recent studies designed to measure citizen responses to fire outreach (research described in the Research Context section). These principles are further supported by findings from related projects, several of which are discussed in this volume.

These organizing principles are:

- Effective communication is a product of effective planning.
- Both unidirectional (one-way) and interactive approaches to communication have a role in public outreach. The strengths of each should be used to build a program.
- Communication activities that focus on local conditions and concerns can decrease the uncertainty that citizens associate with fire management and build their capacity to participate in solutions.
- A comprehensive communication strategy will emphasize meaningful interaction among participants and build trust along the way.

Principle 1: Effective communication is a product of effective planning.

Fuel managers would never implement a prescribed burn without a comprehensive plan detailing treatment objectives and appropriate conditions. Yet, it is not uncommon for outreach activities to be implemented with nothing more than a vague goal of “educating the public.” Not surprisingly, such a simplistic approach is unlikely to succeed. Effective planning depends on the ability of resource professionals to determine communication objectives and organize an appropriate approach to outreach before inviting the public into the process (Jacobson 1999). Two researchers, Delli Priscolli and

Homenuck (1990), refer to this as “up-front thinking” and argue that thoughtfully planning outreach activities can help avoid costly problems such as confrontations, delays, appeals, and lawsuits.

First and foremost, agency personnel should identify what they want to achieve by communicating with the public. For example, objectives may be classified as (1) building awareness or (2) influencing attitude or behavior change (Atkin 2001, Rogers 2003). Is the primary purpose to call attention to basic wildfire prevention (Smokey Bear-type messages) or to encourage property owners to take action in creating defensible space? Perhaps the primary purpose is to enlist public support for agency fuels reduction activities. Each is a worthy objective, and each requires a different outreach approach.

Planning for outreach should consider specific audiences—their information needs, the role they will play, their previous interactions with agency personnel, and the local conditions they are familiar with. Key questions to help organize this approach are presented in table 1. Depending on the communication objectives, the audience may vary from homeowners in a particular neighborhood to residents of an entire community or region. Agency personnel will need to understand stakeholders’ awareness of fuel problems as well as their attitudes about severity levels and potential management actions (Jacobson 1999). In some cases, this information may already be available, but in others it may be necessary to

Table 1.—Planning the communication approach

Organizing questions ¹
1. Determine objectives What do we hope to accomplish with this outreach program? What should the public know, or be able to do, as a result of this communication process? What does the public need to know to participate effectively? What do we need from the public?
2. Assess the target audience(s) and contextual influences Who is “the public” for this issue? Are there specific groups or stakeholders for this problem or issue? What are their initial attitudes or understanding of the issue? How might the history of agency-citizen relationships affect reactions to the issue? What past management actions might contribute to citizen reactions to the issue? What is the public’s role in this process and how will it be communicated? What other contextual circumstances should be considered?
3. Evaluate internal resources How will decisions be made and who will make them? What resources can we dedicate to this process? Who are the appropriate individuals to be in the lead on outreach activities? What internal constraints will influence the types or scope of activities that can be implemented?

¹ Adapted from Priscoilli & Homenuck (1990), Shindler *et al.* (1999), Jacobson (1999).



Photo credit: Ryan Gordon

Interactive communication, such as here where community members discuss fuel management options with a District Ranger, can help reduce uncertainty and increase trust in resource agencies.

assess community characteristics through formal methods (stakeholder surveys or interviews) or informal means (“coffee-shop” meetings or discussions with community leaders).

Outreach planning also includes considering internal resources and constraints, particularly identifying staff with the necessary skills to lead communication activities. Shindler *et al.* (2002) argued that “most effective public processes historically have involved one or two agency members with genuine interpersonal skills” (p. 46).

Outreach programs will be more effective when such individuals are given a lead role and supported in their efforts by their management unit.

Once these questions have been addressed internally by relevant personnel, outreach activities can be developed and implemented. Ultimately, these planning efforts will result in communications that focus more on contextual conditions within the community while also meeting objectives of the management unit. Working through this planning process also forces personnel to wrestle with difficult questions before being confronted by citizens. This provides an opportunity to generate a consensus among staff about appropriate actions, get everyone “on the same page” about the need for communicating with the public, identify the best individuals in the unit for working on the front lines of the outreach effort, and organize the necessary resources to carry out the job.

Principle 2: Both unidirectional (one-way) and interactive approaches to communication have a role in public outreach. The strengths of each should be used to build a program.

Public agencies often feel it is their responsibility to develop information and deliver it to the public. But the facts do not speak for themselves; they must be interpreted and appreciated. Generally programs that just provide information are not very successful in improving, understanding, or changing behavior (Jamieson 1994). Individuals progress through various stages in a decision process. They first develop basic awareness of the issue or topic (such as defensible space or agency-implemented fuels treatments), then form opinions about its appropriateness, and, finally, decide whether or not to support or adopt the new behavior. Research suggests individuals rely upon particular communication channels during these different decision stages (Rogers 2003). Mass, unidirectional outreach methods (e.g., public service announcements, brochures) are particularly useful in the first stage when individuals seek basic information about new practices; interactive communication approaches (e.g., personal contacts, guided field trips) are more likely to increase citizen support or encourage behavior change.

The primary advantage of mass communication is the ability to reach a large number of people relatively easily. However, as Atkin writes, messages with the “broadest reach can deliver only a superficial amount of information” (p. 56). At best, these message formats are useful for instilling a central idea or for communicating a general theme (e.g., forest health conditions, need for defensible space around homes, or role of fire in forest systems). These formats are not for delivering details; people will not be able to recall specifics from PSAs, brochures, or signs at kiosks. Accordingly, mass or unidirectional messages can be effective at generating recognition of an issue, sensitizing participants to later messages, and encouraging people to seek additional information (Atkin 2001, Rogers 2003). In limited cases, mass communication methods can influence attitudes among already supportive audiences or among individuals who understand little about an issue (Toman and Shindler 2005). In sum, outreach activities that rely only on unidirectional means appear to have a limited influence on public attitudes or behavior change (e.g., Rogers 2003, Toman *et al.* 2006).

Research has found that people generally turn to interpersonal communication methods when deciding whether to adopt new ideas or change behavior (Rogers 2003). At this stage, individuals want more specific information about likely outcomes of a practice—or alternatively, of doing nothing—either to them or to places they know and care about (such as the impacts of thinning or prescribed fire around a homesite or favorite recreation area). More specifically, they want to know how *serious* and *certain* the outcomes are and *how soon* they will occur in the context of these places (Shindler *et al.* 2002).

Public preference for more interactive forms of information exchange is particularly high for activities such as fuels treatments that may hold a degree of risk or uncertainty for citizens (Jamieson 1994). The ability to engage in discussion, visit a site where treatments have been implemented, or actually view a demonstration of fuels reduction practices can reduce the uncertainty about treatment outcomes. The give-and-take of interactive exchanges allows citizens to become more comfortable with the available options and decide how they feel about managers’ ability to carry out fuels reduction.

Recent studies have evaluated interactive forms of outreach including small workshops, field trips, demonstration sites, and interpretive programs. McCaffrey (2004) evaluated a multi-faceted wildfire information program that used both unidirectional (brochures, mass media) and interactive methods (personal contact, group presentations, neighborhood meetings) and determined that personal contact contributed substantially to communication success. Indeed, educational materials, including unidirectional items, were more effective if delivered via personal contact. Similarly, in two recent comparisons of wildfire outreach programs we conducted, interactive methods were preferred over unidirectional approaches and were more effective at influencing public attitudes (Toman and Shindler 2005, Toman *et al.* 2006).

Ultimately, both unidirectional and interactive methods play an important role in a comprehensive communication strategy. At any given point, citizens are likely to be at different stages of the communication process and, thus, have different information needs. For example, residents in a wildland-urban interface community are likely to range from some who have not heard of defensible space practices to others interested in seeing a demonstration of treatment outcomes and to still others who want to confirm the value of treatments following implementation. A comprehensive strategy will target each of these audiences with activities and information designed to meet their specific needs. Unidirectional and interactive approaches can play complementary roles in these efforts. Mass messages are relatively inexpensive and can be used to build awareness as well as to motivate participants to seek more information. Interactive opportunities, although more time-consuming and requiring a certain skill set, can reduce the uncertainty associated with new activities and increase trust in resource agencies.

Principle 3: Communication activities that focus on local conditions and concerns can decrease the uncertainty that citizens associate with fire management and build their capacity to participate in solutions.

At the local level, citizen decisions about adopting defensible space or supporting fuels treatments on nearby Federal lands often boil down to the risk and uncertainty people associate with perceived outcomes (Shindler and Toman 2003, Winter *et al.* 2002). Of particular importance are concerns about the perceived compatibility of treatments with other values specific to the location (such as aesthetics, recreation use, and privacy), perceptions of the local planning process used by the agency (scientifically sound, fair, and inclusive), as well as citizen trust in personnel to do what they say they will do (Nelson *et al.* 2003, Shindler and Toman 2003, Winter and Fried 2000). Evaluations of these factors are place-dependent and can vary over time and across locations. Accordingly, activities acceptable in one situation may be unacceptable elsewhere (Brunson and Shindler 2004). Gaining acceptance among local residents for specific treatments will require more than general interpretive messages. The implementation of specific projects will require effective communication tailored to ecological and social issues at the local, and perhaps the neighborhood, level (Brunson and Shindler 2004).

Communication activities that target local conditions and public concerns about the rationale behind specific practices, potential outcomes, and implementation scenarios are more likely to resonate with participants. Although addressing local needs can be accomplished in varying degrees with many forms of outreach, programs that allow for interactive exchanges, such as guided field trips to project sites and conversations with agency personnel, are better suited to relating information to the local context. One limitation of many unidirectional methods (e.g., brochures, newspaper sections, television messages, and newsletters) is that they rely on fixed messages, whereas interactive formats include citizens

in the discussion and can be adapted to the concerns and interests of the parties involved. Such an interactive approach provides greater flexibility to address participant needs and tailor activities to the local context.

Strong evidence for keeping a local focus comes from citizen reactions to an agency-led field tour to see the aftermath of a 90,000-acre fire on the Deschutes National Forest (Shindler *et al.* 2005). Following the tour, a majority of participants had a greater understanding of and support for proposed management activities. In particular, responses indicated the ability to see fire impacts firsthand and the opportunity to discuss proposed restoration activities helped participants understand the rationale behind and likely outcomes of treatments. By offering an opportunity for meaningful interaction in a place that is familiar and important to participants, these tours were able to address their concerns and improve their ability to participate in crafting solutions.



Photo credit: Ryan Gordon

Members of a local organization lead a discussion of fuel treatment options at the Heritage Demonstration Project on the Sisters Ranger District, Deschutes National Forest.

Principle 4: A comprehensive communication strategy will emphasize meaningful interaction among participants and build trust along the way.

Fire managers and outreach personnel must recognize that citizens do not come with a readymade ability to engage in constructive, deliberative discussions of fuels management. The use of prescribed fire may seem risky, and thinning (often viewed as harvesting) may be something citizens initially oppose. In any case, the topic may just recently have become relevant to them and will likely involve a degree of emotion that other issues do not. Thus, agency managers will need to consider how they can help residents and communities engage in meaningful discussions (Jacobson *et al.* 2001, Jamieson 1994).

Initially, public judgments of conditions are likely to be based on visual references from personal exposure to forests and interpreted through previous experiences. As citizens begin to receive additional technical information about the landscape, the nature of the communications is likely to be just as important. Accordingly, a comprehensive communication strategy will focus not only on the types and content of the information disseminated, but also on the process of how it is communicated. Specifying conditions and engaging citizens in discussion about the nature of the options is just as essential as providing objective, unbiased information. Thus, personnel must be forthcoming about the difficult decisions, including the uncertainty of outcomes associated with the use of fire and thinning treatments.

While outreach programs typically focus on improving awareness, equally important objectives are often overlooked, including relationship- and trust-building. Indeed, for some projects, changes in the level of trust among stakeholders—because of a well-planned and articulated outreach program—may be the *only* measurable benefits that accrue (Shindler and Neburka 1997). The value of relationship-building can have long-term impacts on management success and should not be underestimated (Lawrence *et al.* 1997). For example, following the Deschutes bus tours described earlier, nearly all participants expressed increased appreciation for and confidence in agency personnel. This confidence translated into support for proposed management activities as participants were vocally supportive of a proposed 13,000-acre thinning project on adjacent forest land.

Ultimately, public trust is central to an agency's ability to act (Kramer 1999) and significantly influences citizen support for fire management (Winter *et al.* 2002, Shindler and Toman 2003). Trust is more likely to develop in the context of personal relationships than through mass information (Jamieson 1994). The give-and-take of interactive exchanges is much more favorable to developing these relationships than programs that rely on an impersonal, one-way flow of information.

Research Context

Prior Research

Two important findings from research on the social aspects of fire management are central to the ideas we have outlined. First, numerous studies over the past three decades have found that citizens with higher fire-related knowledge are more supportive of fuel management activities such as prescribed fire and thinning programs (e.g., Stankey 1976, Shindler and Toman 2003). However, such associations are not evident for all natural resource issues. For example, attitudes toward clearcutting are unlikely to change simply on the basis of new information (Bliss 2000). Additionally, overall public understanding and acceptance of fuels treatments is on the rise. Early studies found that citizens generally overestimated the negative impacts of fire; not surprisingly, a majority preferred complete fire suppression (Stankey 1976). But as the media have begun to cover fires more extensively and fuels reduction programs are underway in local communities, more citizens recognize the role of fire in the landscape (Loomis *et al.* 2001, Shindler and Brunson 2003).

Second, research has demonstrated that fire-related outreach can positively influence citizen understanding and attitudes toward fire management. In related studies, briefly summarized in table 2, several authors evaluated responses following exposure to various communication activities (e.g., brochures, slide shows, workshops). As described, communication strategies can be classified as unidirectional or interactive based on the type of outreach experience they provide. Unidirectional methods consist of a

one-way flow of information from agency personnel to the public, while interactive activities allow for two-way communication. For example, brochures, news releases, and displays at kiosks represent unidirectional approaches, while interpretive programs, guided visits to demonstration sites, neighborhood meetings, and agency workshops are typically interactive. Table 2 shows that both unidirectional and interactive methods have increased understanding and, in many cases, resulted in more supportive attitudes. Ultimately, each method can achieve management objectives and will play an important role in a comprehensive communication strategy. As described in principle 2, both strategies can be used in a complementary fashion to build a successful outreach program.

Table 2.—Outcomes of outreach activities and methods

	Increased understanding	More supportive attitudes
Brochures		
Taylor and Daniel 1984	X	
Loomis <i>et al.</i> 2001	X	X
Slide presentation		
Nielsen and Buchanan 1986	X	X
Interpreter guided walk		
Nielsen and Buchanan 1986	X	X
Field visit to affected sites		
Self-guided: Toman <i>et al.</i> 2004 ¹		X
Agency-led: Shindler <i>et al.</i> 2005 ¹		X
Interactive, hands-on workshop		
Parkinson <i>et al.</i> 2003	X	X
Communication campaigns		
Unidirectional methods only:		
Posters, brochures, news releases (Marynowski and Jacobson 1990)	X	
Unidirectional and Interactive methods:		
Newspapers, personal contact, group presentations, neighborhood meetings (McCaffrey 2004) ²	X	X
Interpretive centers, brochures, interpreter-guided walk (Toman and Shindler 2005)	X	X

¹ Understanding not measured.

² Educational materials were more effective if delivered via personal contact.

Methods

The principles presented here are based on citizen responses to a range of agency outreach and communication activities. Overall, more than 1,300 respondents across nine study locations participated in this research. The research was conducted in two main phases. First, mail surveys were sent to residents in four fire-prone regions in Arizona, Colorado, Oregon, and Utah. The surveys targeted the credibility and overall usefulness of 11 commonly used outreach methods, including six unidirectional (Smokey Bear, TV public service announcements, brochures, newspaper inserts, newsletters, and Web pages) and five interactive approaches (interpretive centers, conversations with agency personnel, elementary school programs, guided field trips, and public meetings).

The second phase of research evaluated participant responses to specific outreach activities in five locations. Participants in Sequoia and King's Canyon National Park in central California assessed a range of unidirectional (e.g., park newsletter, brochures, static displays at interpretive centers) and interactive (e.g., conversations with agency personnel, guided interpretive walks, evening naturalist programs) methods. Those at the World Forestry Center in Portland, Oregon, evaluated the exhibit "Fire: Forces of Nature," which consisted of traditional, unidirectional formats including photographs and text descriptions, examples of fire suppression equipment, and videos. The High Desert Museum in Bend, Oregon, included an interpretive trail through a recent prescribed burn. The self-guided trail included interpretive signs highlighting natural forest conditions, post-fire revegetation, ladder fuels, slash piles, and a historic fire line. Next, respondents in Coeur d'Alene, Idaho, evaluated a public service announcement campaign consisting of daily advertisements in the local newspaper, the Coeur d'Alene Press. Lastly, we also drew upon responses from participants in an agency-guided field trip following a 90,000-acre fire on the Deschutes National Forest.

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