

Communicating with Homeowners in the Interface about Defensible Space¹

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Introduction

Our study's main objective was to facilitate communication between public land managers and residents of wildfire-prone areas. We interviewed homeowners to gain a better understanding of their perceptions of wildfire and their landscape values, preferences, and activities related to defensible space and vegetation management. Eighty individuals were interviewed in neighborhoods at risk of wildland fire in northeastern Minnesota and north central Florida. To better observe residents' settings and understand their landscape preferences, we interviewed them in their homes and asked them to complete a two-page survey.

Our study provides an indepth look at the range of perceptions and types of behaviors for wildfire preparedness. Every interface community may not be exactly like the ones we visited, but we believe there is much to learn from the people we are trying to communicate with. We also believe that what people care about and how they wish to maintain their landscape are mostly compatible with efforts to create safer, defensible, and survivable neighborhoods.

Key Findings

After listening to residents and seeing how they manage their landscapes, we offer the following six points to help managers communicate with residents.

- **Most people have similar attitudes about their yard and immediate landscape, especially favoring wildlife, privacy, a natural appearance, and recreation.** Managers need to help residents understand how activities to reduce vegetation near the home can enhance these values. For instance, on larger properties, residents could be encouraged to maintain screening buffers near the road.
- **People generally understand the fire risk and have taken some action to reduce their risk.** Agency materials may not need to introduce the risk to these residents, but instead emphasize specific problems in an ecosystem and ways to reduce risk from those problems.

¹ Text and data presented here were adapted from the following articles: Monroe and Nelson 2004; Nelson *et al.* 2004, 2005.

- **Interface residents are not all the same. Consequently they act and react differently to the same information.** People will imagine different possibilities and act accordingly. One message or brochure may not speak to everyone. Managers will need to plan for these differences.
- **Most people care at least a little about what the neighbors think about their landscape.** People are not likely to take action they think their neighbors would not approve of. This makes demonstration areas important in a community—so people can see the results and realize that defensible space could be appropriate in their community. It also means that working with neighborhood associations and groups could help in questioning existing norms and establishing new ones.
- **Most people accepted fuels treatments, such as prescribed burning and thinning, as long as they were done by knowledgeable people, preferably local individuals who knew the land.** Managers should communicate frequently with neighbors of properties that require treatment to reduce fuel. This communication should stress the qualifications and experience of the staff who will perform the treatments. The short- and long-term consequences of the method and the associated risk also should be explained.
- **The key to communicating with people in the interface is to figure out what they care about, learn what is missing in what they know, and support what they are willing to change.**

Detailed Findings

Most people have similar attitudes about their yards and immediate landscapes, especially favoring wildlife, privacy, natural appearance, and recreation. How these attitudes affect actions on the landscape will vary based on local context.

The values homeowners associate with the land near their homes could have some bearing on their acceptance of a defensible space message to reduce the vegetation near their home. The residents we spoke with cared about many things and fire protection was not necessarily the dominant value.

A majority of respondents from both States valued four things in their wooded landscape: wildlife habitat, privacy, naturalness, and recreation. How they achieved these values, however, revealed differences in access to information, ability, and preferences. To protect their privacy, homeowners in both States planted screening shrubs at the edge of the property, while others left vegetation near the house. Most managed their land for a “natural appearance.” Florida’s range of landscape preferences was broader than Minnesota’s; some Floridians maintained a mowed yard or grazing animals while most Minnesotans nestled their home in the woods.

[We] like our privacy, let things grow in between lots. If you're in the woods, you're there because you want to be. (Minnesota)

It is a place to come and hide. (Minnesota)

I clear a dead tree if it falls in the driveway. Otherwise, I leave it wild... dead trees are part of the forest. (Minnesota)

It would be nice to be outside but ... the heat... mosquitoes, you tend to be inside so seeing green from every window is really important. (Florida)

Floridians created wildlife habitat by hanging birdfeeders, planting butterfly gardens, setting up corn feeders for deer, and leaving brush piles and untended areas. Minnesotans left their woods “untouched” for wildlife. While Minnesotans recreated by skiing, snowshoeing, and hiking on public lands near their home, Floridians created hiking trails, firing ranges, soccer fields, and horseshoe pits on their property.

We like having a lot of wildlife... we've seen deer, rabbits, snakes, armadillos. We get a lot of things city people won't get. (Florida)

I like native vegetation too because it attracts birds and other wildlife, a major part of the attraction of living where we do. (Florida)

Some values reflected the nature of the particular community. One subdivision in Florida required that homeowners leave 40 percent of the native vegetation on the lot. This attracted residents who value native landscaping and dense vegetation. Remote subdivisions tended to have residents accustomed to taking care of themselves with a pioneer mentality. In Minnesota the vast majority of the homeowners felt strongly that lawns did not belong.

Because wildlife, the naturalness of the setting, recreational opportunities, and privacy are important, managers need to help residents understand how activities to reduce vegetation near the home can enhance these values. For instance, on larger properties, residents could be encouraged to maintain screening buffers near the road.

People generally understand the fire risk and have taken some action to reduce their risk.

The written survey indicated that most (84 percent) of these homeowners were very aware of their risk of wildfire. They acknowledged that fire is a constant threat to their home when weather conditions are appropriate.

Homeowners had a fairly sophisticated understanding of the various conditions that affect their risk such as fire behavior, forest ecosystem, or climate, in part from their experience.

It depends on what kind of fire came through. If you had a big fire like they have out west right now, embers can land on the house, even if there are no trees around. (Minnesota)

Our house is protected if it's not too windy. But if it's a high wind, (the) house would probably go anyway, even if we cleared more trees. So we keep the insurance paid up. (Minnesota)

Despite this knowledge, people still had questions and concerns. Those who knew that a fire had jumped a six-lane highway, for example, did not believe that 30 feet of defensible space would reduce their risk.

If the fire jumps I-95, how much do you have to clear to be safe? (Florida)

Most respondents had taken some action to reduce their risk, indicating which actions they had taken to protect their property from wildfire in the survey.

My home is not really at risk because I have cleared at least 125 feet around the house. (Florida)

The three most popular actions in both States were reducing vegetation near the home, installing a water source, and reducing vegetation far from the house (table 1). The least popular actions varied by State: Minnesota landowners invested least in fire-retardant building materials (22%) and widening their driveway while Floridians invested least in sprinkler systems and installing a chimney spark arrester (21%).

Table 1.—The wildfire protection actions

	Minnesota N=36 %	Florida N=43 %
Reducing vegetation near the home	69	70
Installed a water source	53	47
Reducing vegetation far from the house	39	38
Installed chimney spark arrester	31	21
Invested in a sprinkler system	33	12
Widened the road leading to the house	25	33
Invested in fire retardant building materials	22	28

It is clear from these data that people are aware of their fire risk and many have done something to reduce it. However, our firsthand observations of the properties led us to wonder if they are doing the

most effective things, or enough, to really reduce their risk. For example, if one side of the home was left with vegetation, it tended to be the back, which connected the home to the larger natural area.

Homeowners are knowledgeable about their risk of fire. Agency materials may not need to introduce the risk to these residents, but instead, emphasize specific problems in an ecosystem and ways to reduce the risk of those problems.

As a group, interface residents are relatively diverse. Consequently they act and react differently to the same information. Their landscapes reflect these activities.

Visits to each home, and in some cases tours around the house, enabled interviewers to code the landscape and discuss with respondents how they currently managed their land. Interviewers were trained to evaluate defensible space using a very basic assessment of vegetation within 30 feet of the house, vegetation touching the house, and ladder fuels.

In both Florida and Minnesota, the home landscapes included in the study ranged from open meadow to thick vegetation. The degree to which the homes had defensible space created categories between these two extremes. Statements from respondents confirmed these categories.

In Florida, four landscape typologies best represent the pattern of existing landscapes immediately around the homes (fig. 1). In Minnesota, an additional landscape type creates a five-point scale that best represents the existing landscapes (fig. 2).

- *Open Space* (FL=8, MN=5). These respondents preferred a completely cleared landscape. They maintained this opening by mowing or by grazing animals. Some, but not all residents, maintained lawn.

Figure 1.—Florida respondents by land typology distribution defined by 30 feet of defensible space, 2001

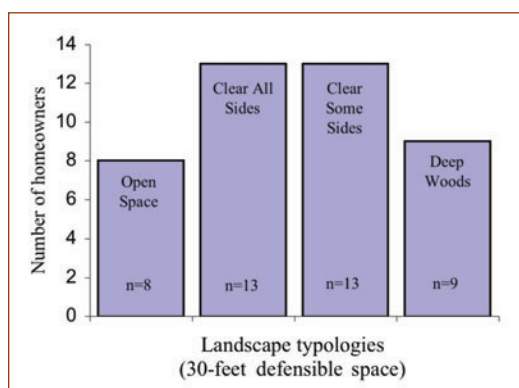
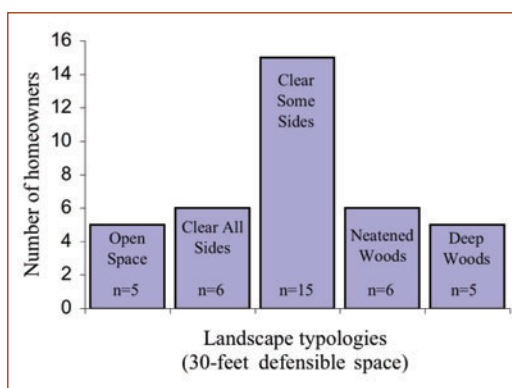


Figure 2.—Minnesota respondents by land typology distribution defined by 30 feet of defensible space, 2001



- *Clear All Sides* (FL=13, MN=6). Properties in this category had reduced vegetation near the house with tree islands and plantings; thick vegetation was present beyond the 30 foot zone. Some residents explained their preference for cleared vegetation on all sides of the house as wildfire protection, while others believed houses should be exposed to the sun or that openness provided a view. Flower and vegetable gardens were commonly carved out of native vegetation in this zone.
- *Clear Some Sides* (FL=13, MN=15). Some respondents explained they just haven't gotten to the back side of the house yet in their efforts to reduce vegetation; others vehemently said they have no intention of reducing the trees on the remaining side(s). These trees provided shade and beauty, and one respondent said it would affect her emotionally to cut those trees.
- *Neatened Woods* (MN=6). Only Minnesotans had this landscape type with trees up to and touching the house but lower branches trimmed and understory vegetation reduced. Many were directly impacted by the blowdown and had proceeded to clear fallen trees, but their goal was to return their land to a natural state, implying even more trees.
- *Deep Woods* (FL=9, MN=5). The respondents who were surrounded by thick vegetation with little or no clearing belong in this category. Usually this category was due to native vegetation that was allowed to creep back toward the house or that was never reduced during construction. Some respondents built their houses and lived their lives for minimal impact on the forest system.

Some people are doing things to reduce their fire risk while others are doing the right thing for nonfire reasons, so their landscapes may change if these reasons change. Other people may understand the risk but do nothing because they care so much about their nearby vegetation that they are willing to chance the wildfire risk or because they are missing details about what needs to be done.

How people manage the space around the house and what actions they choose to do to reduce their risk are important pieces of information for agency managers. This information tells them what messages people accept and what is within their realm of possibility. It may be difficult to believe that people value the forest more than their own home, but the strength of the statements some respondents made about their landscape reveal they deeply cherish their wild and natural view and believe the suggested alterations are too burdensome. Some directly answered the question why they do not alter their landscape to reduce their risk of fire.

We don't know. It would be nice to know what we could do, other than clear cutting all the trees, which we won't do. (Minnesota)

For me I guess I would take the risk [of fire] because, just because I like the trees around and I don't like a stark naked looking yard in front of me. (Florida)

I know their recommendation. I should cut stuff, but I don't plan to do it. I like it the way it is. I lost so many trees from the storm I don't want to lose any more. (Minnesota)

Pine trees topple too easily in hurricane winds, and they burn quickly. That's why we've cleared pines from near the house. (Florida)

Managers' messages are not falling on deaf ears, but the public may be confused or may have difficulty balancing the need to reduce fire risk and maintain the look of the landscape they cherish. People will imagine different possibilities and act accordingly. One message or brochure may not speak to everyone. Managers will need to plan for these differences.

Most people care at least a little about what the neighbors think about their landscape.

In both States, most homeowners said the dominant neighborhood norm was independence. Homeowners can do what they want with their land, but there is an unspoken agreement about what is “within reason.” The Florida subdivisions varied in the degree to which people interacted with neighbors. In some cases respondents were quite certain neighbors would not approve of defensible space; other respondents were equally certain that their neighbors wouldn't care what they did on their land. In Minnesota, homeowners said you can do what you want as long as neighbors can't see you. In general, there was a common sense of “appropriate” behavior that was maintained by the social norm of the community.

If we came in here and took down a lot of trees there would have been a negative reaction from the neighbors. I certainly wouldn't do anything that would upset the neighborhood. (Florida)

Everyone expects solitude—people don't want to see their neighbors' homes. But we can have defensible space and not see our neighbors. (Minnesota)

The neighbors probably do have expectations. They don't want others to let their property get “run down” but neither do they expect immaculate professional landscaping. (Florida)

No one would pressure anyone, never. There is an unwritten law that you don't interfere with someone else's business. Some do have it more cleared. Don't like it but would never say anything. (Minnesota)

Resource managers must understand the “unwritten law” or “social norm” within a neighborhood or community. People are not likely to take action they think their neighbors would not approve of. This makes demonstration areas important in a community—so people can see the results and realize that defensible space could be appropriate in their community. It also means that working with neighborhood associations and groups could be effective at questioning existing norms and establishing new ones.

Most people accepted land fuels treatments, such as prescribed burning and thinning, as long as they were done by knowledgeable people, preferably local individuals who knew the land.

People who live in neighborhoods that border undeveloped land can be at great risk of wildland fire and may express supportive or unsupportive opinions about the land management strategies to reduce that risk. Respondent comments about specific management practices to reduce wildfire risk brought out clear differentiation between prescribed burning, thinning, and herbicide use for reducing vegetation.

Most respondents were very comfortable with prescribed burning as a forest management tool to reduce wildfire risk. The level of support increased by including those respondents who gave qualified support for prescribed burns that are done well (88% MN and 85% FL). Nearly all respondents (91% MN and 96% FL) thought that prescribed burning was moderately to very effective. Of those respondents who were less comfortable with prescribed burning, responses included nervousness about burning too close to homes and concern about burning getting out of control.

Another fuel treatment option used in both States is thinning or mechanical removal of vegetation on undeveloped lands. More than half the homeowners were comfortable with thinning (68% MN, 57% FL). Those against thinning want the forest to remain natural or believed that thinning would not have an impact on wildfire risk.

Finally, in Florida, herbicides have been used for vegetation management, so respondents there were asked about this particular technique. Distinct from previous vegetation treatments, very few approved of herbicide use (only 7%). Most people found it completely unacceptable. Many worried about groundwater contamination and the risk to wildlife and other inhabitants.

Managers should communicate frequently with neighbors of properties that require treatment to reduce fuel. This communication should stress the qualifications and experience of the staff who will perform the treatments. The short- and long-term consequences of this method and the risk also should be explained.

The key to communicating with people in the interface is to figure out what they care about, learn what is missing in what they know, and support what they are willing to change. Communities may vary on the degree to which individuals represent these various beliefs and attitudes.

Talking to people to understand what they know, what they don't know, and what they care about is of vital importance if resource managers intend to design communication tools to encourage new behaviors. This information may enable an agency to craft a message that will be better heard and generate greater acceptance.

Many people choose to live in the forest because they value the closeness of vegetation, the privacy it affords, the wildlife, the recreation opportunities, and the natural landscape. Their understanding of what it would take to reduce the risk of fire conflicts with these values. Most are aware of the risk of fire, but some do not wish to reduce their risk. In fact, direct experience with wildfire may not alter their convictions. Others, however, have taken limited steps to reduce vegetation or have taken other actions, such as installing a sprinkler and widening the driveway. The social norm within the neighborhood creates an expectation for landscaping. Respondents may use the neighborhood norm to justify their lack of action.

A message about defensible space that concisely explains why certain actions are necessary may be helpful to residents. Information that explains how to keep valuable views while creating defensible space is paramount. Messages have to expand the “why” of defensible space from threatening crisis statements about the potentially deadly consequences of fire, to include a more complex message that argues that it will provide multiple values in a landscape. Messages that give “how to” information but not “why” may support short-term behavior change but may not help when people are challenged with conflicting information (Monroe *et al.* 2005).

Few of the materials we reviewed from State and Federal agencies encouraged neighbors to work together to create defensible space. Although not appropriate for all locations, managers may want to consider promoting defensible space more actively as a neighborhood activity. This could accomplish two important goals: (1) the social norm would favor defensible space and (2) people could no longer use the excuse that their defensible space is meaningless until their neighbor reduces vegetation.



Four photographs of computer-modified landscapes were used in homeowner interviews to discuss defensible space preferences.

Research Site and Methods

Specific objectives of the study were to (1) document homeowners' landscape values, preferences, and activities related to vegetation near their homes and defensible space options, and (2) identify homeowners' perceptions of wildfire, the risk it represents, and their acceptance of fuels treatments of forested public lands. We interviewed individuals at their homes to better observe their setting and understand their landscape preferences. This meant we conducted a qualitative study and chose a fairly small sample. Our neighborhoods were purposefully chosen: all were at risk of wildland fire in northeastern Minnesota and north central Florida. Residents participated in the in-depth interview at their home and completed a two-page survey. The mixed methods used in this study enable us to report on both general tendencies

in themes from open-ended questions in the interviews and frequencies from the survey. All percentages reported here come from closed questions on the survey. All quotes were transcribed from taped interviews.

In large neighborhoods, high-risk regions were identified and information was obtained on each lot from the county tax assessor's offices. In small neighborhoods, a complete census was taken. In both cases the population was homeowners with a local address and working phone number who owned at least 1 acre at risk of wildfire because of their proximity to forested areas. Contacts were made in each State until approximately 40 residents agreed to be interviewed.

A total of 80 interviews were completed. In Florida, 78 respondents were identified and contacted, and 43 interviews were completed, for a 55-percent completion rate. In Minnesota, 46 respondents were randomly selected and contacted, and 37 interviews were completed, for an 80-percent completion rate. Given the difference in response rates, there is a possibility the Florida respondents were more inclined to value their landscape than nonrespondents, but the bias should not influence our discussion of defensible space or fire risk because these concepts were not mentioned. In Minnesota, this bias is less likely given the response rate; most non-respondents wanted to be interviewed, but we could not work out a visit to their homes during the interview period. Overall, this sample of 80 individuals is not designed to be a representative sample of the communities, but rather it is an indepth look at the range of perceptions and types of behaviors for wildfire preparedness.

The two samples were similar in that 78 percent (MN) and 70 percent (FL) of the participants owned 1 to 5 acres at risk of wildland fire. Half of the Minnesota homeowners were permanent residents and the other seasonal by research design, and all of the Florida homeowners were permanent residents. While half the Minnesotans had owned their homes for more than 10 years, half the Floridians had owned them for 3 to 10 years. Most participants had lived in their respective States for more than 10 years. In both States, they represented a range of incomes. More Minnesota participants were retired (50% compared to 21% of Floridians) and had a college degree (71% MN and 44% FL).

To enable residents to speak about their likes and dislikes without focusing on their own yards, 11 photographs of homes from the area representing a range of landscapes were used to prompt participants to reveal what they liked and why. Later, four photographs of computer-modified landscapes surrounding a house were used to help them visualize 30 feet of defensible space. Respondents were asked about the relative acceptability of vegetation removal. After wildfire and defensible space were mentioned, additional open-ended questions were asked about perception of risk of wildfire, neighbors' approval of vegetation removal, efficacy of protection measures, recent respondent actions to reduce wildland fire, experience with wildland fire, and perceptions of various fuels treatments. The survey included scaled questions about specific strategies to reduce fire risk and demographic details. In the yard with

the respondent, the interviewer assessed the homeowner's landscape using a limited interpretation of defensible space, noting vegetation distance from the house on all four sides, size and nearness of shade trees, and ladder fuels. To reduce the effect of respondent bias, the study was described as exploring "the values residents have about their yard and landscape." The risk of fire and term "defensible space" were not mentioned until halfway through the interview.

The interview guide and the survey were pilot tested with wildland-urban interface residents in both States, reviewed by colleagues, and revised. Interviews were recorded with tapes and field notes were taken, usually by two interviewers. Field notes were typed after each interview and checked against tapes. Two or three reviewers read each interview for themes, and the themes were organized and interpreted using Strauss and Corbin (1990) analysis procedures of grounded theory. Survey data were entered into Excel and summarized with frequencies.

For a more detailed treatment of the study and findings, please see Monroe and Nelson 2004; Nelson *et al.* 2004, 2005.

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