Integrating Social Science Into Forestry in the Wildland/Urban Interface

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A different kind of storm—neither fire nor wind—brought 60 forestry practitioners who work in wildfire risk prevention and several social science researchers together near Lyons, CO.

Brainstorm.

This unique retreat—a meeting of the minds—commingled these two groups to share and tackle ideas concerning social issues that shape decisions and behaviors regarding wildland fire risk mitigation across Colorado's wildland/urban interface communities.

The 2-day "Are you FireWise? Understanding Social Values" retreat began with two general questions:

1. We understand the biological science necessitating fuels reduction in the wildland/urban interface. How can we better understand social values so that we are more effective working with interface communities?
2. How can we increase FireWise behaviors at a level higher than one homeowner at a time?

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Four Central Objectives

This event—sponsored by the Colorado State Forest Service, Larimer County, CO, and the USDA Forest Service—had four central objectives:

1. Reveal obstacles to effective wildland fire mitigation in Colorado,
2. Share alternatives among practitioners facing similar barriers,
3. Open lines of communication between practitioners and social scientists, and
4. Provide opportunities to build agendas for further social science research and future workshops.

Four studies were presented that addressed the human dimensions of wildland fire and fuels management in various parts of Colorado's Front Range. The studies were agency–university collaborative efforts conducted by social scientists from Colorado State University, the University of Colorado, and the USDA Forest Service. (These research presentations can be viewed at <http://www.colostate.edu/Depts/CSFS/FWeducators.htm>.)

Frustrations Expressed

Forestry practitioners expressed frustration over a lack of apparent, concrete solutions from the research findings to address the

Key is Communication and Trust

The success of collaborative forestry and wildland fire and fuels management depends on long-term communication and relationships of trust among diverse stakeholder groups (Shindler and Toman 2003; Wondolleck and Yaffee 2000).

The 2003 strategic framework for the USDA Forest Service Rocky Mountain Research Station described six research and development areas of focus, including communicating with stakeholders.

One communication strategy is to build relationships between social science researchers and the users of the research—practitioners—to ensure the implementation of social science findings (Alexander 2003).

challenges that they face in their efforts to reach fuels mitigation mandates. Questions of when, where, and for whom practitioners can increase participation in mitigation projects were not directly answered. A "how-to cookbook" or "silver bullet" was not provided by any of the social scientists.

Furthermore, some practitioners seemed frustrated by a lack of social science research in their specific geographical areas. Concern was voiced about the differences across communities and counties. Statements such as *"what works in Gilpin County won't work in Boulder County"* were voiced again and again. Thus, to explore the social and ecological diversity in the State—particularly in western Colorado—a common desire surfaced to see these studies conducted in a wider variety of settings.

Wildland Fire Risk Perceptions

Researchers and community practitioners also shared interest in research that describes how individual homeowners perceive, process, and respond to information about wildland fire risk. Participants learned that age, income, and education might be less useful for predicting mitigation behaviors than a resident's familiarity with the information about mitigation.

More research is needed, however, to better understand what general factors might increase interface residents' FireWise behaviors and their management of fuels.

In general, the panel and the audience discussed the importance of collaboration—or partnering—to identify barriers to communication. Many of the practitioners agreed that relationship building and developing trust are paramount when working with interface communities. Some practitioners described their successes as long-term efforts that involve regular interactions with communities.

It appears that the research needs of forestry practitioners are primarily unknown or misunderstood by researchers.

Important Tool

The researchers and practitioners tended to agree that before education programs or fuels projects are initiated, it is important to understand the multitude of ways that people and communities define the problems that affect them. "Framing"—defining the issue based on what is important to a group of stakeholders—was identified as an important tool to help understand this problem of definition.

The general consensus seemed to be that frames of reference can affect responses to information about possible fuels reduction projects. Practitioners now realize that paying attention to how stakeholders *frame* wildland fuels issues in their own communities helps them to better tailor their interactions with community members.

Some practitioners think that a case-by-case community-level approach can be successful in the long term. They discussed the importance of learning two-way communication skills as they proceed in their work to build relationships and to develop projects that fit a community's needs and values. A second group of practitioners, however, wanted more generalized solutions to barriers that might be applied across communities.

Both approaches to the problem were represented in the research presentations. Depending on what question is being addressed, both mindsets can be appropriate.

Key Themes and Lessons

Key Theme

It appears that the research needs of practitioners are primarily unknown or misunderstood by researchers. This could be due, in part, to a key theme of the "Are you FireWise? Understanding Social Values" retreat that practitioners appear to be fundamentally divided regarding the kind of social science research that is relevant—case studies of individual communities, or studies that identify solutions and develop tools that can be applied across differing communities.

Some of the issues raised by practitioners are not researchable questions. And, in some cases, findings might exist in the social science literature but have not yet been summarized and made accessible to practitioners.

Key Lesson

Forestry practitioners and social science researchers need to talk more and collaborate better about the specific questions and problems practitioners are trying to solve *before* the social scientists design research studies and summarize existing social science findings.

Breakout Session. Retreat participants discuss communication barriers to fuels mitigation. Photo: Joseph Champ, Assistant Professor, Department of Journalism and Technical Communication, Colorado State University, 2004.

Breakout Sessions

During the retreat's second day, participants—in smaller group discussions—were instructed to:

- Discuss how research can benefit community projects,
- Identify additional research needs, and
- Develop a list of barriers to implementation, along with possible solutions.

Facilitators took notes on flipcharts and researchers video-recorded each session. The notes and videos from all sessions were independently studied and discussed by three of the researchers. Their analyses and results were summarized and organized into themes that are illuminated and discussed in this article.

Common Goals and Definitions of Success

The failure to mutually agree on goals and to define success *before* funding fuels projects was identified as one of the most notable barriers to successful implementation of these efforts. For example, why spend money to thin timber in communities in lodgepole pine forests when evidence exists that thinning is not effective for that vegetation type?

Standard definitions of success, however, presented a problem for some participants. Once again, practitioners discussed a conflict between wanting to develop consistent goals across administrative agencies and the problem of differences in ecological, community, and organizational conditions and values across Colorado. (For related issues and proposed actions, see sidebar.)

Appropriations Mentality

Participants identified a tendency to want to solve problems through the allocation of funds as a political barrier to successful fuels management in communities. This "appropriations mindset" operates under the faulty assumption that allocating money will fix the wildland/urban interface fire problem.

While adequate funding is important for solving this problem, because management of wildland fire risk in the interface is uncertain and complicated, it will not be solved solely because funds are appropriated.

Timelines

Timelines for community projects are important on two levels:

1. The distinction between short-term and long-term goals needs to be clearly communicated. Short-term goals are to reduce fuels here and now. Long-term goals are to develop community capacity to sustain fuels mitigation projects and to foster fire-safe decisions as communities evolve—and vegetation continues to grow, residents leave, new residents move in.

2. Organizations are beginning to understand that success related to understanding wildland fire risk in communities is based on building relationships and trust. Therefore, organizations need to redesign project goals to ensure that they have the flexibility to meet community timeframes.

Aesthetic Values

Concern among interface residents about the impact of fuels reduction on their private property has been an issue consistently heard by practitioners and researchers. Practitioners are generally aware that the goals of communities to maintain certain aesthetic features often do not match the programs that encourage thinning and defensible space on private property. Interestingly, there appears to be a fundamental difference of opinion among practitioners about how to address this.

One set of practitioners feels that partnering and education have overcome the aesthetic values issue. They cite evidence from their experiences that some residents tend to appreciate the look and qualities of their properties even more after vegetation thinning.

The other group of practitioners indicates that, despite increased awareness and partnering, resistance by some residents to alter the landscape continues. This group asserts that they cannot necessarily change the social values of residents who insist that the experience of living in natural-looking forests is worth the risk of wildland fire.

Outreach to Communities

For forestry and other natural resource practitioners, outreach to communities is difficult, expensive,

and time-consuming. Most practitioners agreed that they do not have the appropriate tools to help them effectively identify leadership and organization in their target communities.

There was agreement that diagnostic or assessment tools might be important to help practitioners identify community strengths, leaders, resources, and readiness to collectively manage fuels.

Practitioners expressed another concern that attempting to meet project goals that were determined prior to learning about a community's capacity and history might be shortsighted. Some practitioners believe that this shortsightedness can stall forward motion or diminish the progress communities have already made.

An important lesson that was shared by several participants reflected a similar plan or path to success. This path entailed several years of relationship building within the communities for proposing fuel reduction and FireWise programs. One successful strategy described by practitioners is to initially share information about basic forest ecology that is relevant to the local context. As interest emerges, the practitioner can present more specific risk reduction and fuel management plans.

Communication Dilemmas

Practitioners in the field interact with communities and residents on a regular basis. Thus, they have accumulated a wide variety of experiences and insights that are useful for accomplishing their goals. It appears, however, that they can undervalue their own experiences and insights or might not know how to best communicate their experiences to others.

Rather than sharing with each other, some practitioners tend to look to academic social scientists to tell them what works. Such communication barriers among practitioners can prevent recognition of what they already know from experience. Furthermore, when the experiences of practitioners match up with those of their peers, their confidence is bolstered regarding their own solutions to the challenges they face.

> Practitioners can start by honestly telling communities that there is no guarantee that enough resources exist to stop all interface fires.

Another important communication issue is the gap between social science researchers and practitioners. Differing language and goals are some of the challenges that keep social science researchers and practitioners from effectively working together. Some practitioners, looking for the "silver bullet," expressed concern that they had not learned anything new from the research presented at the retreat. Others, however, found these studies to be useful because they confirmed some of their assumptions and dispelled others.

A third communication issue involves the length of time it takes for a message to reach and be adopted by the public. This lag time is problematic because defensible space and firesafe norms change over time—as do the products available to interface residents. Keeping the public up to date with current county regulations and the products or options available to address these norms is an enormous challenge.

Barriers

The primary problem preventing communities from properly addressing wildland fire risk is inadequate communication at three levels:

- Organizational,
- Community, and
- Individual homeowner.

Common goals and definitions do not exist among these three groups to appropriately address wildland fire risk. Barriers to communication at the highest organizational levels filter down to the community level. This presents challenges for practitioners and community members working together to manage the risks on the ground. Finally, an overemphasis on individual homeowners is a barrier to effective relationship building and collective action in communities.

Organizational—Beware Appropriations Mindset. Several organizational issues became apparent during our analysis of the retreat. An appropriations mindset has resulted in considerable amounts of funding targeted to interface communities—without a clear understanding of the capacity and ownership needed to organize and sustain projects that people regard as successful.

Project goals defined under these broad organizational plans primarily measure success through the treatment of acres. As long as acres treated remains the only measure

of success, the practical goal of treating acres and the true goal of reducing risk for people living in the interface will remain at odds.

This problem is further complicated by the fact that practitioners trained in forestry and technical natural resource management are being asked to reduce fire risk through community outreach. Yet, problems of community outreach and organization are not well suited to concrete technical solutions such as thinning acres of trees to produce desired outcomes. Due to their disciplinary training, some practitioners therefore lack the skills and knowledge needed for making social assessments. Furthermore, specific tools do not exist to evaluate the communities targeted for fuel reductions and FireWise programs.

Working with interface communities to develop collective management of fuels and to reduce the risk of wildland fire is a problem of long-term coexistence between people and fire in the interface. The timelines for the accomplishment of tasks must be carefully considered. Long- and short-term goals must be identified and documented. To foster success and sustainability for community wildland fire mitigation projects, longer timelines should be considered.

Many of these barriers are administrative, organizational, and political in nature. They are beyond the influence of many practitioners and social science researchers. Acknowledging and documenting these issues, however, can help clarify barriers to effective communication and the collective management of wildland fire risk.

The practical goal of treating acres and the true goal of reducing risk for people living in the interface will remain at odds.

Communities—Establishing Trust. Because communities are the main target for outreach efforts, communities and practitioners need more ways to talk about, measure, and report successes—in addition to counting acres treated.

Because of their lack of clear measures for success, community programs are often difficult to define and evaluate. This dilemma presents a significant challenge to working with communities. On private land, practitioners should consider community-defined success as the priority for projects. The administrative goals should be of secondary concern.

Differences among communities will continue to make concrete solutions difficult to attain. Community-specific knowledge that is collected by practitioners is particularly useful. Time spent with community members, relationship building, and attending community events all constitute locally relevant research that is invaluable to the successful implementation of projects.

As practitioners work in communities and establish relationships of trust, they will achieve understanding with residents regarding how the community actually sees its situation, above and beyond the appearance of individual properties. This perception will allow practitioners to better mold their education programs and fuels projects to more appropriately fit individual communities. Furthermore, this practice can also provide practitioners with a heightened ability to understand and clearly report on realistic community timeframes for success.

A significant challenge to practitioners is the changing composition of communities and community leadership. Similarly, job turnover and organizational changes might lead to several different practitioners working within the same community for short periods of time. This could jeopardize consistent relationship building and the establishment of trust among practitioners and community members.

Community members should be brought into the research process as much as possible. Applied action research principles and techniques (Stringer 1996) can be learned by practitioners to help them increase community members' participation and strengthen the partnering process. One strategy might be to document and share the process of partnering and assessment as it unfolds between practitioners and residents in similar places.

Individual Homeowners. Aesthetic values are particularly important to individual homeowners. In fact, aesthetic concerns regarding the impact of fuels treatment on private properties might be more important to some residents than the expense of mitigation when deciding whether to thin trees.

A small number of vocal residents could refuse to alter the appearance

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Issues and Proposed Actions

Common Goals and Definitions of Success

Issue
Practitioners are concerned with a lack of alignment between generalized goals as defined in the broad funding plans of the organizations and the varying, more specific goals that exist within communities. These often emerge according to how a community has framed both the issue and acceptable solutions.

Proposed Action
Fuels management projects and education programs should be evaluated based on what communities consider successful. While the higher level goals of the organizations remain important, community-defined success stories should be given equal weight for evaluating community projects.

Appropriations Mentality

Issue
Retreat participants discussed a concern that seems to have roots in the history of appropriating money for wildland fire suppression in the Western United States. The apprehension is that a lack of incentive exists for some counties to invest in wildland fire risk mitigation because of a belief that Federal funds will clean up the costs—or simply prevent destruction by containing large wildfires. Does a suppression mentality reinforced with agency funding send conflicting messages to interface communities being told that it is *their* responsibility to help mitigate the risks of wildland fire?

Proposed Action
Directing funds at the wildland/urban interface problem in a community before it has a sense of ownership for a fuels project can complicate the situation. Time should be invested to foster ownership and responsibility for risk reduction projects *before* approaching communities with grants. Practitioners can start by honestly telling communities that there is no guarantee that enough resources exist to stop all interface fires that might threaten them.

Timelines

Issue
Short-term goals often undermine the success of long-term goals. Treating acres on 2-year grant cycles can conflict with the goal of sustainable and self-organized communities who continue to make firewise decisions.

Proposed Actions
Social science studies and longitudinal data are needed to track whether or not communities that have been considered short-term successes continue to manage fuels over the long term.

Organizations need to identify and state their goals according to long-term and short-term considerations and, thus, take the appropriate action.

Aesthetic Values

Issue
It appears that some practitioners are narrowly defining social values in terms of aesthetics. This frustrates their efforts to engage the community in discussing broader concerns. When practitioners define social values only in terms of viewsheds, privacy, and natural appearing forests, they oversimplify the problem.

Proposed Actions
Practitioners can discover the broader visions of communities by learning about and respecting their residents' environmental values, opinions, and preferences for land management. Responding to how communities define the problem involves tailoring fuel reduction messages to match these definitions, and exploring with residents how their values and concerns might already be compatible with mitigation plans.

Outreach to Communities

Issue
Practitioners want some indication or measure of general community readiness and capability to partner on fuel reduction projects. A primary concern is that without such tools, money that is being allotted to programs will not be well spent.

Proposed Actions
Social science research is needed to establish how response to risk, partnering, and readiness to manage differ by:

- General demographics,
- Level of community organization,
- Region, and
- Amount and type of skills and resources in communities.

Issue
Practitioners are concerned that predetermined project goals can undermine community work. Lack of consistency between community goals and organizational goals creates obstacles.

Proposed action
Early in the partnering process, practitioners need to understand what communities have accomplished in identifying leadership and resources, how they work together, and how—as a community—they define the problem. Social science researchers can help through case studies.

Path to Success

Issue
Successful community projects depend on long-term relationship building and the establishment of trust between practitioners and community members.

Proposed Action
It appears that the best way to build relationships and to perform assessments is for practitioners to be present in communities on a regular, long-term, and interactive basis. To facilitate success, organizations should also consider the need for long-term consistency in personnel. One strategy might be to allow practitioners to work within the same communities for 5 to 7 years—while adjusting funding cycles accordingly.

Communication Dilemmas

Issue
There are interorganizational communication barriers that prevent practitioners from relying on each other as resources.

Proposed Actions
To facilitate sharing, FireWise and mitigation professionals need to ensure that project information is accessible in a central location. If documented and shared, models of success and failure can serve as invaluable tools among practitioners. Short stories of successes or mistakes could be posted on Websites maintained by education and multimedia specialists. Such actions could help to transform the current state of wildfire risk management into a well-organized community of professional practitioners.

Research and Practitioner Gap

Issue
An important communication link is missing between community practitioners and social science researchers working on the wildland/urban interface fire risk problem.

Proposed Actions
Make the time for researcher and practitioner interactions. Find a common, jargon-free language that both groups can understand. Outreach social scientists with extension experience need to assist practitioners to bridge the divide between the models, findings, and recommendations of academic research and actual implementation in communities.

Issues
Practitioners feel that the basic concepts communicated in the brochures should be consistent where appropriate, but must also reflect any current differences in ecological and regulatory conditions across the State. FireWise publications and brochures must be current and contemporary to reflect this information.

Proposed Actions
Standard FireWise information developed for certain regions of the State should be carefully discussed and adapted by practitioners and communities to match local project conditions—such as elevation and forest type. In addition to standard FireWise brochures, preferences for types of media and multiple media outlets (local newspapers, TV, radio, Internet, and new electronic technologies) should be reviewed and

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of their land. These people might not trust partnering with outsiders. They might never participate.

Solutions for Improving Communication

Communication problems within organizations at higher levels of administration often present frustrating situations for practitioners trying to build effective and appropriate programs for more local levels. State, regional, and local levels, however, present many opportunities to develop potentially successful plans to address the interface wildland fire mitigation problem.

The primary challenge is integrating communication, management, and education programs across these hierarchies of organization. It is clear that partnering and sharing information—across organizations, with communities, and between practitioners—have improved. These efforts need to remain top priorities when addressing the interface wildland fire mitigation problem.

There is a general need for better communication and partnering between practitioners and social science researchers in defining research goals. Social science research findings need to be given to practitioners more quickly in a centralized location to be used as internal resources. For some studies, this means making findings and practical recommendations available in a format that is accessible—and understandable—to practitioners, before academic publication.

Research and Practitioner Communication Gaps

Because they often do not know what types of information or tools are useful for practitioners, researchers struggle to translate social science research into usable tools. Research agendas could therefore be refocused to work with practitioners' needs. And social scientists could consider interviewing more community practitioners to inform early stages of study development.

Social science research has the potential to contribute new insights for understanding the human dimensions of wildland fire risk reduction. Research findings from social science studies that could be applied to more than one community beyond the case study are sought by practitioners.

Social scientists can also conduct program evaluation studies and practitioners can document when communities feel they have achieved success. However, even when social science is able to contribute important findings about general demographic characteristics (level of community organization, leadership, etc.), this information can only be useful to practitioners if they know something about local demographics and community organization.

In other words, practitioners still have to know their communities to decide what general findings from studies are appropriate for local conditions and values. A key lesson for practitioners is that research findings always need to be interpreted in the context of their particular situations. Most social scientists will not be able to do that for practitioners.

Practitioners' Invaluable Insights

The knowledge and insights of practitioners currently in the field should not be underestimated. Their personal research in communities provides invaluable insights. Practitioners who are open to the possibility could receive training to improve their techniques. Their insights—and success stories—should be documented and shared among all stakeholders.

These insights could be developed into rapid assessment tools or into screening tests to determine which communities are ready to begin relationship building. For example, before proposing a community project, a general checklist of key considerations about a community could be developed and used.

Furthermore, opportunities also exist to build collaborative relationships with nontraditional partners, such as:

- Environmental groups,
- Realtors,
- Homebuilders,
- Natural resource and landscape planners,
- Insurance company representatives, and
- Retail businesses.

Such a variety of partners could help update and share information about the various aspects of mitigation in the interface. Some particularly relevant topics would include FireWise construction materials and the development of markets for utilization of small-diameter wood byproducts.

More Retreats Recommended

Leaders from both the research and management communities who work in wildland fire risk mitigation should consider organizing and attending future retreats and workshops to build upon our October 2004 retreat.

In future meetings, researchers could listen to presentations from practitioners about their community projects. The meetings and discussions should be analyzed and documented for lessons learned—similar to the findings of this article.

We must integrate the shared knowledge of social scientists and practitioners to develop summarized tutorial themes. Such undertakings could be used in training courses and assessment guides to help diagnose community capacity and barriers to collective risk management that is considered both successful and sustainable by all stakeholders.

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