

# Homeowners' Wildland Fire Beliefs and Behaviors: Results from Seven Colorado Wildland-Urban Interface Counties

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## Executive Summary

A mixed mode (internet and mail) survey of homeowners in Colorado was conducted in spring 2015. Respondents ( $n = 1,351$ , response rate = 45%) were randomly selected from 70 owners associations from seven counties (Chaffee, Clear Creek, Fremont, Gilpin, Grand, Park, Teller).

### *The sample and their residences*

- Most respondents were male (56%). The respondents' age ranged from 25 to 90, with a mean of 60 years old. On average, respondents held a bachelor's degree, with a mean annual income between \$50,000 and \$75,000.
- Three-quarters (74%) of the sample lived in their residence yearlong and had lived there for nearly nine years on average. The average lot size was 2.26 acres (Median = 1.0, range = nearly 0 to 50 acres). About half (48%) said their home was located within a forested area.

### *Personal experiences with wildland fire*

- Two-thirds (65%) of the respondents indicated that they had no direct personal experience with wildland fire.
- A fifth of the sample (20%) had personal property destroyed or damaged due to a wildland fire and 12% said their residence had been damaged or lost due to fire.

### *Perceived wildland fire risks*

- A third (33%) indicated that the probability was "extremely likely" that a wildfire would start on or spread to their property this year; another 19% said "moderately likely."
- Over 40% thought that the odds were "moderately" to "extremely" likely that their home would be destroyed or severely damaged by wildfire.
- Two-thirds (66%) indicated that they were moderately to extremely willing to take risks.

### *Beliefs about homeowners insurance*

- Four-fifths (84%) paid a higher premium for homeowners insurance because of wildfire risk.
- Nearly one-fifth (19%) said they did not have homeowners insurance.
- Seventeen percent said an insurance company had canceled or refused to renew their policy because of wildfire risk.

### *Homeowner defensible space and firewise construction*

- Four-fifths (81%) of the homeowners were moderately to extremely familiar with defensible space activities and about two-thirds (65%) were aware of firewise construction activities.
- Eighty-three percent thought that defensible space made their homes moderately to extremely safer and 72% reported similar evaluations of firewise construction.
- Less than half (44%) thought that defensible space improved the appearance of their property, and a slight majority (52%) indicated that firewise construction made their home look better.

### *Barriers and incentives to preparing for wildfire*

- Cost (27%), time (23%), the amount of work (23%) and the disposal of plant / tree material (22%) were viewed as the top four extreme barriers to adopting defensible space.

- A third or more of the respondents said tax breaks (38%), recent fire events (37%), financial assistance such as grant programs (36%), and home or property protection (33%) were incentives to adopting defensible space

#### *Beliefs about wildland fire preparedness*

- About half (48%) of the respondents thought that they were prepared in the event of a wildfire. Equally as many believed that their personal actions around their home can minimize the impact of a wildfire (50%), were aware of the consequences of not adopting defensible space (50%), and recognized that it was their responsibility to adopt defensible space actions to protect their homes (54%).
- Respondents thought that their friends (47%) and neighbors (44%) believe they should take wildfire preparedness steps. They also thought that people in their community encouraged others to do defensible space (54%) and that seeing their neighbors doing defensible space encouraged them to do defensible space on their property (49%).
- Less than half (46%) agreed that new home construction should be required by law to use fire resistant materials, but recognized that without defensible space, firefighters may not be able to protect their homes (49%).

#### *Neighbor influences*

- Half of the respondents had talked with their neighbors about wildfire related issues.
- About a third (32%) believed their neighbors had taken steps to reduce the risk of wildfire on their property.
- Nearly half (47%) had worked with their neighbors to reduce the risk of wildfire on their property or their neighbor's property.

#### *Owner association influences*

- By design, all respondents belonged to an owners association.
- Two-thirds (67%) believed that they complied with their associations regulations and 71% said their owners association actively promotes wildfire preparedness.
- The respondents trusted the association to provide: (a) the best available information on wildfire issues (63%), (b) enough information to decide what to do in the event of a wildfire (68%), (c) truthful information about wildfire safety issues (58%), and (d) timely information about wildfire issues (75%).

#### *Community influences*

- About half (48%) said their community was knowledgeable about wildfire preparedness; 38% disagreed with the statement.
- Similar proportions agreed (48%) and disagreed (39%) that their community was willing to create ordinances to reduce wildfire risk.
- Equal percentages agreed (44%) and disagreed (44%) that their community takes a proactive approach to wildfire management.

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## Introduction

Recent wildfires in the western United States highlight the need for understanding the human dimensions of wildfire management, especially for policies and programs that affect property losses in the wildland urban interface (WUI). The Pacific Southwest Research Station (PSW), Colorado State University (CSU), and the Colorado State Forest Service (CSFS) have collaborated on human dimensions studies since 2001. This effort has resulted in 20 publications (see Reference list) and numerous conference presentations.

In general, this research effort has assessed the effectiveness of communicating with landowners about reducing wildfire risk (Absher and Bright 2004). Absher et al. (2009), for example: (a) reviewed key findings from past human dimensions research, (b) highlighted the practical consequences of adopting a theory-based approach to understanding wildland fire management in urbanized areas, and (c) suggested likely strategies for successful firewise programs.

This report builds on this previous body of work (e.g., Absher et al., 2012) by identifying the barriers that prevent residents in fire prone areas from adopting firewise behaviors, to both the area around the home (defensible space) and to the home itself (firewise construction). By better understanding residents' perceptions of their roles and responsibilities, the goal is to assist wildland fire managers in developing risk reduction programs.

Research has identified three broad categories of variables – socio-demographic, situational and psychological – that predict homeowner wildfire mitigation behaviors (e.g., defensible space, firewise construction). *Socio-demographic variables* such as age, sex, education, and income have been shown to be related to residents' perceptions of wildland fires and potential mitigation strategies (Absher et al., 2009). Individuals with more income, for example, have more personal resources to adopt some homeowner wildland fire mitigation strategies (e.g., firewise construction). *Situational variables* define a given context and influence what the public perceives as acceptable or feasible (Kneeshaw et al., 2004b). Large tracts of forested land often surround homes built in the WUI. Proximity of a home to a forest is likely to enhance the homeowners' general awareness of the potential dangers associated with wildland fires and their willingness to accept mitigation efforts. *Psychological variables* include specific beliefs, attitudes and norms regarding wildfires (Absher et al., 2008) such as perceived familiarity with effectiveness and aesthetic impacts of wildfire (Peterson and Vaske 2016), perceptions of risk (Brenkert et al., 2005; Champ et al. 2010), trust (Absher and Vaske 2011; Vaske et al., 2007a, 2007b) or responsibility (Absher et al., 2012).

These classes of predictors, however, do not contribute equally to homeowner mitigation behaviors. Theory predicts that *general* socio-demographic variables (e.g., education, income) and *general* situational variables (e.g., location of home) will account for less of the variability in homeowner wildland fire mitigation strategies and support for agency policies. More *specific* psychological variables (e.g., beliefs about effectiveness, aesthetics of mitigation efforts) and current behavior explain a relatively large amount of the variation. Current behavior, for example, has been shown to explain between 33% and 58% of the variation in behavioral response (Absher et al., 2009). These results suggest that engaging residents in doing some type of behavior, no matter how small, provides an important first step to broader adoption of firewise actions. Perceived familiarity, effectiveness, and aesthetic impacts (psychological variables) also have a strong and consistent influence on individual mitigation behaviors. This suggests that greater support for individual behaviors might be possible if the communication strategy enhances residents' knowledge and / or understanding of defensible space and firewise construction strategies.

## **Encouraging Action and Implementing Firewise Recommendations**

Creating defensible space can reduce the likelihood of wildfire damage and decrease the likelihood of injury. Communication campaigns have been employed to describe how WUI residents can protect themselves and their homes from wildfire. In Colorado, one prominent example of an agency communication effort is Colorado's "Are You FireWise" Program. This information campaign, launched in 1998 by the Colorado State Forest Service (CSFS) in cooperation with Larimer County, Poudre Fire Authority, and Loveland Fire Department includes a package of instructional materials that provide information to residents on how to take steps to be firewise around their home. Included in this information package are a set of flyers that describe seven components of firewise behavior. Specific topics include: Access, Water Supply, Defensible Space, Trees and Shrubs, Construction Materials and Design, Interior Safety, and What to Do When.

Respondents in earlier studies (e.g., Absher et al., 2009) indicated partial compliance with 26 key recommendations contained in the seven firewise flyers. Respondents also reported obstacles to adopting firewise behaviors across all topics and actions presented in the flyers. In total, 48% of respondents identified an obstacle for at least one of the recommended actions. Although many of the obstacles appeared across several firewise topics, their prevalence and context varied widely by the specific actions and suggest that a deeper understanding of the barriers is needed. For example, some respondents believed that pruning trees would negatively impact the aesthetics of their property. Actions related to plant arrangement and accumulation of flammable debris were met with concerns over maintaining natural vegetation and the amount of work associated with these tasks in a forested landscape. Recommendations for using fire resistant materials for windows, decks, vents, and the roof caused some respondents to make statements emphasizing the expense of materials and labor.

### **Objectives**

This report explores Colorado residents' familiarity with defensible space and firewise construction as well as the barriers or incentives for implementing these behaviors. More specifically, we examined the following categories of variables:

1. Socio-demographics (e.g., age, income),
2. Situational variables (e.g., personal experience with wildfire, and the influence of owners' associations, communities and neighbors),
3. Psychological factors (e.g., beliefs about perceived wildland fire risks, homeowners insurance, wildland fire preparedness, trust).

### **Methods**

A mixed mode survey (internet and mail) was conducted in spring 2015. Potential respondents ( $N = 3,000$ ) were randomly selected from 70 homeowners associations distributed across seven Colorado counties (Chaffee, Clear Creek, Fremont, Gilpin, Grand, Park, Teller). Respondents were initially mailed a cover letter explaining the study and requesting their participation. The cover letter contained a link to a website where the respondent could complete the survey online. Each respondent was provided with a unique identifier for accessing the online survey. Those who did not complete the online survey were mailed a paper copy of the questionnaire along with a cover letter and a postage paid return envelope. Two weeks after this initial mailing, a reminder postcard sent to those who had not yet responded, encouraging them to complete the questionnaire. Two weeks after the postcard reminder, another complete survey package was



sent to non-respondents. Of the 3,000 questionnaires that were initially mailed, 1,351 individuals completed the survey (response rate = 45%). The survey is in Appendix A.

## Results

Detailed descriptive findings are presented in Appendix B. In general, 56% of the respondents were male; 44% were female. The respondents' age range was 25 to 90, with a mean, median and mode of 60 years old. On average, individuals in the sample held a bachelor's degree, with a mean annual income between \$50,000 and \$75,000.

The survey asked respondents to describe their residence. Nearly all (95%) said that the questionnaire was sent to their primary address. Three-quarters (74%) live in this residence yearlong and had been in their home for nearly nine years on average ( $M = 8.77$ , Median = 6, range = 0 to 38). The average lot size was 2.26 acres (Median = 1.0, range = nearly 0 to 50 acres). About half (48%) indicated that their residence was located within a forested area. Of the residences in our sample, 88% had roofs made of tile, metal or asphalt shingle. Only 11% had wood shake shingles. Over 60% said that if the road used to access your residence was blocked due to a wildfire, there was another road they could use to get out of their community.

### Personal experiences with wildland fire

Nearly two-thirds (65%) of the respondents indicated that they had no direct personal experience with wildland fire (Table 1). Over a third (35%), however, had received a reverse 911 call asking them to prepare to evacuate, and 27% had been evacuated from their home due to wildland fire. A fifth (20%) of the individuals in the sample had personal property destroyed or damaged due to a wildland fire and 12% said their residence had been damaged or lost due to fire.

Table 1. Personal experiences with wildland fire

| Personal experiences with wildland fire                                 | %  |
|---|----|
| No direct experience with fire  | 65 |
| Received a reverse 911 call to prepare to evacuate                      | 35 |
| Been evacuated from my house due to a wildland fire                     | 27 |
| Had other personal property destroyed or damaged due to a wildland fire | 20 |
| Residence damaged or lost due to a wildland fire                        | 12 |
| Been injured as a result of a wildland fire                             | 1  |

### Perceived wildland fire risks

Respondents were asked to estimate the chances that a wildfire would start on or spread to their property this year (Table 2). A third (33%) indicated that the probability was "extremely likely" and another 19% said "moderately likely." A follow-up question asked about the chances of their home being destroyed or severely damaged by wildfire. Over 40% thought that the odds were "moderately" to "extremely" likely and 46% said "slightly likely."

Table 2. Perceived risks of wildland fire

| What are the chances that ...                                 | Not at all likely | Slightly likely | Moderately likely | Extremely likely |
|---|-------------------|-----------------|-------------------|------------------|
| a wildfire will start on or spread to your property this year | 14%               | 34%             | 19%               | 33%              |
| your home will be destroyed or severely damaged by a wildfire | 12%               | 46%             | 20%               | 22%              |

Using a 7-point scale, respondents in the sample viewed themselves as risk takers with two-thirds (66%) indicating that they were moderately to extremely willing to take risks (Figure 1). Only 4% said they were not at all willing to take risks.

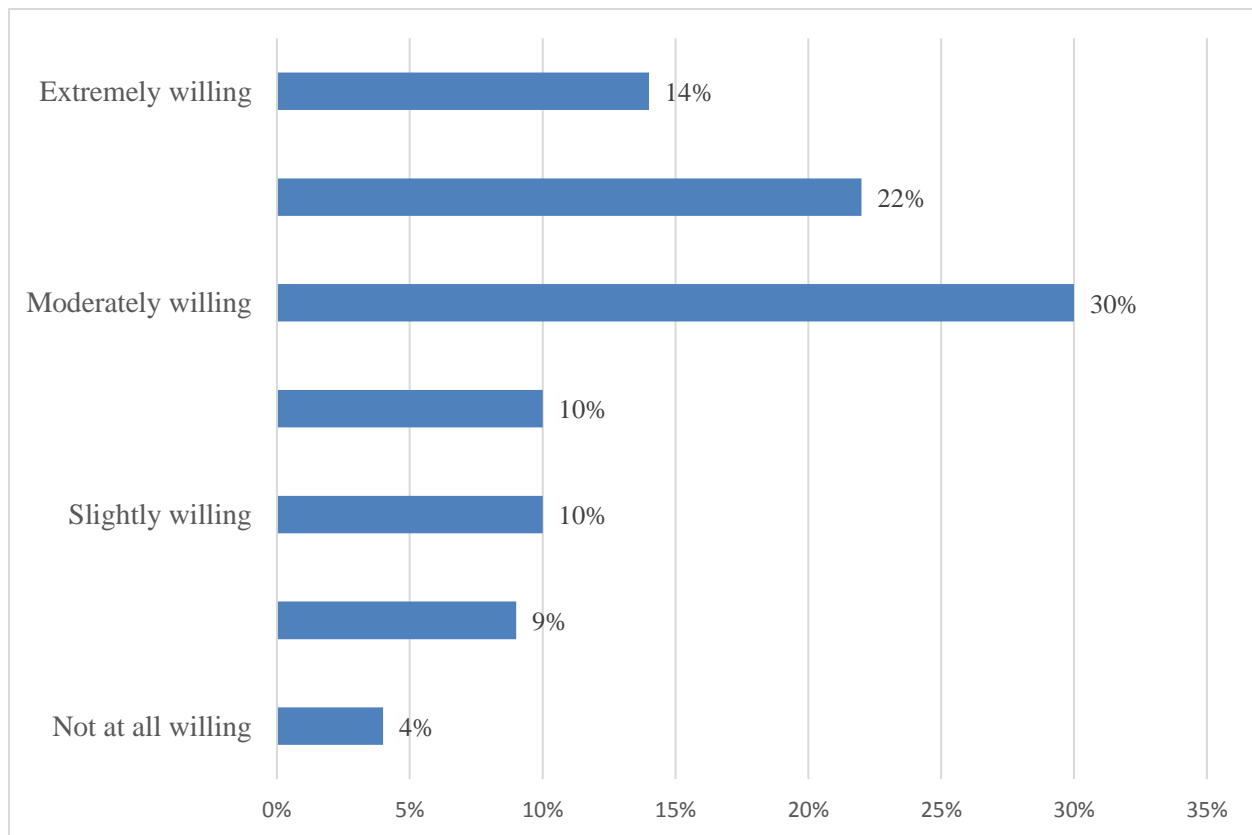


Figure 1. Respondents' willingness to take risks

### Beliefs about homeowners insurance

The willingness to take risks was partially reflected in respondents' beliefs about homeowners insurance (Table 3). Nearly 40% said they did not have homeowners insurance (19%) or if they had insurance did not know if wildfire risk impacted the amount they pay (20%). Nearly as many (17%) said an insurance company had canceled or refused to renew their policy because of wildfire risk. Sixteen percent indicated that they pay a higher insurance premium because of wildfire risk.

Table 3. Beliefs about homeowners insurance

|  | % Yes |
|--|-------|
| You pay a higher premium for your homeowners insurance because of wildfire risk                    | 84    |
| You have homeowners insurance but do not know if wildfire risk impacts it in any way               | 20    |
| You do not have homeowners insurance   | 19    |
| An insurance company has canceled or refused to renew your policy because of wildfire risk         | 17    |
| Your homeowners' insurance company requires wildfire risk mitigation as a condition of your policy | 8     |

### Homeowner defensible space and firewise construction

**Defensible space** creates an area around a house where vegetation (e.g., trees, shrubs, and branches) is cleared or reduced to help protect your home from a wildland fire. It reduces the chance of a fire moving from a building to a nearby forest. Defensible space also allows firefighters to do their jobs more effectively. Defensible space activities include (but are not limited to) the following: (a) reducing the density of trees near the home, (b) removing overhanging branches within 10 feet of the roof, (c) cleaning roof surfaces and gutters, and (d) ensuring that trees & shrubs are at least 10 feet apart.

**Firewise construction** is the use of fire-resistant materials in the construction and remodeling of homes. It lessens a home's chances of catching on fire during a wildfire. Firewise construction modifications include (but are not limited to) the following: (a) fire resistant roofs (e.g., aluminum, steel, concrete, clay, slate), (b) house exteriors made of fire resistant material (e.g., metal, stucco, stone, tile, heavy timber, masonry), (c) enclosure of the undersides of decks and balconies, and (d) windows, doors, and eaves that allow for proper air venting.

Four-fifths (81%) of the homeowners were moderately to extremely familiar with defensible space activities and about two-thirds (65%) were aware of firewise construction activities (Table 4).

Table 4. Familiarity with defensible space and firewise construction

|                     | Familiarity with:          |                                 |
|---------------------|----------------------------|---------------------------------|
|                     | Defensible<br>Space<br>(%) | Firewise<br>Construction<br>(%) |
| Not at all familiar | 4                          | 6                               |
| Slightly familiar   | 16                         | 29                              |
| Moderately familiar | 39                         | 35                              |
| Extremely familiar  | 42                         | 30                              |

Regardless of their familiarity with these activities, 83% thought that defensible space made their homes moderately to extremely safer and 72% reported similar evaluations of firewise construction (Table 5). Only 1% (defensible space) and 5% (firewise construction) believed that these activities had no influence on safety.

Table 5. Influence of defensible space and firewise construction on perceived safety of home and property

| Influence of defensible space and firewise construction on perceived safety of home / property | Defensible Space (%) | Firewise Construction (%) |
|--|----------------------|---------------------------|
| Makes no difference  | 1                    | 5                         |
| Slightly safer   | 16                   | 23                        |
| Moderately safer   | 37                   | 33                        |
| Extremely safer  | 46                   | 39                        |

Less than half (44%) thought that defensible space improved the appearance of their property, and a slight majority (52%) indicated that firewise construction made their home look better (Table 6). Twelve percent believed that defensible space made their property look worse and 21% said firewise construction degraded the look of their home.

Table 6. Influence of defensible space and firewise construction on the appearance of home / property

| Defensible space and firewise construction makes my property look: | Defensible Space (%) | Firewise Construction (%) |
|--|----------------------|---------------------------|
| Worse  | 12                   | 21                        |
| Neither  | 44                   | 27                        |
| Better   | 44                   | 52                        |

If people are going to adopt defensible space and firewise construction, they need to be aware of these activities and believe that there are positive outcomes (improved safety and enhanced appearance) associated with performing these activities.

## Barriers and incentives to preparing for wildfire

The questionnaire listed seven potential barriers to preparing for wildfires and respondents were asked to indicate to what extent each limited their adoption of defensible space (Table 7). Cost (27%), time (23%), the amount of work (23%) and the disposal of plant / tree material (22%) were viewed as the top four extreme barriers. Between 13% and 17% said personal priorities, physical difficulty of work, neighbors not doing defensible space and lack of knowledge about what to do were extreme barriers. Consistent with Table 4, these findings suggest that knowledge of or familiarity with is not a major barrier to adopting defensible space.

Table 7. Barriers to adopting defensible space

|  | Not at all<br>a barrier<br>(%) | Slight<br>barrier<br>(%) | Moderate<br>barrier<br>(%) | Extreme<br>barrier<br>(%) |
|--|--------------------------------|--------------------------|----------------------------|---------------------------|
| Cost                                     | 6                              | 28                       | 38                         | 27                        |
| Time                                     | 3                              | 22                       | 51                         | 23                        |
| Amount of work                           | 11                             | 27                       | 40                         | 23                        |
| Disposal of plant / tree material        | 1                              | 20                       | 57                         | 22                        |
| Personal priorities                      | 12                             | 44                       | 26                         | 17                        |
| Physical difficulty of work              | 12                             | 37                       | 35                         | 16                        |
| Lack of knowledge about what to do       | 8                              | 50                       | 26                         | 16                        |
| Neighbors are not doing defensible space | 13                             | 42                       | 32                         | 13                        |

The survey also included eight incentives for adopting defensible space. A third or more of the respondents said tax breaks (38%), recent fire events (37%), financial assistance such as grant programs (36%), and home or property protection (33%) were extremely encouraging (Table 8). Only 5% viewed insurance discounts as extremely encouraging.

Table 8. Incentives for adopting defensible space

|   | Not at all<br>encouraging<br>(%) | Slightly<br>encouraging<br>(%) | Moderately<br>encouraging<br>(%) | Extremely<br>encouraging<br>(%) |
|---|----------------------------------|--------------------------------|----------------------------------|---------------------------------|
| Tax breaks                                  | 9                                | 25                             | 29                               | 38                              |
| Recent fire events                          | 10                               | 14                             | 39                               | 37                              |
| Financial assistance (e.g., grant programs) | 4                                | 26                             | 35                               | 36                              |
| Home or property protection                 | 1                                | 13                             | 53                               | 33                              |
| Personal safety                             | 10                               | 42                             | 22                               | 26                              |
| Responsibility as property owner            | 3                                | 41                             | 31                               | 25                              |
| Neighbors are doing defensible space        | 10                               | 41                             | 26                               | 24                              |
| Neighbors are not doing defensible space    | 11                               | 36                             | 30                               | 23                              |
| Aesthetics                                  | 9                                | 33                             | 37                               | 20                              |
| Restoration of forest health                | 12                               | 41                             | 32                               | 15                              |
| Insurance discounts                         | 14                               | 45                             | 37                               | 5                               |

Findings here suggest that economics can be a barrier (Table 7) and / or an incentive (Table 8) to adopting defensible space. Following previous research (Patricia Champ, personal communication), respondents were presented with the following scenario.

“The average cost to a homeowner of hiring a contractor to remove vegetation to reduce wildfire risk is approximately \$1,000 per acre. If your property is less than one acre, the cost is approximately \$1,000 for the entire property. If a grant program paid for a share of the cost would you participate in the program?”

Slightly over half (55%) indicated that they would participate in the program and 45% said no (Figure 2). Respondents who said “yes” were asked to select the highest amount that they would be willing to pay per acre to have a contractor remove vegetation. About a fifth (22%) indicated that they would pay the entire \$1,000; 14% would only participate if the grant paid the \$1,000. A quarter (24%) would participate if the cost was split 50 /50 between the homeowner and the grant.

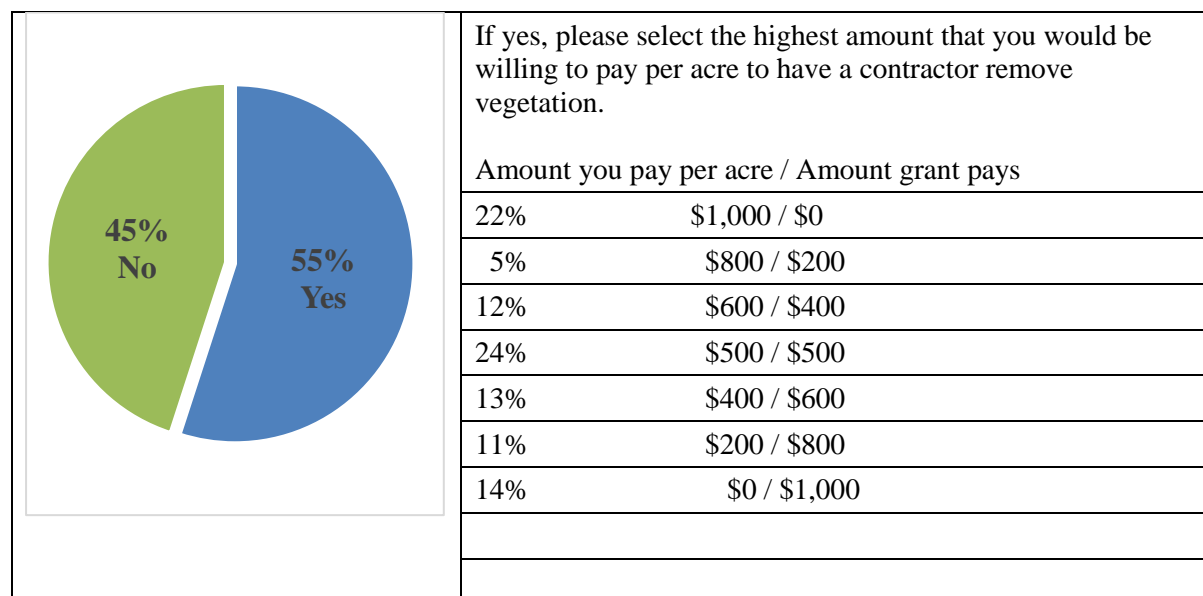


Figure 2. Willingness to pay to have vegetation removed

### Beliefs about wildland fire preparedness

To understand respondents’ perceptions of defensible space, the questionnaire asked a series of belief statements regarding wildland fire preparedness. These statements were organized into personal, social, and regulation / fire fighter influences (Table 9). In general, between 35% and 54% agreed with these statements; similarly, between 32% and 52% disagreed with the items. In other words, there was considerable variation in the responses.

From a personal perspective, about half (48%) of the respondents thought that they were prepared in the event of a wildfire. Equally as many believed that personal actions around their home can minimize the impact of a wildfire (50%), were aware of the consequences of not adopting defensible space (50%), and recognized that it was their responsibility to adopt defensible space actions to protect their homes (54%).

From a social influence perspective, respondents thought that their friends (47%) and neighbors (44%) believe they should take wildfire preparedness steps. They also thought that people in

their community encouraged others to do defensible space (54%) and that seeing their neighbors doing defensible space encouraged them to do defensible space on their property (49%). Less than half (46%) agreed that new home construction should be required by law to use fire resistant materials, but recognized that without defensible space, firefighters may not be able to protect their homes (49%). Half of the individuals in the sample thought that homes with defensible space should be protected from wildfire before homes that have not taken such steps.

Table 9. Beliefs about wildland fire preparedness

|  | Disagree (%) | Neither Agree nor Disagree (%) | Agree (%) |
|--|--------------|--------------------------------|-----------|
| <b>Personal influences</b>   |              |                                |           |
| Overall, I am prepared in the event of a wildfire.   | 41           | 11                             | 48        |
| I should take wildfire preparedness steps to protect my home.  | 39           | 11                             | 50        |
| My personal actions around my home can help minimize the impact of a wildfire.   | 37           | 13                             | 50        |
| Wildfire preparedness has consequences for protecting my home against a wildfire.  | 40           | 16                             | 44        |
| I am aware of the consequences of NOT adopting defensible space activities.  | 36           | 14                             | 50        |
| I have a responsibility to prepare my home in the event of a wildfire.   | 40           | 13                             | 47        |
| It is my responsibility to adopt defensible space actions to protect my home.  | 34           | 12                             | 54        |
| I feel a strong personal obligation to do what is necessary to protect my home against wildfire.                           | 37           | 26                             | 37        |
| I feel an obligation to educate others about the importance of wildfire preparedness.                                      | 52           | 13                             | 35        |
| My defensible space activities will be ineffective if my neighbors do not take similar actions.                            | 37           | 10                             | 53        |
| <b>Social influences</b>   |              |                                |           |
| My friends think I should take wildfire preparedness steps.  | 40           | 13                             | 47        |
| My neighbors think that I should take wildfire preparedness steps.   | 39           | 17                             | 44        |
| People in my <i>community</i> encourage others to do defensible space.   | 32           | 14                             | 54        |
| Seeing my <i>neighbors</i> doing defensible space encourages me to do defensible space on my property.                     | 37           | 14                             | 49        |
| Seeing wildfire risk reduction performed on <i>nearby public land</i> encourages me to do defensible space on my property. | 37           | 13                             | 50        |
| <b>Regulations / Fire fighters</b>   |              |                                |           |
| New home construction should be required by law to use fire resistant materials.   | 42           | 12                             | 46        |
| Defensible space activities are not necessary because my insurance company will cover any losses due to wildfire.          | 51           | 11                             | 38        |
| Creating defensible space around my home makes it safer for firefighters.  | 37           | 24                             | 39        |
| Without defensible space, firefighters will not be able to protect my home.  | 38           | 13                             | 49        |
| Homes with defensible space should be protected from wildfire before homes that HAVE NOT taken such steps.                 | 38           | 12                             | 50        |

## Neighbor influences

Table 9 suggested that a person's neighbors can influence beliefs about wildfire preparedness. This section expands on the roles neighbors and owners associations play in individuals' behaviors and thinking about wildland fire. Half of the respondents had talked with their neighbors about wildfire related issues (Figure 3). About a third (32%) of the people in the sample believed their neighbors had taken steps to reduce the risk of wildfire on their property, but 16% were unsure. Nearly half (47%) had worked with their neighbors to reduce the risk of wildfire on their property or their neighbor's property.

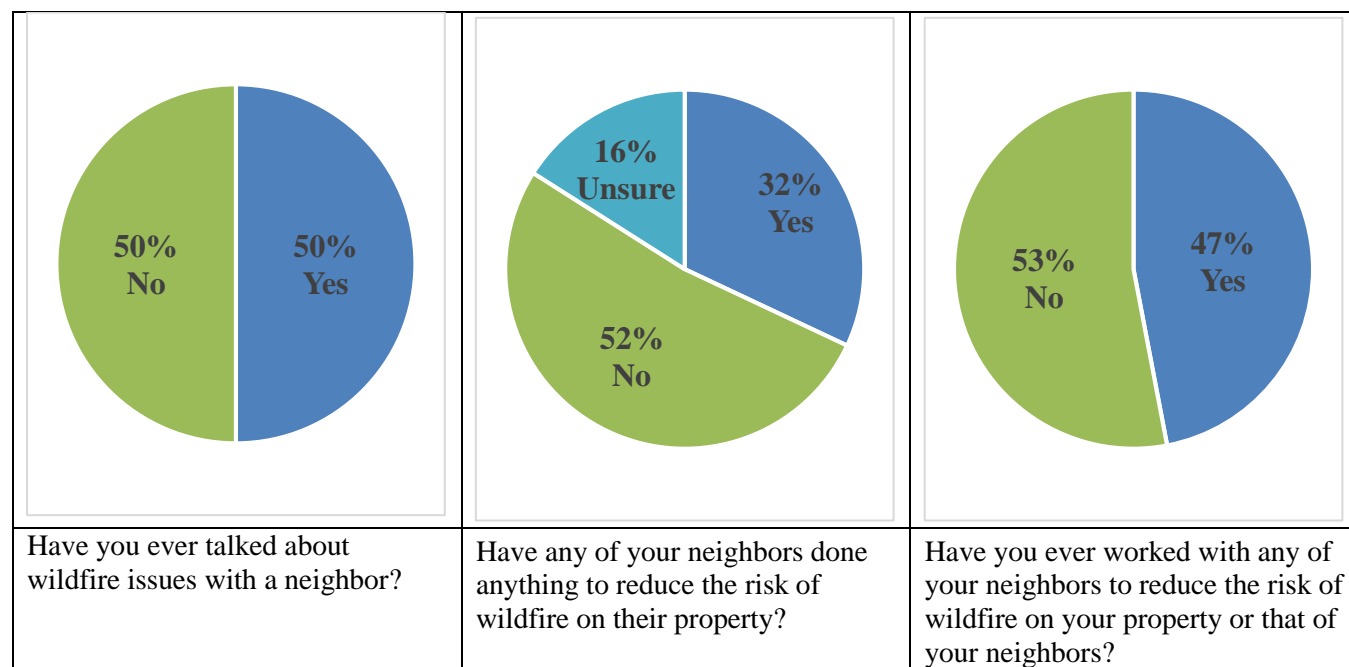


Figure 3. Relationship with neighbors

## Owner association influences

By design, 100% of the respondents belong to an owners association. Forty percent of the sample indicated that their owners association meets regularly, but only 6% considered themselves to be active members of the association (Table 10). Two-thirds (67%) believed that they complied with their associations regulations and 71% said their owners association actively promotes wildfire preparedness.

Table 10. Beliefs about owners association

|  | <u>Disagree</u><br>(%) | <u>Neither</u><br><u>Agree nor</u><br><u>Disagree</u><br>(%) | <u>Agree</u><br>(%) |
|--|------------------------|--|---------------------|
| My owners association meets on a regular basis.                | 53                     | 7  | 40                  |
| I am an active member of my owners association.                | 22                     | 12   | 6                   |
| I always comply with owners association regulations.           | 26                     | 7  | 67                  |
| My owners association actively promotes wildfire preparedness. | 22                     | 7  | 71                  |



The relatively high compliance with owner association regulations (67%, Table 10) may reflect the fact that the respondents' trusted the association to provide: (a) the best available information on wildfire issues (63%), (b) enough information to decide what to do in the event of a wildfire (68%), (c) truthful information about wildfire safety issues (58%), and (d) timely information about wildfire issues (75%). Only 7% of the individuals in the sample held a leadership position in the owners association (Figure 4).

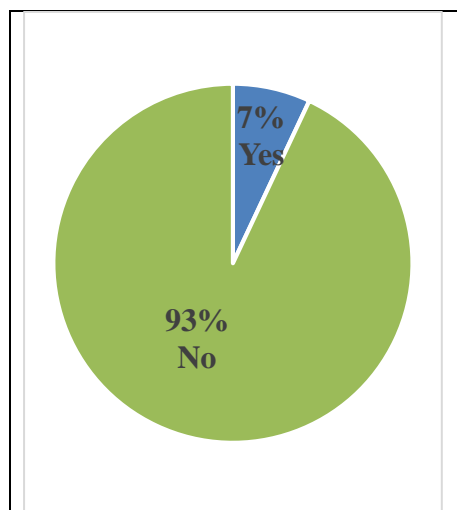


Figure 4. Leadership position in the owners association

Table 11. Trust in owners association

| <i>I trust</i> my owners association to provide:                                       | Disagree (%) | Neither                | Agree (%) |
|--|--------------|------------------------|-----------|
|  |              | Agree nor Disagree (%) |           |
| ... the best available information on wildfire issues.                                 | 24           | 13                     | 63        |
| ... enough information to decide what actions I should take regarding wildfire issues. | 22           | 10                     | 68        |
| ... truthful information about safety issues related to wildfire.                      | 20           | 22                     | 58        |
| ... timely information regarding wildfire issues.                                      | 15           | 10                     | 75        |

### Community influences

Communities can influence beliefs about wildfire preparedness either positively or negatively. In general, between 44% and 66% of the respondents agreed with the statements in Table 12, while those disagreeing with the items were generally between 31% and 49%. For example, 48% said their community was knowledgeable about wildfire preparedness; 38% disagreed with the statement. Similar proportions agreed (48%) and disagreed (39%) that their community was willing to create ordinances to reduce wildfire risk. Equal percentages agreed (44%) and disagreed (44%) that their community takes a proactive approach to wildfire management.

Table 12. Community influences

|  | Disagree<br>(%) | Neither<br>Agree nor<br>Disagree<br>(%) | Agree<br>(%) |
|--|-----------------|---|--------------|
| Well-prepared to mobilize resources for an emergency | 17              | 17                                      | 66           |
| Strong local leadership                              | 31              | 11                                      | 58           |
| Residents are very involved in local government      | 30              | 14                                      | 56           |
| Many seasonal residents / second home owners         | 37              | 13                                      | 50           |
| Residents are willing to help each other out         | 39              | 12                                      | 49           |
| Close knit (e.g., people know each other by name)    | 40              | 12                                      | 48           |
| Knowledgeable about wildfire preparedness            | 38              | 13                                      | 48           |
| Willing to create ordinances to reduce wildfire risk | 39              | 14                                      | 48           |
| Collaborates with other nearby communities           | 40              | 15                                      | 45           |
| Takes proactive approach to wildfire management      | 44              | 12                                      | 44           |
| Rapidly growing; lots of new residents               | 49              | 13                                      | 38           |

## Discussion

Our results suggest a broader set of recommendations not strictly tested by the data. These deserve further study and discussion. The communication aspects of firewise programs are influenced by program goals, the effectiveness of message delivery and audience characteristics, especially homeowners' orientations and attitudes toward fire risk and the agency involved in prevention and suppression. We suggest that agency attempts to change residents' responses to wildland fire threat can be enhanced by:

1. *Knowing the community* – Not all homeowners associations, neighborhoods, or communities share the same beliefs and attitudes regarding firewise behaviors. Understanding the differences in cognitive processes and psychological predictors will facilitate the design of effective communication strategies.
2. *Build trust, don't just rely on it* – Social trust in an agency can influence support for policies. Agencies, however, should not assume that the public trusts or even understands their decisions regarding wildfire management. Most work to date has been about the measurement and definition of trust. More attention needs to be placed on the practical effects of trust and how to maintain it. Efforts to build agency trust in a community will facilitate policy support and firewise compliance.
3. *Be flexible* – Although the psychological variables accounted for a substantial amount of variability in agency support and homeowner behavior, more than 50% of the variance remains unexplained. This suggests that decision-makers should be flexible in their approaches to dealing with individual communities. Programs often look to others for “success” and emulate their actions. Our results suggest there are limits to an overly simplistic approach and attention to the differences between communities may be equally important.
4. *Engage, then persuade* – Develop a strategy to get homeowners to do *something*, as this seems to get the “biggest bang for the buck.” Once they have started to do firewise actions the likelihood is that other actions and attitude changes are likely to follow. Full compliance with all firewise actions is not likely given the costs and time involved, but getting them to do some firewise action each year establishes the pattern of behavior, reduces dissonance and engenders support for the program in general.

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# Preparing for Wildfire



Conducted by the  
Department of Human Dimensions of Natural Resources  
Colorado State University

and

Pacific Southwest Research Station, United States Forest Service

*Your help on this study is greatly appreciated!*

*Please return your completed questionnaire in the enclosed envelope.*

The envelope is self-addressed and no postage is required.

Privacy and Paperwork Reduction Act statements: 16 U.S.C. 1642(a) authorized collection of this information. This information will be used by the U.S. Forest Service to better serve the public. Response to this request is voluntary. No action may be taken against you for refusing to supply the information requested. When analysis of the questionnaires is completed, all name and address files will be destroyed. Thus, the permanent data will not be linked to you in any way. Please do not put your name or that of any member of your household on the questionnaire. Burden and Nondiscrimination Statements: According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0230. The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

**Section I. Your residence**

Throughout this survey we ask about your property / residence. If you have multiple homes, please answer the following questions with respect to the property specified in the cover letter.

1. Do you own or rent this property?  Own  Rent
2. Is this your primary residence?  Yes  No
3. Do you live at this residence year round?  Yes  No
4. How long have you lived at this residence? \_\_\_\_\_ Years
5. What is the size of your lot? \_\_\_\_\_ Acres
6. Is this residence located within a forested area?  Yes  No
7. What type of roof does this residence have? **(Check (√) one)**
  - Tile, metal, or asphalt shingles
  - Wood shake / shingles
  - Other (please specify): \_\_\_\_\_
8. If the road you use to access your residence was blocked due to a wildfire, is there another road you could use to get out of your community?
  - Yes  No

**Section II. Experience with wildland fire**

We would like to know about the kinds of experiences you have had with fires. *Please check any of the following experiences you have personally had related to wildland fire. (Check (√) all that apply)*

- Received a reverse 911 call to prepare to evacuate
- Been evacuated from my house due to a wildland fire
- Residence damaged or lost due to a wildland fire
- Had other personal property destroyed or damaged due to a wildland fire
- Been injured as a result of a wildland fire

**Section III. Wildland fire risk**

1. What do you think is the chance that a wildfire will start on or spread to your property this year? **(Circle one number)**

|                   |   |                 |   |                   |   |                  |
|-------------------|---|-----------------|---|-------------------|---|------------------|
| 1                 | 2 | 3               | 4 | 5                 | 6 | 7                |
| Not at all likely |   | Slightly likely |   | Moderately likely |   | Extremely likely |

2. If a wildfire starts on or spreads to your property this year, what do you think is the chance that your home will be destroyed or severely damaged? **(Circle one number)**

|                   |   |                 |   |                   |   |                  |
|-------------------|---|-----------------|---|-------------------|---|------------------|
| 1                 | 2 | 3               | 4 | 5                 | 6 | 7                |
| Not at all likely |   | Slightly likely |   | Moderately likely |   | Extremely likely |



**Section IV. Homeowner defensible space and firewise construction**

The following page defines things that homeowners can do to protect their homes from a wildland fire. Please read each definition and answer the questions that follow.

**Defensible space** creates an area around your house where vegetation (e.g., trees, shrubs, and branches) is cleared or reduced to help protect your home from a wildland fire. It reduces the chance of a fire moving from a building to a nearby forest. Defensible space also allows firefighters to do their jobs more effectively. Defensible space activities include (but are not limited to) the following:

- Reducing the density of trees near the home
- Removing overhanging branches within 10 feet of the roof
- Cleaning roof surfaces and gutters
- Ensuring that trees & shrubs are at least 10 feet apart

1. How familiar are you with *defensible space* activities? **(Circle one number)**

|                     |   |                   |   |                     |   |                    |
|---------------------|---|-------------------|---|---------------------|---|--------------------|
| 1                   | 2 | 3                 | 4 | 5                   | 6 | 7                  |
| Not at all familiar |   | Slightly familiar |   | Moderately familiar |   | Extremely familiar |

2. Do you believe defensible space activities make your home / property *safer* in the event of a wildland fire? **(Circle one number)**

|                     |   |                |   |                  |   |                 |
|---------------------|---|----------------|---|------------------|---|-----------------|
| 1                   | 2 | 3              | 4 | 5                | 6 | 7               |
| Makes no difference |   | Slightly safer |   | Moderately safer |   | Extremely safer |

3. Do you believe defensible space activities make your home / property *look better or worse*? **(Circle one number)**

|                 |                  |                |         |                 |                   |                  |
|-----------------|------------------|----------------|---------|-----------------|-------------------|------------------|
| 1               | 2                | 3              | 4       | 5               | 6                 | 7                |
| Extremely worse | Moderately worse | Slightly worse | Neither | Slightly better | Moderately better | Extremely better |

**Firewise construction** is the use of fire-resistant materials in the construction and remodeling of homes. It lessens a home’s chances of catching on fire during a wildfire. Firewise construction modifications include (but are not limited to) the following:

- Fire resistant roofs (e.g., aluminum, steel, concrete, clay, slate)
- House exteriors made of fire resistant material (e.g., metal, stucco, stone, tile, heavy timber, masonry)
- Enclosure of the undersides of decks and balconies
- Windows, doors, and eaves that allow for proper air venting

1. How familiar are you with *firewise construction*? **(Circle one number)**

|                     |   |                   |   |                     |   |                    |
|---------------------|---|-------------------|---|---------------------|---|--------------------|
| 1                   | 2 | 3                 | 4 | 5                   | 6 | 7                  |
| Not at all familiar |   | Slightly familiar |   | Moderately familiar |   | Extremely familiar |

2. Do you believe firewise construction modifications make your home *safer* in the event of a wildland fire? **(Circle one number)**

|                     |   |                |   |                  |   |                 |
|---------------------|---|----------------|---|------------------|---|-----------------|
| 1                   | 2 | 3              | 4 | 5                | 6 | 7               |
| Makes no difference |   | Slightly safer |   | Moderately safer |   | Extremely safer |

3. Do you believe firewise construction modifications make your home *look better or worse*? **(Circle one number)**

|                 |                  |                |         |                 |                   |                  |
|-----------------|------------------|----------------|---------|-----------------|-------------------|------------------|
| 1               | 2                | 3              | 4       | 5               | 6                 | 7                |
| Extremely worse | Moderately worse | Slightly worse | Neither | Slightly better | Moderately better | Extremely better |

## Section V. Beliefs about wildland fire preparedness

Indicate below how strongly you agree or disagree with *each* of the following statements. While some statements may sound similar, please respond to each statement. **(Circle one number for each statement)**

|  | Strongly<br>Disagree | Moderately<br>Disagree | Slightly<br>Disagree | Neither<br>Agree<br>nor<br>Disagree | Slightly<br>Agree | Moderately<br>Agree | Strongly<br>Agree |
|--|----------------------|------------------------|----------------------|-------------------------------------|-------------------|---------------------|-------------------|
| I have a responsibility to prepare my home in the event of a wildfire.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| I feel a strong personal obligation to do what is necessary to protect my home against a wildfire.                         | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| My personal actions around my home can help minimize the impact of a wildfire.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Wildfire preparedness has consequences for protecting my home against a wildfire.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| I feel an obligation to educate others about the importance of wildfire preparedness.                                      | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| I should take wildfire preparedness steps to protect my home.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| My friends think I should take wildfire preparedness steps.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| My neighbors think that I should take wildfire preparedness steps.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| People in my <i>community</i> encourage others to do defensible space.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| It is my responsibility to adopt defensible space actions to protect my home.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| New home construction should be required by law to use fire resistant materials.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Creating defensible space around my home makes it safer for firefighters.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Without defensible space, firefighters will not be able to protect my home.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Homes with defensible space should be protected by firefighters before homes that HAVE NOT taken such steps.               | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| I am aware of the consequences of NOT adopting defensible space activities.  | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Seeing my <i>neighbors</i> doing defensible space encourages me to do defensible space on my property.                     | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Seeing wildfire risk reduction performed on <i>nearby public land</i> encourages me to do defensible space on my property. | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| My defensible space activities will be ineffective if my neighbors do not take similar actions.                            | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Defensible space activities are not necessary because my insurance company will cover any losses due to wildfire.          | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |
| Overall, I am prepared in the event of a wildfire.   | 1                    | 2                      | 3                    | 4                                   | 5                 | 6                   | 7                 |

**Section VI. Barriers and incentives to preparing for wildfire**

1. When deciding whether to take action to reduce the risk of loss due to wildland fire on your property, how much of a *barrier* is each of the following items? **(Circle one number for each statement)**

|  | Not at all<br>a barrier | Slight<br>barrier | Moderate<br>barrier | Extreme<br>barrier |   |   |   |
|--|-------------------------|-------------------|---------------------|--------------------|---|---|---|
| Cost                                     | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Time                                     | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Amount of work                           | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Physical difficulty of work              | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Disposal of plant / tree material        | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Neighbors are not doing defensible space | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Lack of knowledge about what to do       | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Personal priorities                      | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |
| Other (please specify): _____            | 1                       | 2                 | 3                   | 4                  | 5 | 6 | 7 |

2. To what extent do the following items *encourage* you to reduce the wildfire risk on your property? **(Circle one number for each statement)**

|   | Not at all<br>encouraging | Slightly<br>encouraging | Moderately<br>encouraging | Extremely<br>encouraging |   |   |   |
|---|---------------------------|-------------------------|---------------------------|--------------------------|---|---|---|
| Home or property protection                 | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Responsibility as property owner            | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Neighbors are doing defensible space        | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Neighbors are not doing defensible space    | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Aesthetics                                  | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Personal safety                             | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Restoration of forest health                | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Recent fire events                          | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Financial assistance (e.g., grant programs) | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Insurance discounts                         | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Tax breaks                                  | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |
| Other (please specify): _____               | 1                         | 2                       | 3                         | 4                        | 5 | 6 | 7 |

3. The average cost to a homeowner of hiring a contractor to remove vegetation to reduce wildfire risk is approximately \$1,000 per acre. If your property is less than one acre, the cost is approximately \$1,000 for the entire property. If a grant program paid for a share of the cost of this work on your property, would you participate in the program?

- No       Yes → Please select the highest amount that you would be willing to pay per acre to have a contractor remove vegetation. **(Check (√) one)**

Amount you pay per acre / Amount grant pays

- \$1,000 / \$0
- \$800 / \$200
- \$600 / \$400
- \$500 / \$500
- \$400 / \$600
- \$200 / \$800
- \$0 / \$1,000

**Section VII. Your neighbors**

Please think about the properties across the street, next to, or bordering your property (may include vacant lots or publicly owned land). Even if you live on a large property and your neighbors are far away, the following questions refer to the owners / managers of these adjacent properties as your *neighbors*.

1. Have you ever talked about wildfire issues with a neighbor?

- No       Yes

2. Have any of your neighbors done anything to reduce the risk of wildfire on their property?

- No       Yes       I don't know

3. Have you ever worked with any of your neighbors to reduce the risk of wildfire on your property or that of your neighbors?

- No       Yes

**Section VIII. Your owners association**

1. Do you belong to an owners association?

- No – *Please skip to Section VIII.*  
 Yes – If yes, which one? \_\_\_\_\_

2. Please indicate the extent to which you agree or disagree with each of the following statements regarding your owners association. **(Circle one number for each statement)**

|  | Strongly Disagree | Moderately Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Moderately Agree | Strongly Agree |
|--|-------------------|---------------------|-------------------|----------------------------|----------------|------------------|----------------|
| My owners association meets on a regular basis.                | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| I am an active member of my owners association.                | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| I always comply with owners association regulations.           | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| My owners association actively promotes wildfire preparedness. | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |

3. Please indicate the extent to which you agree or disagree with each of the following statements regarding your **trust** in your owners association. **(Circle one number for each statement)**

| <i>I trust</i> my owners association to provide:                                       | Strongly Disagree | Moderately Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Moderately Agree | Strongly Agree |
|--|-------------------|---------------------|-------------------|----------------------------|----------------|------------------|----------------|
| ... the best available information on wildfire issues.                                 | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| ... enough information to decide what actions I should take regarding wildfire issues. | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| ... truthful information about safety issues related to wildfire.                      | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| ... timely information regarding wildfire issues.                                      | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |

4. Do you currently hold a leadership position in your owners association?

- No       Yes

**Section IX. Your community**

Thinking about the wider community in which you live, how much does each of the following describe your community?  
**(Circle one number for each statement)**

|  | Strongly Disagree | Moderately Disagree | Slightly Disagree | Neither Agree nor Disagree | Slightly Agree | Moderately Agree | Strongly Agree |
|--|-------------------|---------------------|-------------------|----------------------------|----------------|------------------|----------------|
| Strong local leadership                              | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Residents are very involved in local government      | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Close knit (e.g., people know each other by name)    | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Many seasonal residents / second home owners         | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Rapidly growing; lots of new residents               | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Residents are willing to help each other out         | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Collaborates with other nearby communities           | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Well-prepared to mobilize resources for an emergency | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Knowledgeable about wildfire preparedness            | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Takes proactive approach to wildfire management      | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |
| Willing to create ordinances to reduce wildfire risk | 1                 | 2                   | 3                 | 4                          | 5              | 6                | 7              |

**Section X. Insurance**

Which of the following statements are true regarding homeowners insurance for this residence?  
**(Check (√) all that apply)**

- You pay a higher premium for your homeowners insurance because of wildfire risk.
- Your homeowners insurance company requires wildfire risk mitigation as a condition of your policy.
- An insurance company has canceled or refused to renew your policy because of wildfire risk.
- You have homeowners insurance but do not know if wildfire risk impacts it in any way.
- You do not have homeowners insurance.

## Section XI. About yourself

We would like to know a little about you. This information will remain completely confidential.

1. Do you view yourself as someone who is fully prepared to take risks, or do you try to avoid taking risks?  
(Circle one number)

| 1                                      | 2 | 3                                    | 4 | 5                                      | 6 | 7                                     |
|--|---|--------------------------------------|---|--|---|---------------------------------------|
| Not at all<br>willing to<br>take risks |   | Slightly<br>willing to<br>take risks |   | Moderately<br>willing to<br>take risks |   | Extremely<br>willing to<br>take risks |

2. Are you?  Male  Female

3. How old are you? \_\_\_\_\_ years

4. How many years of formal education have you completed? (Circle one number)

| 6           | 7 | 8 | 9 | 10 | 11 | 12      | 13 | 14 | 15 | 16       | 17 | 18 | 19        | 20 | 21 | 22 |
|-------------|---|---|---|----|----|---------|----|----|----|----------|----|----|-----------|----|----|----|
| High School |   |   |   |    |    | College |    |    |    | Master's |    |    | Doctorate |    |    |    |

5. What is your approximate annual household income before taxes? (Check (✓) one)

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Less than \$10,000   | <input type="checkbox"/> \$75,000 to \$99,999   | <input type="checkbox"/> \$175,000 to \$199,999 |
| <input type="checkbox"/> \$10,000 to \$24,999 | <input type="checkbox"/> \$100,000 to \$124,999 | <input type="checkbox"/> \$200,000 to \$224,999 |
| <input type="checkbox"/> \$25,000 to \$49,999 | <input type="checkbox"/> \$125,000 to \$149,999 | <input type="checkbox"/> \$225,000 to \$249,999 |
| <input type="checkbox"/> \$50,000 to \$74,999 | <input type="checkbox"/> \$150,000 to \$174,999 | <input type="checkbox"/> \$250,000 and higher   |

***Thank you very much for participating in this study!***

***Please return the completed survey as soon as possible in the enclosed addressed and postage-paid envelope.***

## Appendix B – Descriptive Results

### Section I. Your residence

9. Is this your primary residence? 95% Yes
10. Do you live at this residence year round? 74% Yes
11. How long have you lived at this residence? Mean = 8.77 Years
12. What is the size of your lot? Mean = 2.26 Acres
13. Is this residence located within a forested area? 48% Yes
14. What type of roof does this residence have?
- 88% Tile, metal, or asphalt shingles
  - 11% Wood shake / shingles
  - 1% Other
15. If the road you use to access your residence was blocked due to a wildfire, is there another road you could use to get out of your community?
- 61% Yes 39% No

### Section II. Experience with wildland fire

We would like to know about the kinds of experiences you have had with fires. *Please check any of the following experiences you have personally had related to wildland fire. (Check (✓) all that apply)*

#### Percent

- 35 Received a reverse 911 call to prepare to evacuate
- 27 Been evacuated from my house due to a wildland fire
- 12 Residence damaged or lost due to a wildland fire
- 20 Had other personal property destroyed or damaged due to a wildland fire
- 1 Been injured as a result of a wildland fire
- 65 None of the above apply to you.

### Section III. Wildland fire risk

3. What do you think is the chance that a wildfire will start on or spread to your property this year?

|                   |                 |                   |                  |
|-------------------|-----------------|-------------------|------------------|
| 14%               | 34%             | 19%               | 33%              |
| Not at all likely | Slightly likely | Moderately likely | Extremely likely |

4. If a wildfire starts on or spreads to your property this year, what do you think is the chance that your home will be destroyed or severely damaged?

|                   |                 |                   |                  |
|-------------------|-----------------|-------------------|------------------|
| 12%               | 46%             | 20%               | 22%              |
| Not at all likely | Slightly likely | Moderately likely | Extremely likely |

#### Section IV. Homeowner defensible space and firewise construction

The following page defines things that homeowners can do to protect their homes from a wildland fire. Please read each definition and answer the questions that follow.

**Defensible space** creates an area around your house where vegetation (e.g., trees, shrubs, and branches) is cleared or reduced to help protect your home from a wildland fire. It reduces the chance of a fire moving from a building to a nearby forest. Defensible space also allows firefighters to do their jobs more effectively. Defensible space activities include (but are not limited to) the following:

- Reducing the density of trees near the home
- Cleaning roof surfaces and gutters
- Removing overhanging branches within 10 feet of the roof
- Ensuring that trees & shrubs are at least 10 feet apart

4. How familiar are you with *defensible space* activities?

|                     |                   |                     |                    |
|---------------------|-------------------|---------------------|--------------------|
| 4%                  | 16%               | 39%                 | 42%                |
| Not at all familiar | Slightly familiar | Moderately familiar | Extremely familiar |

5. Do you believe defensible space activities make your home / property *safer* in the event of a wildland fire?

|                     |                |                  |                 |
|---------------------|----------------|------------------|-----------------|
| 1%                  | 16%            | 37%              | 46%             |
| Makes no difference | Slightly safer | Moderately safer | Extremely safer |

6. Do you believe defensible space activities make your home / property *look better or worse*?

|       |         |        |
|-------|---------|--------|
| 12%   | 44%     | 44%    |
| Worse | Neither | Better |

**Firewise construction** is the use of fire-resistant materials in the construction and remodeling of homes. It lessens a home's chances of catching on fire during a wildfire. Firewise construction modifications include (but are not limited to) the following:

- Fire resistant roofs (e.g., aluminum, steel, concrete, clay, slate)
- Enclosure of the undersides of decks and balconies
- House exteriors made of fire resistant material (e.g., metal, stucco, stone, tile, heavy timber, masonry)
- Windows, doors, and eaves that allow for proper air venting

4. How familiar are you with *firewise construction*?

|                     |                   |                     |                    |
|---------------------|-------------------|---------------------|--------------------|
| 6%                  | 29%               | 35%                 | 30%                |
| Not at all familiar | Slightly familiar | Moderately familiar | Extremely familiar |

5. Do you believe firewise construction modifications make your home *safer* in the event of a wildland fire?

|                     |                |                  |                 |
|---------------------|----------------|------------------|-----------------|
| 5%                  | 23%            | 33%              | 39%             |
| Makes no difference | Slightly safer | Moderately safer | Extremely safer |

6. Do you believe firewise construction modifications make your home *look better or worse*?

|       |         |        |
|-------|---------|--------|
| 21%   | 27%     | 51%    |
| Worse | Neither | Better |



## Section XII. Section V. Beliefs about wildland fire preparedness

Indicate below how strongly you agree or disagree with *each* of the following statements. While some statements may sound similar, please respond to each statement.

|  | Disagree<br>(%) | Neither<br>Agree nor<br>Disagree<br>(%) | Agree<br>(%) |
|--|-----------------|---|--------------|
| My personal actions around my home can help minimize the impact of a wildfire.   | 37              | 13                                      | 50           |
| Wildfire preparedness has consequences for protecting my home against a wildfire.  | 40              | 16                                      | 44           |
| I have a responsibility to prepare my home in the event of a wildfire. <sup>40</sup>                                       | 40              | 13                                      | 47           |
| I feel a strong personal obligation to do what is necessary to protect my home against a wildfire.                         | 37              | 26                                      | 37           |
| I feel an obligation to educate others about the importance of wildfire preparedness.                                      | 52              | 13                                      | 35           |
| I should take wildfire preparedness steps to protect my home.  | 39              | 11                                      | 50           |
| My friends think I should take wildfire preparedness steps.  | 40              | 13                                      | 47           |
| My neighbors think that I should take wildfire preparedness steps.   | 39              | 17                                      | 44           |
| It is my responsibility to adopt defensible space actions to protect my home.  | 34              | 12                                      | 54           |
| New home construction should be required by law to use fire resistant materials.   | 42              | 12                                      | 46           |
| Seeing my <i>neighbors</i> doing defensible space encourages me to do defensible space on my property.                     | 37              | 14                                      | 49           |
| Seeing wildfire risk reduction performed on <i>nearby public land</i> encourages me to do defensible space on my property. | 37              | 13                                      | 50           |
| People in my <i>community</i> encourage others to do defensible space.   | 32              | 14                                      | 54           |
| Creating defensible space around my home makes it safer for firefighters.  | 37              | 24                                      | 39           |
| Without defensible space, firefighters will not be able to protect my home.  | 38              | 13                                      | 49           |
| Homes with defensible space should be protected from wildfire before homes that HAVE NOT taken such steps.                 | 38              | 12                                      | 50           |
| My defensible space activities will be ineffective if my neighbors do not take similar actions.                            | 37              | 10                                      | 53           |
| Defensible space activities are not necessary because my insurance company will cover any losses due to wildfire.          | 51              | 11                                      | 38           |
| I am aware of the consequences of NOT adopting defensible space activities.  | 36              | 14                                      | 50           |
| Overall, I am prepared in the event of a wildfire.   | 41              | 11                                      | 48           |

### Section VI. Barriers and incentives to preparing for wildfire

4. When deciding whether to take action to reduce the risk of loss due to wildland fire on your property, how much of a *barrier* is each of the following items?

|  | Not at all<br>a barrier | Slight<br>barrier | Moderate<br>barrier | Extreme<br>barrier |
|--|-------------------------|-------------------|---------------------|--------------------|
| Cost                                     | 6                       | 28                | 38                  | 27                 |
| Time                                     | 3                       | 22                | 51                  | 23                 |
| Amount of work                           | 11                      | 27                | 40                  | 23                 |
| Physical difficulty of work              | 12                      | 37                | 35                  | 16                 |
| Disposal of plant / tree material        | 1                       | 20                | 57                  | 22                 |
| Neighbors are not doing defensible space | 13                      | 42                | 32                  | 13                 |
| Lack of knowledge about what to do       | 8                       | 50                | 26                  | 16                 |
| Personal priorities                      | 12                      | 44                | 26                  | 17                 |

5. To what extent do the following items *encourage* you to reduce the wildfire risk on your property?

|   | Not at all<br>encouraging | Slightly<br>encouraging | Moderately<br>encouraging | Extremely<br>encouraging |
|---|---------------------------|-------------------------|---------------------------|--------------------------|
| Home or property protection                 | 1                         | 13                      | 53                        | 33                       |
| Responsibility as property owner            | 3                         | 41                      | 31                        | 25                       |
| Neighbors are doing defensible space        | 10                        | 41                      | 26                        | 24                       |
| Neighbors are not doing defensible space    | 11                        | 36                      | 30                        | 23                       |
| Aesthetics                                  | 9                         | 33                      | 37                        | 20                       |
| Personal safety                             | 10                        | 42                      | 22                        | 26                       |
| Restoration of forest health                | 12                        | 41                      | 32                        | 15                       |
| Recent fire events                          | 10                        | 14                      | 39                        | 37                       |
| Financial assistance (e.g., grant programs) | 4                         | 26                      | 35                        | 36                       |
| Insurance discounts                         | 14                        | 45                      | 37                        | 5                        |
| Tax breaks                                  | 9                         | 25                      | 29                        | 38                       |

6. The average cost to a homeowner of hiring a contractor to remove vegetation to reduce wildfire risk is approximately \$1,000 per acre. If your property is less than one acre, the cost is approximately \$1,000 for the entire property.

If a grant program paid for a share of the cost of this work on your property, would you participate in the program?

45% No      55% Yes → Please select the highest amount that you would be willing to pay per acre to have a contractor remove vegetation.

Amount you pay per acre / Amount grant pays

22% \$1,000 / \$0

5% \$800 / \$200

12% \$600 / \$400

24% \$500 / \$500

13% \$400 / \$600

11% \$200 / \$800

14% \$0 / \$1,000

### Section XIII. Section VII. Your neighbors

Please think about the properties across the street, next to, or bordering your property (may include vacant lots or publicly owned land). Even if you live on a large property and your neighbors are far away, the following questions refer to the owners / managers of these adjacent properties as your *neighbors*.

4. Have you ever talked about wildfire issues with a neighbor?

50% No 50% Yes

5. Have any of your neighbors done anything to reduce the risk of wildfire on their property?

52% No 32% Yes 16% I don't know

6. Have you ever worked with any of your neighbors to reduce the risk of wildfire on your property or that of your neighbors?

53% No 47% Yes

### Section XIV. Section VIII. Your owners association

5. Do you belong to an owners association? 0% No 100% Yes

6. Please indicate the extent to which you agree or disagree with each of the following statements regarding your owners association.

|  | Disagree (%) | Neither Agree nor Disagree (%) | Agree (%) |
|--|--------------|--------------------------------|-----------|
| My owners association meets on a regular basis.                | 53           | 7                              | 40        |
| I am an active member of my owners association.                | 22           | 12                             | 6         |
| I always comply with owners association regulations.           | 26           | 7                              | 67        |
| My owners association actively promotes wildfire preparedness. | 22           | 7                              | 71        |

7. Please indicate the extent to which you agree or disagree with each of the following statements regarding your **trust** in your owners association.

|  | Disagree (%) | Neither Agree nor Disagree (%) | Agree (%) |
|--|--------------|--------------------------------|-----------|
| <b>I trust</b> my owners association to provide:                                       |              |                                |           |
| ... the best available information on wildfire issues.                                 | 24           | 13                             | 63        |
| ... enough information to decide what actions I should take regarding wildfire issues. | 22           | 10                             | 68        |
| ... truthful information about safety issues related to wildfire.                      | 20           | 22                             | 58        |
| ... timely information regarding wildfire issues.                                      | 15           | 10                             | 75        |

8. Do you currently hold a leadership position in your owners association? 93% No 7% Yes

### **Section IX. Your community**

Thinking about the wider community in which you live, how much does each of the following describe your community?

|  | Disagree (%) | Neither Agree nor Disagree (%) | Agree (%) |
|--|--------------|--------------------------------|-----------|
| Strong local leadership                              | 31           | 11                             | 58        |
| Residents are very involved in local government      | 30           | 14                             | 56        |
| Close knit (e.g., people know each other by name)    | 40           | 12                             | 48        |
| Many seasonal residents / second home owners         | 37           | 13                             | 50        |
| Rapidly growing; lots of new residents               | 49           | 13                             | 38        |
| Residents are willing to help each other out         | 39           | 12                             | 49        |
| Collaborates with other nearby communities           | 40           | 15                             | 45        |
| Well-prepared to mobilize resources for an emergency | 17           | 17                             | 66        |
| Knowledgeable about wildfire preparedness            | 38           | 13                             | 48        |
| Takes proactive approach to wildfire management      | 44           | 12                             | 44        |
| Willing to create ordinances to reduce wildfire risk | 39           | 14                             | 48        |

### **Section XV. Section X. Insurance**

Which of the following statements are true regarding homeowners insurance for this residence?  
(Check (✓) all that apply)

|  | % Yes |
|--|-------|
| You pay a higher premium for your homeowners insurance because of wildfire risk                    | 84    |
| You have homeowners insurance but do not know if wildfire risk impacts it in any way               | 20    |
| You do not have homeowners insurance   | 19    |
| An insurance company has canceled or refused to renew your policy because of wildfire risk         | 17    |
| Your homeowners' insurance company requires wildfire risk mitigation as a condition of your policy | 8     |

### Section XI. About yourself

We would like to know a little about you. This information will remain completely confidential.

1. Do you view yourself as someone who is fully prepared to take risks, or do you try to avoid taking risks?

| 4%                                     | 9% | 10%                                  | 10% | 30%                                    | 22% | 14%                                   |
|--|----|--------------------------------------|-----|--|-----|---------------------------------------|
| Not at all<br>willing to<br>take risks |    | Slightly<br>willing to<br>take risks |     | Moderately<br>willing to<br>take risks |     | Extremely<br>willing to<br>take risks |

2. Are you?      56% Male      44% Female

3. How old are you? Mean = 59.71 years

4. How many years of formal education have you completed? Mean = 15.92 years

| Years   | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---------|----|----|----|----|----|----|----|----|----|----|----|
| Percent | 13 | 7  | 13 | 8  | 39 | 6  | 7  | 1  | 6  | 0  | 5  |

5. What is your approximate annual household income before taxes?

Percent

|    |                        |
|----|------------------------|
| 6  | Less than \$10,000     |
| 11 | \$10,000 to \$24,999   |
| 12 | \$25,000 to \$49,999   |
| 27 | \$50,000 to \$74,999   |
| 14 | \$75,000 to \$99,999   |
| 9  | \$100,000 to \$124,999 |
| 5  | \$125,000 to \$149,999 |
| 5  | \$150,000 to \$174,999 |
| 3  | \$175,000 to \$199,999 |
| 2  | \$200,000 to \$224,999 |
| 2  | \$225,000 to \$249,999 |
| 2  | \$250,000 and higher   |