Changing Beliefs and Building Trust at the Wildland/Urban Interface

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What makes prescribed burning an acceptable fuel management approach to most people in one community, but unacceptable to most people in another community?

Is it the people—their knowledge, understanding, attitudes, and beliefs? Or is it the context—proximity of homes to fuels, an area's fire history?

Can demographic and geographic information be used to predict where different fuel management approaches will be accepted or resisted?

Our recently concluded Joint Fire Science Program-funded project Demographic and Geographic Approaches to Predicting Acceptance at the Wildland/Urban Interface sought answers to these and related questions through:

- Focus groups,
- Survey research, and
- Geographic and geostatistical analysis.

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We sought to assess and understand wildland/urban interface homeowners' attitudes toward different fuel management approaches by focusing on:

- How they are influenced by beliefs about likely outcomes,
- Their trust in the implementing agency, and
- The importance they place on fuel management issues.

We hoped that acceptance of fuel management approaches could be modeled from homeowners' beliefs and attitudes as predicted at the neighborhood scale using demographic variables, such as those collected by the U.S. Census; and contextual variables, such as proximity to high hazard fuels or catastrophic fire incidents.

The survey responses showed striking regional differences in fire-related beliefs, attitudes, experiences and acceptance of fuel management approaches.

Discussions and Focus Group Interviews

In discussions with fire and fuel managers and focus group interviews with homeowners living in wildland/urban interface areas of California, Michigan, and Florida, we discovered a collection of issues and concerns that were remarkably consistent in these disparate sections of the country.

Building on these discussions, we developed and tested a nationally applicable survey instrument for evaluating public acceptance of fuel management approaches. We focused on three specific approaches that seemed to experience widely varying levels of acceptance within and between wildland/urban interface communities:

- Prescribed burning,
- Mechanical treatment, and
- Defensible space ordinances.

We then tested this survey instrument at some particularly fire-prone wildland/urban interface sites in these same three States, mailing out 4,850 surveys and receiving 2,260 responses back. The survey responses showed striking regional differences in fire-related beliefs, attitudes, and experiences, as well as different levels of acceptance of fuel management approaches. The responses also revealed some common factors related to fuel management approach acceptance at all of the study sites.

Survey Results

On average, California wildland/urban interface residents held strong positive attitudes toward mechanical fuel reduction on public lands (5.8 on a 7-point scale), and defensible space ordinances requiring firesafe zones around their homes (also 5.8). While the aver-

age Floridian surveyed held strong positive attitudes toward prescribed burning (5.7), less than half held positive attitudes toward defensible space ordinances. Michigan wildland/urban interface residents were slightly positive toward mechanical treatments (5.0). They were relatively neutral toward all three of the proposed fuel management approaches.

At sites in various States, differences in homeowners' experiences were sometimes striking. For example, 32 percent of the California respondents reported that they were required to remove flammable vegetation on their property. Only 2 percent of respondents in Florida and Michigan reported that they were required to do this.

This disparity was mirrored in the proportions of respondents reporting that they had actually removed vegetation from their property. A total of 91 percent of California respondents reported doing so, versus only 44 percent of Florida respondents, and 42 percent of Michigan respondents.

Such differences in experience were also reflected in the respondents' attitudes. California and Michigan respondents who had removed vegetation were more likely to have positive attitudes toward defensible space ordinances.

Attitudes and Beliefs

Homeowners' attitudes toward all three fuel management approaches were contingent on the personal importance—a measure of relevance—that homeowners attached to these approaches, and to the perceptions of these fuel management approaches' cost-effectiveness.

Beliefs also influenced attitudes. For example, a belief that prescribed burning results in uncontrolled fires translated into reduced acceptance. The acceptance of mechanical treatment and defensible space ordinances was diminished by the belief that these approaches adversely impact landscape aesthetics.

When faced with three hypothetical "up or down" votes for each of the three fuel management approaches, the vast majority of respondents—99 percent in California, 96 percent in Florida, and 86 percent in Michigan—indicated that they would approve one or more. Most respondents, however, also found one or more approaches objectionable. The percent of respondents who "voted" yes for all three of the fuel management approaches was 49 percent in California, 32 percent in Michigan, and 18 percent in Florida.

> Acceptance of each fuel treatment approach could be predicted from attitude and the degree to which people trust the agencies responsible for carrying out these approaches.

The approach with the greatest support varied by site. Respondents were asked "If you were given the opportunity to vote for or against allowing fuel management approach 'X' in County 'Y', how would you vote?" At the California and Michigan sites, mechanical treatment was most accepted, with 88-percent and 73-percent approval, respectively. When the Florida respondents were asked this same question, prescribed burning was rated most acceptable, with 87-percent approval.

Trusting the Agencies

An attitude score—on a 7-point scale with endpoints labeled "extremely negative" and "extremely positive" and a midpoint labeled "neutral"—was elicited for each fuel management approach with this three-part question: "How would you rate your general attitude toward each of the three fuel management approaches? (Please circle one number for each fuel management approach.)"

Although attitude and approval were closely related, the percentage of respondents from all three states approving a fuel management approach was consistently lower than the percentage reporting a positive attitude. While the disparity between approval and attitude varied by approach and site, as many as 40 percent of the "no" votes were cast by those with a positive attitude.

Clearly, something else was tempering the positive attitudes toward the fuel management approach being considered. Statistical analysis revealed that "trust in the agency" accounted for at least part of this moderation in positive attitudes.

Wildland/urban interface homeowners reserved their greatest trust for firefighting, as indicated by their agreeing with the statement: "The government does a good job of protecting private property from wildland fires." In response, California respondents were at 5.2 on the 7-point agreement scale, Florida respondents were at 4.9, and Michigan respondents were at 3.9. Floridians were slightly more trusting (4.5) of the use of prescribed

burning ("I trust the government to make the proper decisions about the use of prescribed burning") than Californians (4.1) or Michigan respondents (3.3).

Acceptance of each fuel treatment approach could be predicted from attitude and the degree to which people trust the agencies responsible for carrying out these approaches.

Accepting Fuel Management Approaches

Because trust tends to evolve from experience, it is interesting to note that in California—where defensible space requirements have been in place for more than 20 years, and creating and maintaining defensible space is fairly widespread—the study's respondents held more positive attitudes toward defensible space and greater trust in the agencies responsible for enforcing these ordinances. In addition, rates of engagement—actually implementing defensible space work on the ground—at the California site far exceeded the other States' study sites.

> We sought to assess and understand wildland/urban interface homeowners' attitudes toward different fuel management approaches.

Most remarkable to us was how many attributes that seemed logically connected to the acceptance of fuel management approaches proved to have no significant relationship.

For example, experience with a particular fuel management approach was largely unrelated to acceptance. In fact, every other demographic and geographic variable we collected in the survey—or computed in a geographic database—was unrelated to acceptance. These variables included:

- Length of residence,
- Age,
- Educational attainment,
- Income,
- Property value,
- Proportion of the vicinity in high-hazard fuels,
- Number of large historical fires in the vicinity,

Three Significant Lessons

From listening to wildland/urban interface homeowners in this study, significant lessons emerged that can be used in planning fuels management communications and outreach programs.

Lesson #1. There are no easy shortcuts to predicting acceptance of fuel management. Beyond the broad, regional differences that the survey testing demonstrated, the only way to find out what residents will support is to ask them. This means that message development and outreach activities should be targeted widely, rather than to specific subpopulations that are presumed to have particular attitudes.

Lesson #2. Attitudes toward some fuel treatment approaches are far less positive than they need to be for these approaches to achieve widespread acceptance. For example, 58 percent of respondents in Florida and Michigan held neutral or negative attitudes toward defensible space. In Michigan, 58 percent were also neutral or negative toward prescribed burning. The conceptual model employed in this study, however, is that beliefs drive attitudes. For instance, let's say education and demonstrations induce more homeowners to believe that prescribed burning:

- Won't lead to more uncontrollable fires,
- Doesn't have terrible consequences for scenic beauty, and
- Will reduce firefighting costs.

We would then expect attitudes to become more positive and acceptance of prescribed burning to increase.

Lesson #3. Even with positive attitudes, a lack of trust in the agency doing the treatments can significantly reduce the acceptance of a fuels management approach. On average, homeowners with negative attitudes toward fuel treatment approaches disagreed with the notion that the government can effectively manage wildland, including:

- Wildfire,
- Prescribed burning,
- Mechanical fuel reduction, and
- Defensible space ordinances.

While social science researchers are not in complete agreement about what constitutes trust, evidence suggests that with different fuel management approaches homeowners will place more trust in land managers who are competent, credible, and share their values that relate to natural resource management. ■

- Distance to the perimeter of the closest large fire, and
- Distance to the nearest area of high-hazard fuels.

Because support for a fuel management approach turned out to be unrelated to any geographic variable—or combination of variables—that we considered, it was not surprising that this support similarly exhibited no spatial continuity. This flies in the face of the notion "birds of a feather flock together"—a premise relied upon by marketers when ZIP codes or census tracts are believed to be useful as a basis for business decisions. This approach, however, does not appear to be useful for predicting opinions on fuel treatments.

Spatial Discontinuities

We observed many cases in an earlier study in Michigan's jack pine forest in which one family would take all possible precautions to create and maintain a defensible space, yet the family right next door would purposely not disturb their natural setting—responding that they "live in the woods to *live* in the woods."

These residents believed that any vegetative screening on their property would remain undisturbed unless destroyed by fire or altered by future landowners.

The existence of such spatial discontinuities, and the nonsignificance of geographic variables, meant that it was not possible to generate meaningful maps of predicted acceptance that could be used for targeting promotional messages based on easily obtained demographic and geographic data. ■

For More Information

For more information on this study Demographic and Geographic Approaches to Predicting Acceptance at the Wildland/Urban Interface and its results—including links to publications completed to date—please see the Social Acceptance of Fuel Treatments Website at http://www.fire-saft.net/index.htm. Published results from this study and the one that preceded it can also be found within the following publications.

Fried, J.S.; Winter, G.J.; Gilless, J.K. 1999. Assessing the benefits of reducing fire risk in the wildland urban interface: A contingent valuation approach. International Journal of Wildland Fire. 9(1): 9–20.

Vogt, C.; Winter, G.; Fried, J. 2003. Antecedents to attitudes toward prescribed burning, mechanical thinning and defensible space fuel reduction techniques. In: Jakes, P., ed. People and Wildfire—Proceedings from the 9th International Symposium on Society and Resource Management. Gen. Tech. Rep. NC–231. St. Paul, MN: USDA Forest Service, North Central Research Station: 74–83.

Vogt, C.A.; Winter, G.; Fried, J. 2005. Predicting homeowners' approval of fuel management at the wildland/urban interface using the Theory of Reasoned Action. Society and Natural Resources. 18(4): 337–354.

Winter, G.J.; Fried, J.S. 2000. Homeowner perspectives on strategies for reducing fire damage at the wildland/urban interface. Society and Natural Resources. 13: 33–49.

Winter, G.J.; Fried, J.S. 2001. Estimating contingent values for protection from wildland fire using a two-stage decision framework. Forest Science. 47(3): 349–360.

Winter, G.J.; Vogt, C.; Fried, J.S. 2002. Fuel treatments at the wildland/urban interface: Common concerns in diverse regions. Journal of Forestry. 100: 15–21.

Winter, G.; Vogt, C.A.; McCaffrey, S. 2004. Examining social trust in fuels management strategies. Journal of Forestry. 102(9): 8–15.