

Just Blowing Smoke? Residents' Social Construction of Communication about Wildfire

Travis Paveglio, Matthew S. Carroll, James D. Absher & Todd Norton

This study uses social constructionism as a basis for understanding the effectiveness of communication about wildfire risk between agency officials and wildland–urban interface (WUI) residents. Risk communication literature demonstrates a well-documented difference in the way land managers and stakeholders conceptualize risk. This is especially true of fire because management of these hazards have changed so drastically in past decades; fire managers have typically struggled to clearly articulate the current management policy to the public or integrate their specific knowledge in the risk management process. This study contributes to an understanding of how WUI residents construct communication about wildland fire and agency effectiveness in communicating the new era of fire inclusion. Specifically, we explore the personal and professional sources of information residents' use to understand their fire risk and the subjects they would like more information about. We also explore the continued viability of Smokey Bear, the most enduring symbol of fire management.

Keywords: Communication; Wildland Fire; Land Management; Focus Groups

Forest fires have long been a fact of life in the USA. The famous 1910 fires in Idaho, Montana, and eastern Washington State burned several communities, blackened thousands of acres of forest land, and galvanized the nation's politicians for a time.

Travis Paveglio is a doctoral student and Matthew S. Carroll a professor in the Department of Natural Resource Sciences, Washington State University. James D. Absher is a Research Social Scientist for the U.S. Forest Service, Pacific Southwest Research Station. Todd Norton is an Assistant Professor in the Edward R. Murrow College of Communication, Washington State University. Correspondence to: Travis Paveglio, Department of Natural Resource Sciences, Johnson Hall 183, Washington State University, Pullman, WA 99164-6410, USA. Email: TravisPaveglio@wsu.edu

The results included the creation of a highly professionalized national fire fighting system that became the largest of its kind in the world (Pyne, 2001) and the solidification of fire exclusion policy on federal forest lands that was to remain on the books into the 1970s. The message (personified by the agencies' enormously successful "Smokey Bear" public relations campaign) was simple—forest fire was bad, needed to be prevented whenever possible, and suppressed when it did break out. An ancillary message was "let the professional agencies handle this." The role of the public was to avoid setting fires and report any that were observed. Trained professionals were to handle fire, and for that matter, all important matters related to public land management (Hays, 1959). It was the heyday of the scientifically trained professional, or as one contemporary author suggested, the "Omnipotent Forester" (Behan, 1966).

Much has changed in public land and wildfire management in recent decades. The public has lost some of its faith in the omnipotent forester. Time, experience, and much research has demonstrated that in many forest types, particularly in the arid American West, fire is never really excluded—just delayed (Arno & Allison-Bunnell, 2002). Decades of fire exclusion (along with a host of other human-related factors) have created thousands of acres of overstocked, highly flammable forests and wildfires that are increasingly difficult and expensive to control (Hessberg & Agee, 2003). Adding to the challenge has been the intrusion of more housing and human habitation into forested areas or other wildlands, creating what is now known as the wildland–urban interface (WUI) and requiring a more complex wildland fire management regime (Steelman & Burke, 2007). Current estimates indicate the WUI covers a about 9.3% of land mass across the contiguous USA (Stewart *et al.*, 2007) and it is widely regarded as a focal point for human–environmental conflicts concerning wildland fire protection as it is an ever-changing landscape influenced by expanding settlement.

All of this has also created some interesting communication challenges for federal land-management agencies, particularly the US Forest Service, which now finds itself managing thousands of acres of WUI-adjacent national forest land. Fire *management* requires a lot more public cooperation, communication, and trust than fire *exclusion*. This is a particularly difficult challenge for the Forest Service, which has seen its decades of sky-high popularity drop as a result of environmental conflict over the management of the national forests (Daniels & Walker, 2001) and concerns about the safety of those living in the WUI. In particular, this has led to a call for more local community involvement and collaborative approaches to wildland fire planning.

This paper engages the need for more active citizen involvement in the management of fire risk by examining the perceptions of selected WUI residents concerning messages and information they have sought out or received from responsible authorities, particularly the US Forest Service. The idea here is to determine whether residents feel they are part of dialogue about fire risk and what role they wish to play in the ongoing management of this form of risk. In this respect, we draw from risk communication literature to acknowledge that while the history of communication

about fire risk predominantly employed a unidirectional approach of specialized knowledge delivered by experts to the public, more recent attempts to involve residents in the development of risk protection and communication are a positive step. The specialized local knowledge and input residents provide in the conceptualization of social issues surrounding fire prevention can greatly improve risk protection (McComas, 2006; Palenchar & Heath, 2007). To accomplish a better understanding of this process, we apply the communication perspective of social constructionism to the results of focus group sessions held with WUI interface residents. Social constructionism maintains that human meanings are the product of social systems and specifically the web of interactions of societal actors in those systems (Allen, 2005; Lindlof & Taylor, 2002). Thus, our goal is to uncover what residents *really think* of agency communication, education, and collaboration concerning wildland fire, including its management in the WUI, landowner input in the management process, and preventative measures for residents. We argue that understanding WUI residents' perceptions about communication effectiveness, their communicative relationship with relevant land-management agencies, and the topics they want more information about are a crucial basis for more collaborative management and citizen engagement around the problem of wildland fire in the WUI. Studies show that those citizens who are more knowledgeable of wildfire management strategies and their benefit to the forest are often more likely to support and participate in appropriate management action by helping professionals better understand the social aspects of risk by contributing to mitigation efforts (Loomis, Bair & Gonzalez-Caban 2001).

The organization of the remainder of the paper is as follows: first, we will outline the perspective of social constructionism to show how its application to citizen interactions concerning wildland fire can provide insight into new communicative strategies regarding fire and fire risk. We will then review relevant risk communication literature and link it to the unique aspects of wildland fire. Next, we will provide a brief overview of the historical period of fire exclusion, more recent efforts to educate the public about its natural role in forest ecosystems, and the risks it poses in unprotected residential areas. The paper will conclude with results from the focus groups and a discussion of implications concerning present and future communication efforts about wildfire in the WUI.

Literature Review

Social constructionism begins from the premise that human beings create shared mental models or constructions of the world around them and react to that world or each other on the basis of such constructions. The construction of reality depends on the use of language and treats explicit communication as the mechanism humans use to create and renegotiate their world (Berger & Luckman, 1966). Scholars who adopt this perspective maintain that social discourses are the source of shared-human knowledge and their study must recognize the way language changes according to time or place. Others maintain that language is the only true reality because it is the

system humans use to internalize socially constructed meanings—concepts only become “real” when there is consent on their parameters. As Schwandt (2000, p. 197) states, “human beings do not find or discover knowledge so much as we construct or make it . . . against a backdrop of shared understandings, practices, (and) language.”

Social constructionism is a useful approach in the study of environmental rhetoric. Studies using this perspective focus on power of language in forming societal meanings for resource management, environmentalism, or nature (Carbaugh, 1999). It is important to note that discourse about the environment not only shapes social constructions, but that it also occurs in a number of physical, societal, and cognitive contexts that dictate its expression. As Cantrill (1996) argues “. . . people understand the nature and extent of environmental problems only insofar as the social construction of what is problematic comes to be accepted and appreciated by common individuals” (p. 76).

We began this study with the assumption that using social constructionism will provide added insight concerning our understanding of WUI residents’ knowledge and views concerning wildland fire. Put in the language of this concept, a focus on the communicative practices and cognitive elements that WUI residents have relative to wildfire will test (and perhaps challenge) the assumption that they agree with or accept those held by resource professionals, and provide a more accurate, situated assessment. It also places emphasis on the specific language and communication surrounding the concept, and allows researchers to analyze directed discourse about a subject of interest (Allen, 2005).

Risk Communication

Risk communication is a well-established, but eclectic field that began its modern stage following the 1984 Bhopal toxic gas leak in India that caused more than 15,000 deaths (Heath & Palenchar, 2000). Covello (1992) defines risk communication as the interactive exchange of information between interested parties about the nature, size, and control of risk, while the National Research Council (1989) conceives of it as a means for open, interactive, and informed discussions of scientific fact and opinion between people living in proximity to or affected by some form of hazard. The common thread in these and other definitions of risk communication is dialogue among those affected by a risk and those charged with reducing it—a distinction collaborative management has all but diminished in some fields (Palenchar & Heath, 2007). Risk communication not only assumes that the public has the right to know about hazards-threatening communities, but that they should be a part of the process in formulating and disseminating information leading to its prevention or mitigation (Heath & Gay, 1997; McComas, 2006). This includes the acknowledgement of local concerns and fears about the risk or the means to mitigate it (Heath & Palenchar, 2000).

The inclusion of affected publics in the process of risk communication stems from the acknowledgement that risk judgments encompass both objective elements of scientific fact and the subjective perception of risk moderated by social, political, and

economic situations (Slovic, 1999). The latter, or cultural, interpretation of risk communication posits that risk is a social construction (Douglas, 1992; McComas, 2006). This acknowledgement shifted the field away from what some termed the “technical” period of risk communication characterized by the unidirectional flow of information from experts to the public and toward a “social” period of interactive, two-way approaches (Heath & Palenchar, 2000; Palenchar & Heath, 2007).

Acknowledging that risk is in part a social construction seems warranted; many risk perception studies have found dissimilar conceptions of the concept among experts and affected publics (Slovic, 1999). Others have shown that this phenomenon extends to wildland fire (Winter & Cvetkovich, 2003). Zaksek and Arvai (2004) found significant differences in fire knowledge, information needs, and conceptions regarding wildfire management between experts and non-experts in a Canadian WUI. These results and others suggest individual action regarding personal fire management strategies are based on emotion accessible through persuasive appeals rather than technical or logical dimensions of risk. Casey (1994) capitalized on emotional appeals to educate homeowners by providing simulations of wildfire damage to residents’ communities. These visual representations increased homeowners’ understanding of fire risk and approval of fuel management strategies.

Researchers have shown that other social, political, and economic factors are significant contributors to successful communication of risk, regardless of the hazard. These include the perceived inclusion of residents’ ideas and contribution to the planning process (McComas, 2006), the fairness with which their concerns are treated, and the transparency of organizations charged with regulating the hazard (Hon & Grunig, 1999; Palenchar & Heath, 2007). Of particular importance to our discussion is trust in the management agency, which has emerged as a primary concern in fire management. Studies by Winter, Vogt, and McCaffrey (2004) uncovered that perceived competence and experience among the agencies managing fire are important to WUI residents’ support of the management process. This includes efforts (or perceived effort) to communicate management justifications and inclusion of the public in the management process (Shindler & Toman, 2003).

As we will show in the next section, efforts to change public perception about fire and foster two-way communication are proving to be an enduring struggle due to the historical exclusion of fire and unidirectional communication about its inherent danger. The historical result has been a public that was much slower to seek out information about fire danger and still remains unsure about how to contribute to mitigation of the hazard.

The Development of Wildland Fire Communication

The importance of risk communication in the prevention and mitigation of wildland fire is not a new concept. Rather, the success of the well known Smokey Bear campaign (“*only YOU can prevent forest fires*”) during the middle decades of the twentieth century is an example of successful risk communication—one which contributed to fire exclusion policies and arguably the accumulation of the excess

fuels in US forests now threatening WUI homeowners (Parkinson, Force & Smith 2003; Pyne, 2001). The general thrust of communication about fire up until only recently was a unidirectional flow of information from experts to the public. Perhaps more importantly, the general public seemed content, even happy, with this issue because of their limited interaction with fire risk, and trust in professional management (McCaffery, 2004).

Resource managers recognized the need to change public perceptions of wildfire in the 1970s, after the negative consequences of fire exclusion policies became increasingly obvious (Cortner *et al.*, 1990; Mutch, 1976), including the increased intensity and prevalence of fire in Western ecosystems dependent on periodic burns (Arno & Allison-Bunnell, 2002). The problem with this advent in fire management immediately became obvious to those managing forests, especially those near the increasing WUI: experts now needed to acknowledge that their previous management had been wrong, reducing credibility of managers, and posing the interesting conundrum of how to balance the dissemination of new information while integrating homeowner input/concerns. More recently, a number of studies (McCaffrey, 2006; Vaske & Absher, 2007) found educational or outreach programs increased fire knowledge and attitudes toward prescribed burning or allowing some fires to burn naturally. However, it is widely acknowledged that efforts to increase public involvement through outreach education have been met with mixed reviews (Absher & Kyle, 2008; McCaffery, 2004).

While the content of risk communication messages concerning fire has long been a topic of literature, very few have dealt with the process by which to deliver those messages (Toman, Shindler & Brunson 2006). We contend that effective risk communication must take a more central role in the prevention and mitigation of wildland fire, but only when the public actively engages in the dialogue and social concerns are part of the process in dealing with that risk.

Beginning with Stankey (1976) series of studies advocated that managers take efforts to educate and inform the public through communication programs aimed at a broad audience. These messages not only included the ecological role of fire and fuel management strategies, but information about establishing defensible space, and the risks individual communities face in the event of a wildfire (McCaffery, 2004). Other studies indicate efforts to increase public knowledge about fire and support for management techniques are succeeding (McCaffrey, 2006), however, acceptance of fire is a complex issue which varies across geographic and situational differences (Absher & Vaske, 2007; Brunson & Shindler, 2004).

Recent studies focus on integrating two-way risk communication into fire management and working closely with WUI homeowners. Interactive fire education programs appear to be the most-effective method for increasing homeowner acceptability of fire management (McCaffery, 2004), though, few have had such experiences and communicators have only recently begun to standardize this practice (Brunson & Shindler, 2004). Efforts to introduce interactive education programs include Parkinson, Force, and Smith's (2003) extension of a children's wildfire education program (FireWorks) to adult populations and Thomas, Walsh, and

Smith's (2000) demonstration that increased information could benefit seventh graders' perceptions of wildfire acceptance. Interactive formats open up the opportunity for more face-to-face communication with managers, an avenue that shows promise but to date has not been evaluated carefully.

The Firewise Communities Program is another recent effort to include responsible citizens in the management and knowledge dissemination about wildland fire. Created by the Wildland/Urban Interface Working Team (WUIWT), a compendium of government agencies and regulatory organizations, it encourages communities to take responsibility for creating fire defenses with established emergency response procedures, notably community-based wildland fire protection plans, or CWPPs. Fire Safe Councils in California have gone one step further by creating regulatory bodies collectively governed by residents in at-risk communities and which monitor vegetation standards, evacuation plans, or other fire protection strategies for their community.

Methods

Focus groups are an appropriate way to discover the salience, knowledge of, and socially constructed meanings about fire held by WUI residents. Particular emphasis is on how these have been influenced by information and ideas transmitted directly or indirectly by the US Forest Service and other agencies with wildland fire responsibilities. Focus groups also allow the opportunity for social interaction and the observation of how such dialogue influences participants' interpretations (Lindlof & Taylor, 2002). This method has advantages over surveys or one-on-one interviews in that it encourages participants to view alternative opinions, and gives them the opportunity to work through questions to more fully express themselves, and to convey their frames of reference on complex issues. Furthermore, it also allows insight on how the context of group discussion modifies these conclusions by allowing researchers to observe participant renegotiation of meaning using language (Lincoln & Guba, 1985).

Focus groups were conducted in the greater Spokane, Washington area as it has a relatively diverse rural population and has recently experienced its share of WUI fires, the most dramatic of which was a large wildfire that burned the area in 1991 and damaged 114 homes. The Spokane area also has been the site of numerous communication programs aimed to reduce fire danger and damage to residents living in the WUI. Community members, business owners, and agencies helped establish FireSafe Spokane in 1998, and the organization provides informational programs and other materials to help residents reduce fuels or establish defensible space. A variety of land-management agencies provide regional Firewise programs each year. In a given year, state and federal agencies provide the following services around Spokane: (1) approximately three to four outreach programs on fire management and prevention in concert with home shows or other community gatherings; (2) two coached planning presentations in which residents or foresters work with professionals to create fire defenses; (3) approximately 250 individual residential wildfire risk assessments; (4) two

or three Firewise Training sessions for collectives or special interests groups such as Grange or Back Country Horseman; (5) training at least one local fire department in the Residential Risk Assessment Process that will enable increased-fire defense standards within counties. These programs were occurring during and preceding the time period in which the focus groups were conducted. Participants were *not* selected on the basis of having participated in one or more of the above programs, rather the effort was in part to determine if the messages communicated in these various ways were getting out to general WUI residents, and if so, with what effect on their cognitive schema about wildland fire risk.

A purposive sample of participants was recruited for this study. As a starting point, maps of the area were used to identify WUI residents. In drawing the sample, the focus group moderator drove to the location of each possible participant to ensure their proximity to public lands or inclusion as part of the WUI. This process is especially important because it ensured participation by a variety of residents who actually live *in* (rather than simply near) the WUI. Once location of residence was confirmed, a combination of door-to-door recruiting, doorknob hangers, and telephone directories to find names on mailboxes were used to complete recruitment. Participants who were receptive to the project went through an additional screening process over the telephone to eliminate those with family ties to public forestry, wildland firefighting, or forest product industries. A total of three, 120-minute focus group sessions were conducted in the Spokane area in March 2006. Group size ranged from 10 to 13 participants.

We applied a thematic analysis to our data in order to develop relevant themes from patterns observed in participant interactions (Silverman, 2001). Thematic analysis is an inductive method for identifying commonalities in personal experience surrounding a given topic and employs a multi-step process of coding statements into categories which are then situated into larger themes (Boyatzis, 1998).

Researchers began this process by taking notes from observation of the focus group and developing initial themes of importance. The senior author then developed codes on fully transcribed accounts of the focus groups by compiling similar quotations on separate documents and making notations on their similarities, a process dubbed the “discovery” stage by Maykut and Morehouse (1994). These themes were discussed with the other authors to standardize and refine the themes in question. Documents containing each theme were then reviewed and simplified by retaining the most representative quotations and noting the most common overlap in statements by participants.

Results

Communication Desires and Preferred Sources

The majority of participants agreed that one of the primary responsibilities of land-management agencies such as the Forest Service is communication with the local public. As one resident commented, “I think the Forest Service should tell people all

the different things that they do. Because they do tons of different things, and not just fire and recreation; and people don't know."

Participants' primary sources of information about the Forest Service were generally the Internet and personal interaction. Interactions with family, friends, or neighbors who work for the agency were common and those who had personal interaction with Forest Service personnel tended to report more positive views of the agency than those who did not have such interactions. As one resident said, "I sit on a committee with a retired Forest Service gentleman, so I look to him as a resource, not only about natural resources, but historical resources." Individuals with personal ties to management professionals also identified more with the difficulties of managing large tracts of land and the budget constraints limiting the number of personnel working for the agency. Residents indicated that the Forest Service personnel they worked with related well to the public and promoted positive-local relationships. As another participant stated:

We used to deal with the Forest Service years ago when I cut firewood up in there. It was Fernan, mostly. They were easy people to deal with. They are all friendly. They were quite knowledgeable about where you could find a lot of good downed timber. They knew the countryside up there well.

Participants reported that interactive, face-to-face communication between managers and the public is the most-preferred method for transmitting information about issues surrounding fire risk. They expressed a desire for land-management agencies to work with residents by getting input on management decisions and having local meetings to discuss management objectives. They also advocated educational efforts to inform residents of the shift toward fire inclusion, fire ecology, and defensible space requirements. As another resident pointed out:

I think that if the information that they have is that we need controlled burning (to reduce wildfire risk), and that's in everything I read, but they really, that's in the paper, that's wherever. I don't get any personal information that I can sit back and actually read a report and compare. If this is what they want, I think they have to get out and get the public to realize that's what we need for our future, for our children's future, and convince people.

Participants shared a desire for land-management agencies to provide information about homeowners establishing and maintaining a defensible space. Although, they felt the homeowner has a primary responsibility for creating defenses against fire, many were unclear of the steps needed to do so. As one resident articulated, "It seems like it would be better to educate people. If people realized, just limit these trees a little and watering your lawn is going to increase your chances (of decreased damage during fire)." Other participants indicated they would at least like agencies to inform them of the possible dangers of fire to their property.

Residents also wanted public agencies to inform them of prescribed burns scheduled on national forest lands near their homes so they could adequately prepare. As one resident pointed out, "I think they have a duty to inform the homeowner what's going to take place, what they are going to do, what they aren't

going to do. Then the homeowner is on his own.” Others indicated that making an effort to keep homeowners updated on prescribed burns is a minimum consideration for trust between the Forest Service and WUI residents.

Evaluations of Existing Communication

At least one participant in each focus group made specific mention of the education programs Firewise or FireSmart provided by the Interagency Fire Coordinating Group. The project received favorable reviews from those who mentioned it and stimulated interest among other members of the focus groups, though there was some inconsistency as to the exact name/identity of the program. As one resident described, “Well they have people that came out and showed us about how not to put nothing up against your house and how to make sure it was clean and safe around it and that.” Strengths of the project were the face-to-face interaction with homeowners and the willingness of personnel to help with the clearing of forest lands. Others acknowledged they had heard of the project after participants mentioned it:

That’s one word that’s going around quite a bit in Coeur d’Alene. It’s a program that if you have a home that’s next to forest land, and it can be a fire problem . . . the fire at Fernan, and their home was done completely, the trees are cut, the brush was cut out. So the fire would be more apt to stop away from the house structures.

The general tenor of the discussion about these programs suggested their existence had barely penetrated the awareness of most of our WUI resident participants and that the participants had generally yet to connect the relevance of such programs to the problems of fire risk in their individual neighborhoods.

When asked a more general question of what advice they would offer to land-management agencies, many participants advocated increased communication with the local public about fire. Participants generally indicated that communication about fire risk mitigation is currently insufficient and most reported not knowing where to search for additional information about the agencies or their stances on fire. As one resident said:

One thing I’d like to see with the Forest Service is informing the public more. It’s a wild thought, maybe put together a newsletter and send it out to everyone who lives in rural counties, who lives near these forests and have it deal with forest fires . . .

Participants brought up inadequate communication about fire or lack of contact between the Forest Service and the public when the focus group moderator first asked them to describe the agency. Some residents complained that it had been a long time since they interacted with anyone working for a land-management agency, specifically the Forest Service. As one person said, “it is quite hard to find them, where they are. I’m talking about just regular people trying to get some information.” Others complained that the agencies do little to inform homeowners about management practices near their homes. Thus, access to information is another important point. As one resident complained:

To some degree, to find good information, which is very hard to find, you actually have to either call them, go see them directly, or go drill down in their websites to try and find the contracts . . . because they are not going to make that information easily available.

Local information about fire programs confused many participants and they were strikingly unaware of what efforts they should take to modify their property for fire. One resident opined that:

They (Forest Service) very much need to improve their communications. Yes, because they have put out misinformation and they have changed things, or curtailed programs that they said were going to happen. You never hear about the change or you never hear about the curtailment. You just hear nothings. So that would not only help the public, but it would help them a lot too, because the PR thing is one of the areas where they are really falling down.

Smokey Bear

As noted above, we also asked WUI residents about Smokey Bear, the Forest Service's longstanding national symbol of fire prevention. We wanted to learn if Smokey remains a viable symbol the agency can use to effectively communicate about fire with the public or if the changing fire paradigm had rendered him an outmoded trademark. Despite the changing fire paradigm, participants told us that Smokey Bear remains the most endearing and recognizable symbol of fire management for them, though, there was some confusion over whether his original message actually contradicts the newer ideas of fire inclusion. Participants did agree that Smokey Bear stands largely for fire suppression, but they were quick to defend Smokey by pointing out that this message applied more to campground fires and man-made forest fires than naturally occurring burns. As one participant pointed out, "Smokey is going after man-made fires, your campfires, and those kinds of things. It's not the lightning strikes and the power lines going down, that kind of stuff."

Most participants recalled Smokey's phrase "only you can prevent forest fires" when asked about the character and reported how effective the promotional tool was in teaching them about fire when they were children. As one resident said, "I remember taking it personally (Smokey's message), that it was a responsibility of mine not to let some fire I'm having get away." Participants also reported the perception that Smokey is not as prominent on the public stage as he once was and "he hasn't been updated much" to reflect the new fire management strategies of the Forest Service. Other lessons associated with Smokey Bear were the danger of fire and the responsibility of using fire in the forest.

A large portion of participants supported retaining Smokey as the Forest Service's symbol of fire management. They indicated that the symbol carries too much positive history to discard and it would damage trust in the Forest Service by removing a sense of familiarity. As one resident said, "Well, I think probably Smokey, because he started and I guess his word is still good, so if he tried to say, well, all fires aren't bad,

I think people would listen to him.” Other participants contended Smokey never dealt specifically with who has responsibility for mitigating risk in residential areas and they did not directly relate him to the strict suppression of fire. Therefore, in their view, the Smokey message could easily encompass the inclusion of fire in the ecosystem.

Residents felt Smokey’s role as an educational tool for young children would prevent any confusion about his message. They posited that most children are not as familiar with Smokey as are previous generations and the change in his focus could occur with little trouble. As one resident explained during the argument to retain Smokey:

Education comes at the elementary school level, and elementary kids don’t know anything about Smokey’s past. And I recall, too, within the past three years Smokey has been to the elementary school where I taught, so he’s still out there.

Relationship with the Forest Service

Participants indicated that they generally did not feel included as a stakeholder in their local National forests. Many expressed the perception that the Forest Service served its own purposes without considering the public or its uses of the land. This included opportunities for dialogue between the public and land managers. As one participant said:

I think of myself as an owner, but I can’t do anything with it (national forests). That’s why I can see anything I want to do, but it doesn’t matter because it’s managed by somebody . . . in another part of the world, who has lost touch with what actually needs to be managed.

Others indicated a construction of the Forest Service as an agency that does not work in the general interest of the public and its decisions on management do not make sense to them. As one participant articulated, “they (the Forest Service) have very narrow minds of where they want to go. Directed by who knows who.”

Our participants reported seeing fewer Forest Service personnel in the forests in recent years and having limited interaction with agency personnel. As one member asked, “Are they (Forest Service personnel) around? I’ve never seen one up there in the ten years I’ve lived up there.”

Participants also expressed a lack of knowledge and trust in the Forest Service as an organization. Many indicated that they did not understand the management responsibilities of the agency while others felt that it should reorient its management to “take care of the interests of the public and forget about politics.” A perceived lack of communication from land-management agencies dealing with local fire risk was a prominent source of reported diminishing trust between agencies and perhaps indicates a sense of social distance or lower levels of shared values (Vaske & Absher, 2007). It also suggests that participants might feel little respect for homeowner capabilities. As one participant articulated:

I would like there to be more interaction or some leveling of that playing field, of yes, we are the public, but we are not stupid. We do take our responsibility seriously, and we'd like to be treated as such.

According to our participants, trust is becoming more of an issue, as they said they no longer associate the Forest Service with the strong agency images created during the early part of the twentieth century. As one participant noted:

It's giving me or landowners more information about who they are, what they represent, what they do. Getting to know them. Getting to know each other. I know they are there, I know who they are, I don't know what they do or what they represent, or if they are just a neighbor.

Participants indicated that agencies should at least communicate fire policy and articulate personal protections so homeowners can take responsibility. This includes the framework of community action plans so the growing population of WUI residents can address concerns quickly once they become aware of danger, thus, increasing trust in agencies through the demonstration of mutual concern. As one resident said:

Come up with a plan. I don't know the plan. I don't have the formula. But come up with an understanding of what your common citizen could do to prevent stuff from happening to their land. Just good practices in the forest.

Discussion

WUI residents' social constructions surrounding fire communication are an integral part of how they perceive and react to wildfire risk and its management. Understanding these social constructions and developing shared ones that encompass new messages surrounding wildland fire are an increasingly important consideration for agencies such as the US Forest Service, which will continue to struggle with the increasing complexity of the human dimensions of fire management. Understanding existing social constructions concerning fire and fire risk is a crucial prerequisite to designing future communication efforts. Such considerations allow managers to review what aspects of fire management need further clarification, resident input, or additional information for public understanding (McCaffrey, 2006; Toman, Shindler & Brunson 2006). Therefore, it would appear potentially useful for researchers and practitioners to expand efforts in the application of risk communication theory to advance collaboration in the arena of fire risk in the WUI. This could include future studies linking specific-communication strategies to changes in residents' frames of reference for fire and for the development of new methods for WUI residents to work with agencies in mitigating fire risk, including a renewed effort to focus on the inclusion of the social factors contributing to risk and its mitigation (McCaffrey, 2006; Palenchar & Heath, 2007).

It would be foolish and naïve to assume that *all* residents will immediately change their attitudes, beliefs, or actions regarding fire risk simply because managers do a better job of communicating the problem context or management strategies.

The transition from communication to action is often more complex than that. For instance, Daniel, Meitner, and Weidemann (1994) found many urban dwellers do not understand the dangers of wildland fire and even if they do, may be unwilling to compromise their idealized perception of natural beauty for the interventions necessary to reduce the risk. Even in the WUI, Gardner, Cortner, and Widaman (1987) found residents generally unreceptive to wildfire mitigation programs due to low awareness (at that time) of fire severity and occurrence. More recently, Absher and Kyle (2008) found that WUI residents are very knowledgeable and aware, but do not enact defensible space activities fully.

Our results seem to imply that the patterns identified by Absher and Kyle (2008) and Daniel, Meitner, and Weidemann (1994) are both present in our population as the participants studied displayed a working knowledge of fire and the desire to learn more, but did not feel communication about fire risk has been sufficient enough for them to fully address the problem or engage in collaborative planning surrounding it. We contend that our suggestions for focusing on uniqueness in the local community, the push toward interactive, face-to-face programs which allow resident input, and a focus on the social construction of fire risk are an initial attempt at understanding the complexities in the causal relationship between communication and action. The studies suggested in this section are factors which are necessary to better understand this relationship.

These results also suggest that communication is central to trust issues between the Forest Service and WUI residents as participants indicated that communication with the public is vital to their view of the agency. This includes personal interaction or visible symbols *communicating* Forest Service efforts to manage public lands for fire. This study mirrored the results of other work concerning the importance of visible-management strategies in support of fire management (Shindler & Toman, 2003) by extending it to outreach and communication programs.

Absent from most of the focus group discussions was an accurate awareness of Forest Service or other government agency outreach programs and communication efforts. In fact, many participants indicated the educational materials that they were aware of were confusing or hard to access. Thus, the variety of outreach programs for Spokane WUI residents offered by land-management agencies and offices and participants' evaluations of the amount and quality of agency communication on this topic and on the others suggests a potentially significant disconnect between the agency's message and its intended WUI audience. The reasons for this observed disconnect deserve further attention. The significant problem seems to be connecting such programs in the minds of potential participants to the issues they face on a daily basis in their neighborhoods.

Residents' desire for interactive, two-way communication, and hands-on education such as Firewise imply a shifting focus toward collaborative management of fire. This appears to be a key step toward support of agency fire inclusion strategies such as the use of prescribed burning to reduce catastrophic fire risk and more active participation of WUI residents in risk mitigation regarding their neighborhoods. All these factors imply that researchers and practioners invest time in learning how to

promote and link hands-on programs to the daily or seasonal fire concerns facing members of the WUI.

Smokey Bear continues to be the most endearing and long-lasting symbol of the Forest Service, and participants indicated he can carry new messages of fire inclusion, and resident participation in planning for fire management. This is especially true for younger populations who have had less interaction with Smokey due to a gradual decrease in education programs using the symbol. Results indicate that removal of Smokey would probably be more harmful and less effective than retaining him and changing his message. It appears that Smokey is not “typecast” in his role of fire suppression, as the social construction recognized by residents include fire responsibility rather than its absolute removal. While this form of communication is unidirectional, we believe that the symbol can disseminate messages that are created and sustained through dialogue about fire risk, including the unique input, or fears, of residents.

Closing Thoughts

The results of this study suggest a number of implications for managers and communication efforts about wildland fire management. First, agencies such as the Forest Service should focus risk communication on local risk mitigation in advance of catastrophic fire. This and other studies show that residents are becoming increasingly aware of fire danger, yet they do not always have detailed knowledge of what to do about it in their particular neighborhoods (Absher & Kyle, 2008). Managers can capitalize on the desire for more information about defenses by attempting to foster community-based organizations charged with regulating the dissemination of such information. These could be formal groups such as Firewise, which we discuss below, or more informal arrangements through homeowners’ associations. Regardless of their infrastructure, these groups provide interactive means by which to expand resident responsibility and offer better channels of information flow between managers and the public concerning technical or social dimensions of risk. Perhaps more importantly, it will lead to resident *action* regarding wildfire preparation, including the self-regulation we see in California FireSafe Councils. *When they are user friendly and easily accessed*, internet sources are an important avenue for expansion of these suggestions as it is quickly becoming a primary source of public information. This finding is supported by studies from other risk communication literature (Palenchar & Heath, 2002), yet it is important to consider Internet communication with caution as such outlets can restrict the amount of hands-on interaction between residents and managers that is central to trust building and the opportunity for both parties to create shared meaning. The use of the Internet as a primary tool for information dissemination about wildland fire risk also may exclude non-computer using segments of society who are at risk for wildfire. These populations are less likely to use the Internet as a

source of information and more likely to engage in meetings or hands-on learning, meaning any attempt to deal with fire risk should be multifaceted (Palenchar & Heath, 2007).

Second, management agencies such as the US Forest Service would do well to place greater emphasis on proactive efforts to improve their communication with WUI residents. While state and federal agencies offer a number of outreach programs focusing on fire in the Spokane area, it may be that promoting those events to new audiences could help expand their impact. A number of communication strategies can help accomplish this: (1) use more face-to-face outreach programs outlining Forest Service duties and efforts to manage fire in the area. These outreach programs could “humanize” the agency and provide avenues for additional information about fire. The resulting increase in the visible symbols of fire management will create more support and trust in the agency. This includes additional training on the facilitation and communication practices needed to achieve what Zaksek and Arvai (2004) call the elevation of “risk communication beyond superficial discourse between managers and stakeholders to processes that foster the development of frameworks for effective and comprehensive risk decision making” (p. 1513). (2) Programs such as Firewise could be expanded to educate more homeowners about fire ecology or fire management and promote dialogue about these issues. Increased sophistication in WUI residents’ knowledge will give them the ability to contribute to fire planning processes and decrease tensions by allowing stakeholders to “speak the same language.” While critics might suggest this is fighting an uphill battle given the inconsistent relationship observed between education and fire-protection behaviors (Absher & Kyle, 2008), we argue that increased knowledge of fire benefits is crucial to additional resident responsibility in the prevention of fire. It is this increased responsibility that will lead to a change in behavior. (3) Managers could increase the visibility of online information and policy about fire inclusion and management efforts such as prescribed burning. The visible aspects of this medium make it an ideal place to show the benefits of prescribed burns and provide lasting symbols supporting fire inclusion.

Finally, it appears that the Smokey Bear image could well be adapted to carry the new, more nuanced message of fire inclusion and community involvement. The symbol could return to its original prominence in order to retain the trust and positive associations it still holds for WUI residents. Smokey has demonstrated his ability to socialize entire generations to a message of fire inclusion and children are unaware of previous associations with fire exclusion.

We should remind ourselves that although, it has many technical facets, fire is also a social issue that necessitates public understanding and feedback. Increased efforts to communicate with WUI residents is the next logical step in the era of fire inclusion and a necessity as catastrophic fires continue to increase. Most observers agree that public support is crucial to fire management in the coming decades, but it is also important to recognize that effective communication is a core component of that support.

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