



# QUICK RESPONSE REPORT

## Strengthening Resilience of Rural Communities to Wildfire in the Pacific Northwest

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*The views expressed in the report are those of the authors and not necessarily those of the Natural Hazards Center or the University of Colorado.*

### Introduction

On August 25, 2005, the Deer Creek fire ignited in the community of Selma, Oregon. The cause of the fire is still under investigation. Selma is a small town in the Illinois Valley in Josephine County, Oregon. The fire burned for four days before it was fully contained on August 28. In that time, the Deer Creek fire burned over 1,600 acres on a mix of privately owned and Bureau of Land Management (BLM) land. The fire destroyed five homes, ranging from yurts to single-family structures, and seven outbuildings. The fire also damaged two homes and six outbuildings and threatened over 100 residences.

Oregon Governor Theodore R. Kulongoski invoked the Conflagration Act on August 26, which allowed the Oregon State Fire Marshal to mobilize structural firefighters from across the state to assist the Illinois Valley Fire District and state and federal fire protection agencies in Josephine County. The Illinois Valley Fire District established a community information center at their fire station in Selma. The state fire marshal estimated structural mobilization expenses for the Deer Creek fire to be as high as \$410,000.<sup>1</sup>

### Illinois Valley Profile

The Illinois Valley is located in the southwest corner of Oregon, less than 50 miles from the Pacific Ocean and adjacent to the Rogue River-Siskiyou National Forest, which includes the Kalmiopsis Wilderness and Oregon Caves National Monument and borders California. The Illinois Valley is approximately 427,376 acres in size, of which about 77

percent is public land and 23 percent private land. The area is dominated by forests and defined by the Illinois River and its tributaries, which are bounded by mountains.<sup>2</sup>

The Illinois Valley Fire District protects over 17,000 people living in an area of 140 square miles and serves the communities of Cave Junction, Dryden, Holland, Kerby, O'Brien, Selma, Takilma, and Waldo. The fire district is publicly funded and operates 6 stations with 5 full-time employees and approximately 40 volunteers.<sup>3</sup>

The 2000 U.S. Census reported a population of 8,900 people and 4,040 households in the Illinois Valley. Of the 4,040 households in the Illinois Valley, 26 percent included children under the age of 18, 10 percent had a single-female-headed household, and 29 percent included someone living alone over the age of 65.<sup>4</sup> In 2000, the Illinois Valley's per capita income was \$12,729 compared to Josephine County's per capita income of \$17,234. The median income for a household in the Illinois Valley was \$22,024, and the median income for a family was \$25,179. The 2000 census also indicated that 25 percent of individuals and 43 percent of families in the Illinois Valley were living at or below the federal poverty line. Of this population, 8 percent were under the age of 18 and 2 percent were 65 or older.<sup>5</sup>

The Illinois Valley's economy is based on a declining timber industry, growing tourism, cottage industries, retirement payments, minimal agriculture, and employment by the government.<sup>6</sup> The five largest employers in the valley, as of February 2002, are Rough-n-Ready Lumber Co., Wild River Brewing

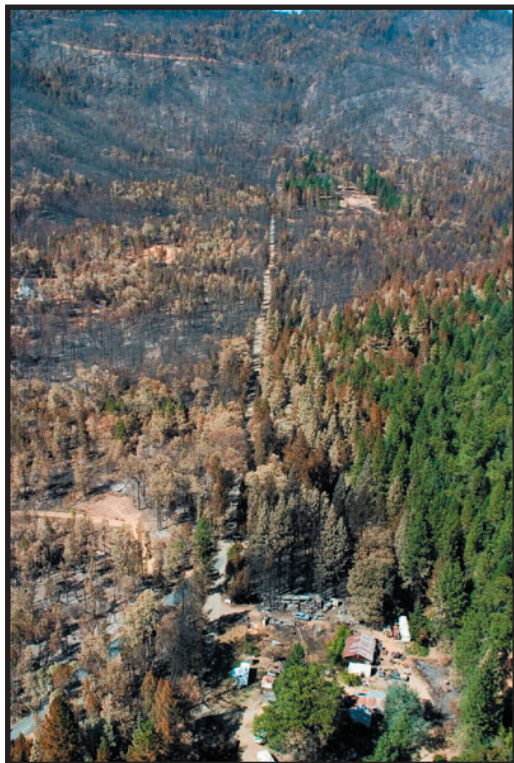
and Pizza, Shop Smart, Bridgeview Winery, and Taylor's Sausage Inc.<sup>7</sup>

## Wildfire Risk and Planning in the Illinois Valley

The Illinois Valley is no stranger to wildfire. In 2002, the Illinois Valley suffered the majority of the impacts from the Biscuit fire, which burned over 470,000 acres. The fire threatened over 3,400 homes and put thousands of residents on evacuation notice. Costs from the fire exceeded \$150 million and raised awareness among public agencies, community organizations, and individuals about the extreme risk they face from wildfire.

The Josephine County Integrated Fire Plan (JCIFP), adopted in November 2004, illustrates the high risk to wildfire throughout the Illinois Valley. In 2004, the Illinois Valley Fire District received a grant to develop a communitywide fire protection plan for the Illinois Valley in conjunction with the JCIFP. The Illinois Valley Fire Plan, adopted in March 2005, identifies community priorities for reducing wildfire risk. As part of the plan development, the fire district held a series of eight community meetings throughout the valley during the summer of 2004. The goal of the meetings was to elicit the community's participation in identifying areas of local fire concern and projects to reduce fire risks.

**Figure 1. August 2005 Deer Creek Fire Damage**



Source: Medford District BLM

## Lessons Learned from the Deer Creek Fire

Through the JCIFP, partners organized two forums to discuss lessons learned and needs for future wildfire events. The first event was a briefing for fire service and county agencies on September 22, 2005. Josephine County Emergency Management and the Josephine County Fire Defense Board led an agency debriefing to review operations, response, evacuation, and other issues. Participants in the debriefing expressed that interagency communication had strengthened due to the fire planning process and resulted in stronger coordination during the Deer Creek fire than had existed during the 2004 Redwood Highway fire.

The Illinois Valley Fire District and partners involved in the JCIFP hosted a community meeting at the Selma Fire Station on September 28, 2005. The purpose of the meeting was to talk with residents about their experiences during the 2005 Deer Creek fire. Over 80 people attended this meeting, including representatives from local, state, and federal agencies and community organizations. The meeting provided an opportunity to gather information about the experiences of residents directly affected by the fire and to understand their concerns. Project researchers used this meeting as an opportunity to interview individuals and households about their experience during the Deer Creek fire and their perception of wildfire risk in their community.

## Purpose of Research on Community Resilience during the Deer Creek Fire

Many communities in the Pacific Northwest face serious and growing risks from wildfires. Ecosystem and climatic changes coupled with rapid population growth and development in wildland-urban interface areas have compounded wildfire risks and impacts. The purpose of this study was to document individual and household experiences in the event of a wildfire occurrence, explore the resilience of communities to wildfire, and result in strategies to reduce risk to future wildfires. To that end, Quick Response program funds from the Natural Hazards Center at the University of Colorado at Boulder were used to establish a baseline for examining levels of preparedness and the effectiveness of community wildfire mitigation planning efforts in reducing losses to socially vulnerable communities.

## Theoretical Significance

The perception, experience, response, and decision-making processes of a population have long been a focus of study by the hazards research community. Documenting the community and individual experience associated with a disaster in a rural area, such as southwestern Oregon, permits the development of theories accounting for the similarities and differences among the hazards experience in urban and rural settings. Exploring the resilience of rural places and their residents may highlight some of the adaptations and coping mechanisms that are less prevalent in large urban areas. If rural communities have strong foundations on which to build resilience, despite existing social and economic vulnerabilities, then lessons may be learned and transferred to urban settings. Rural communities, such as those in Josephine County, exhibit a distinct kind of resilience that may not occur in cities, such as New Orleans, Louisiana, or Miami, Florida. These differences may highlight opportunities to build sustainable, resilient cities and rural communities.

## Research Objectives

Previous research has suggested that social vulnerability and culture influence hazards and disaster experiences. This research explored the ways that mitigation programs can integrate place, poverty, and social needs into efforts to address access to information and resources in a rural community. A survey of residents assessed if response and recovery efforts during (and after) the wildfire considered the perspectives and needs of the community, whether mitigation programs influenced successes or challenges during the wildfire, and if losses to life, property, natural, or cultural resources resulting from the wildfire were influenced by poverty or geographic isolation. Specifically, research questions sought to document and describe the perception, experiences, preparedness, and evacuation behavior of residents affected by the Deer Creek fire.

## Methods and Analysis

### Survey Design and Instrument

The survey instrument had three sections: perception and experience, preparedness and response, and demographics. The first section of the survey was designed to provide the context, explain patterns in behavior, and gather information on perceptions and experience related to the wildfire hazard.

Ultimately, decisions related to mitigation action or evacuation behavior are strongly influenced by perception, with experience strongly affecting perception.

The second part of the instrument focused on the preparedness and response to the Deer Creek fire. The survey asked respondents about the protective actions they have taken and about their behavior associated with the Deer Creek event. In addition to a query of evacuation response, the survey asked respondents if they were content with the information they received with respect to their individual decision-making process. These questions were intended to provide recommendations on communication to community leaders concerned about evacuation and education efforts.

The final section of the survey provided demographic information used to place the sample population within the larger community as well as to determine if there was variation in the ways that segments of the population perceive and respond to the wildfire experience/threat. The survey instrument is included at the end of this report as Appendix A.

An important phase of the survey construction and design was sharing the instrument with community stakeholders and outside professionals. Feedback resulted in eliminating and expanding certain sections of the survey to best address community interests and needs.

### Survey Implementation

Immediately following the conflagration, the research team worked with the Illinois Valley Fire District, Josephine County, Oregon Department of Forestry, U.S. Department of Agriculture (USDA) Forest Service, and the BLM to host a community meeting to discuss the experience with the fire, lessons learned, and mitigation efforts underway. While the community meeting served an important role in facilitating the exchange of concerns and ideas between residents and the fire agencies, it also provided the platform to implement the survey. With the aid of volunteers, the research team administered the survey to a self-selected sample of affected residents in attendance. Survey administration took the form of a face-to-face interview lasting approximately seven minutes. A small portion of the respondents chose to fill out the survey instrument without being interviewed.

### Response Rate

The research team traveled to Josephine County, Oregon, to attend the community meeting on the evening of September 28, just over one month after the conflagration. An estimated total of 75 residents attended the meeting. Over the course of the 3-hour meeting, surveys were administered to 27 households/individuals. An additional three residents took the survey home and returned it by mail.

### Data Handling and Analysis Tools

After coding the survey questions, responses were entered into a Microsoft Excel spreadsheet. Responses were coded so that surveys completed prior to the formal presentation at the community meeting could be compared to those completed afterward or returned by mail to see if timing of survey administration influenced results. Notes and videotaping of the community meeting were also a source of ancillary data that corroborated many of the comments as well as survey responses. The analyses were statistical and performed in SPSS, SAS, or Microsoft Excel.

### Analysis – Study Sample

Residents of the Illinois Valley affected by the Deer Creek fire were invited to participate in a public forum to discuss the events surrounding the fire. Prior to and immediately following the program, a total of 30 residents completed surveys. This self-selected sample was not a random sample and may not be representative of the community or county. Males constituted a majority of survey respondents (53 percent).

Indicators of vulnerability, which may help to characterize the resilience of the impacted community, include demographic variables such as home ownership, income, age, and education. An overwhelming majority of respondents own their homes (90 percent) and have resided in the community for over a decade. Few have special needs that would increase their vulnerability and few have children living at home. Seventy-three percent of respondents have attained post-high school education. Each of these characteristics suggests that the community is stable, which provides a strong base for building resilience. However, the sample population was self-selected and may not accurately represent the vulnerability profile of the greater community.

**Table 1. Demographics of Study Sample**

Rent/Own	Percent of Sample
Rent home	3%
Own home	90%
No response	7%

Special Needs	Percent of Sample
Special needs	20%
No special needs	73%
No response	7%

Children	Percent of Sample
Under 6 years	7%
Between 6 and 18 years	7%
No children under 18 years	79%
No response	7%

Education	Percent of Sample
Less than high school	4%
High school	13%
Some college/vocational	40%
College graduate	20%
Graduate school	13%
No response	10%

Income	Percent of Sample
Less than \$15,000	0%
\$15,000–\$30,000	20%
\$30,000–\$45,000	27%
\$45,000–\$60,000	16%
More than \$60,000	10%
No response	27%

Years Residing in Community	Percent of Sample
Less than 5 years	23%
5–10 years	30%
10–15 years	10%
16–20 years	7%
Over 20 years	23%
No response	7%

Age	Percent of Sample
Under 30 years	10%
31–40 years	4%
41–50 years	10%
51–60 years	23%
61–70 years	27%
Over 70 years	13%
No response	13%

## Findings and Analysis

### Perception and Experience

Given the length of time many survey respondents have lived in the community, and that the area is prone to wildfire, it is not surprising that many of the respondents had previous experience with wildfire. For example, many residents reflected on individual and family experience with the Biscuit fire. In general, 70 percent of respondents had experienced a wildfire at some point and to some extent prior to the 2005 fire season. In terms of the nature of this experience, respondents were asked about direct and indirect experiences with property damage and injury. Direct property damage had impacted 13 percent of the study population and direct injuries were reported by 7 percent of survey respondents. The percentage of respondents who reported knowing someone who had experienced personal injury or property loss was similarly low. This pattern in experience suggests that the community was aware but that the direct losses might not lead to voluntary action and participation.

When asked to rate the likelihood of specific events being caused by fire in the next 10 years on a Likert Scale of one to five, with one representing not at all likely and five as almost a certainty, surveyed residents perceived that major damage to property and environmental resources is quite likely to occur in the next 10 years. Respondents had a more neutral perception of the likelihood of damage to their home from wildfire in the next 10 years (see table 2). The likelihood of injury to self and family members was perceived to be unlikely as was disruption to work. Disruption to daily activities due to fire was perceived to be moderate.

Both experience and perception have been used to explain the actions taken by residents, but often having the information, tools, resources, and assets are equally influential. To account for the influence of the perceived possession of necessary resources, respondents were asked to characterize the extent to which they felt confident that they had the required resources. Respondents indicated a moderate level of certainty of having the information, tools, and assets to protect self, family, and property from wildfire and reported taking a moderate level of precautionary action for protection (see table 3).

Perception also influences preparedness actions in another way – the perceived responsibility for protection. Some individuals will take responsibility for protecting themselves and the people and things

they value; others perceive that the responsibility lies elsewhere. Survey participants were asked to describe the extent to which a series of groups were responsible for protecting individuals from wildfire (see table 4).

For comparison, respondents were asked their opinions about how much knowledge each of the same groups have about the wildfire hazard. The fire district was considered to be knowledgeable by a majority of respondents. This would suggest that the role of the fire district in disseminating information is particularly important. Respondents also considered themselves and the state government to be fairly knowledgeable. The local government, friends, and media tend to be considered only moderately knowledgeable (see table 5).

### Preparedness

Preparedness actions can mitigate the impacts of hazards on a community. To assess the vulnerability of the community to wildfire and investigate the effectiveness of wildfire programs, the survey asked questions related to preparedness actions. Despite the moderate perception of precaution taken reported above, when asked about preparedness or mitigation actions, a three-quarters majority of respondents indicated that they had undertaken all but one of the actions inquired about. In fact, 87 percent of respondents reported cleaning their gutters and roof regularly, and 80 percent reported that they had installed fire-resistant roof materials (see table 6). All protective actions the survey inquired about had been adopted by greater than 70 percent of respondents with the exception of landscaping with fire-resistant materials (60 percent).

This behavior suggests an engaged community acting on their perceptions, experiences, and concerns and accepting and minimizing the risk that they are exposed to. This suggests the foundations for enhancing the resilience of the community. However, it is important to note that the survey respondents were a self-selected sample of residents who were invested or concerned enough about fire to attend the public meeting and participate in the survey. Therefore, the representativeness of the study population is critical in interpreting these findings.

Interestingly, less than 30 percent of the study sample had received financial assistance to undertake these preparedness actions. While the rate of financial support was low, 37 percent of respondents did receive support in the form of guidance

**Table 2. Likelihood of a Fire Causing Damage in the Next 10 Years**

The Likelihood of a Fire Causing each of the Following in the Next 10 Years	1 Not at All Likely	2	3	4	5 Almost a Certainty	NR
Major damage to property in your community	0%	3%	13%	16%	67%	0%
Major damage to environmental resources	7%	0%	10%	30%	53%	0%
Major damage to your home	17%	23%	40%	17%	3%	0%
Injury to you or members of your family	30%	37%	27%	6%	0%	0%
Disruption to your job	50%	7%	17%	3%	17%	6%
Disruption to your daily activities	7%	3%	30%	23%	37%	0%

**Table 3. Information, Resources, and Precautions to Protect Against Wildfire**

How Certain Are You that You Have:	1 Not at All	2	3	4	5 Very Great Extent	NR
Enough information to protect self, family, and property	6%	10%	37%	27%	20%	0%
Necessary tools to protect self, family, and property	10%	33%	13%	23%	20%	0%
Necessary assets to protect self, family, and property	10%	23%	30%	33%	10%	0%
Taken necessary precautions to protect self, family, and property	3%	23%	30%	33%	10%	0%

**Table 4. Responsibility for Protecting Residents from Wildfire Hazard**

To What Extent Do You Consider the Following Groups Responsible for Protecting You from Wildfire Hazard?	1 Not at All	2	3	4	5 Very Great Extent	NR/ Do Not Know
Federal government	23%	20%	27%	13%	13%	3%
State government	20%	3%	33%	17%	23%	3%
Fire district	6%	0%	17%	23%	53%	0%
Local government	17%	17%	23%	17%	20%	3%
The media	37%	10%	27%	17%	6%	3%
Friends, relative, neighbors, coworkers	13%	3%	20%	37%	20%	3%
Yourself and your immediate family	0%	0%	10%	20%	67%	3%

**Table 5. Knowledge about Wildfire Hazard**

To What Extent Do You Consider the Following Groups Knowledgeable about Wildfire Hazard?	1 Not at All	2	3	4	5 Very Great Extent	NR/ Do Not Know
Federal government	3%	18%	25%	13%	27%	13%
State government	3%	12%	15%	23%	37%	10%
Fire district	0%	0%	10%	23%	60%	6%
Local government	10%	12%	18%	30%	20%	10%
The media	12%	12%	40%	20%	12%	3%
Friends, relative, neighbors, coworkers	10%	7%	42%	15%	20%	3%
Yourself and your immediate family	0%	12%	18%	33%	33%	3%

or recommendations. The source of support is less clear. Local government served as the reported source of support for 13 percent of the study population. Twenty percent credited the Illinois Valley Fire District, 17 percent credited state government, and 6 percent federal government.

**Table 6. Preparedness Actions to Reduce Wildfire Risk**

Have You _____?	No	Yes	Do Not Know
Removed dry vegetation surrounding your home	16%	77%	7%
Created and maintained a firebreak	23%	77%	0%
Created a defensible space around your home	20%	73%	7%
Landscaped with fire-resistant plants or rocks	37%	60%	3%
Learned the location of nearby medical emergency centers	20%	73%	7%
Cleaned gutters and roof regularly	13%	87%	0%
Installed fire-resistant roof materials	13%	80%	7%

### Response to the Deer Creek Fire

Respondents reported taking protective action and, in many cases, preparing to evacuate as the fire developed and spread. Given the nature of the fire and its speed and spatial extent, a majority of these residents did not actually evacuate their homes. Seven of the respondents (23 percent) did evacuate their homes in response to the Deer Creek fire. Some returned home each day to monitor the situation relative to their property, others left due to smoke, which irritated respiratory health issues. When asked what factors influenced the decision to evacuate or remain, there was no clear factor that motivated all the evacuees (see table 7). Not surprisingly, the proximity of the fire to their home was a large factor in the decision of both groups—those who evacuated and those who remained.

Comments provided on the survey instrument and in dialog during the community meeting suggest that residents experienced some frustration with collecting information associated with the conflagration. Respondents were asked specifically if they were content with the information received and used in making their evacuation decision. Forty-three percent of the study sample population reported being content with that information.

**Table 7. Influences of Evacuation Decisions**

In Deciding to Evacuate or Not, How Much Did the Following Influence Your Decision?	1 Not at All	2	3	4	5 Very Great Extent
Previous wildfire experience	10%	6%	6%	17%	33%
Previous evacuation experience	13%	10%	3%	13%	30%
Seeing wildfire conditions	6%	3%	3%	3%	53%
Proximity of fire to home	10%	3%	6%	10%	43%
Watching businesses close	60%	3%	3%	0%	0%
Watching friends and family evacuate	40%	3%	10%	3%	10%
Official recommendations to evacuate	30%	3%	6%	17%	17%
Experience with an unnecessary evacuation	3%	43%	6%	3%	10%
Concern about looters	43%	3%	6%	3%	13%
Concern about protecting home from fire damage	27%	10%	3%	13%	17%
Concern about evacuation costs	43%	3%	13%	10%	0%
Concern about evacuating with pets	33%	0%	0%	3%	37%

### Evacuation during the Deer Creek Fire

Only 7 of the 30 survey respondents reported that they had evacuated their homes during the Deer Creek fire. Of respondents that evacuated, 86 percent were content with the information that they received and based their decision on. A large majority of the evacuees also made their decision to evacuate on August 25, the day that the conflagration occurred. The rest of the evacuees, 14 percent, made their decision to evacuate on Saturday, August 27. One respondent in particular reported multiple evacuations, as their family returned home each night.

Of the respondents that evacuated, 71 percent reported going to the home of a friend or relative, while 29 percent went to a hotel or motel. Four of the evacuees went to Grants Pass or Cave Junction, Oregon, and three went to nearby Selma and Lake Selma. The length of time that people had to evacuate their homes was relatively short. Forty-three per-

cent of evacuees were out of their homes for 1 day, 14 percent for 1.5 days, and 43 percent for 2 days.

## Discussion and Recommendations

### Discussion

The findings from the interviews with residents affected by the Deer Creek fire will help local fire agencies, Josephine County, and community organizations identify strategies to improve emergency management and communication, education and outreach, and mitigation actions to reduce wildfire risk. This section of the report examines survey data in further detail and discusses the implications of awareness, perception, and experience on decision making. Finally, this section includes recommendations on how this information might be used by public and private agencies to reduce wildfire risk in Deer Creek and Josephine County.

#### *Awareness*

Awareness of the existing fire plans, both the JCIFP and the Illinois Valley Fire Fire Plan, are strongly associated with preparedness actions. Just over half of survey respondents were aware of the JCIFP (57 percent) and the Illinois Valley Fire Plan (53 percent). Respondents that reported awareness of either or both fire plans also reported very high participation rates, 88-94 percent, for each preparedness activity included in the survey. These activities included vegetation removal, establishing firebreaks and defensible space, landscaping with fire resistant materials, maintaining roof and gutters, as well as installing fire-resistant roof materials.

Respondents aware of the fire plans engaged in these activities at much higher rates than those unaware of the plans. While cause and effect cannot be determined, this association suggests that the 37 percent of the study sample unaware of the plans could benefit from awareness. Increased awareness may result in increased preparedness and decreased potential losses. Recommendations to increase awareness include renewing efforts to disseminate fire plan information through a campaign or fire awareness fair.

The relationship between awareness of the JCIFP and the Illinois Valley Fire Plan and the perception of risk expressed by residents of the study sample illustrate some interesting patterns. A lack of awareness of the JCIFP was not associated with an elevated (response ranking 4 and 5) or reduced (response ranking 1 and 2) perception of risk when compared

with those aware of the plan. One exception was the perception of risk of damage to the respondent's home. The lack of awareness of the plan was associated with a greater perception of damage to the home associated with fire in the next 10 years.

The pattern of responses related to awareness of the Illinois Valley Fire Plan demonstrated a pattern consistent with that found for the awareness of the JCIFP with one exception. An awareness of the Illinois Valley Fire Plan did not seem to influence the level of perceived risk of fire to the environment. Respondents both aware and unaware of the plan expressed that they believed there would be a high likelihood of damage to the environmental resources of the community in the next 10 years. Respondents not aware of the local plan expressed an elevated perception that their daily activities, job, and injuries would be disrupted by fire in the next 10 years. These same respondents reported an elevated perception that their homes would be damaged by fire in the next 10 years.

Risk perception is influenced by a number of factors, and cause and effect between awareness and perception cannot be established. However, the patterns in responses suggest that awareness of existing plans provides residents with an understanding of the threat and probability of occurrence as well as with ways to mitigate risk.

The limitations of the data left several issues unanswered, but provide opportunity for further research:

- Awareness of the fire plans does not appear to influence the reported confidence in local or fire district knowledge.
- Awareness of the JCIFP did not influence the reported level of responsibility for protection at the local or fire district level. Those respondents unaware of the Illinois Valley Fire Plan assessed a significantly greater level of responsibility for protection to the fire district than those aware of the plan.

#### *Experience*

Previous research has shown that experience with a threat exerts a strong influence on perception and behavior associated with that threat. Survey participants were asked if they had experienced a wildfire prior to the 2005 fire season, and 70 percent of the study population had experienced fire prior to 2005. Experience with fire prior to the Deer Creek



fire appears to have had a strong influence on the preparedness actions taken by survey respondents.

**Table 8. Preparedness Actions and Previous Fire Experiences**

Preparedness Actions Taken	Experienced a Previous Fire	Did Not Experience a Previous Fire
Removed dry vegetation from home	85%	75%
Created and maintained a firebreak around home	85%	55%
Created a defensible space around home	90%	50%
Landscaped with fire-resistant materials	25%	76%
Cleaned gutters and roof regularly	100%	83%
Installed a fire-resistant roof material	80%	88%

Most dramatically, respondents who did not have previous experience with a fire only had a 50 percent rate of creating a defensible space around their home, while 90 percent of those respondents who had experienced a fire created a defensible space. (Defensible space is an area, typically a width of 30 feet or more, between an improved property and a potential wildfire where the combustibles have been removed or modified.)<sup>8</sup> Similarly, the percentage of respondents with previous wildfire experience who have created and maintained a firebreak is higher than the percentage of respondents from the group without previous fire experience. Other preparedness or protective actions show mixed results and a less clear influence of experience on choice. A recommendation to increase the percent of community members who take fire preparedness measures is to encourage residents that have been through a wildfire to share their experiences and choices with fellow residents.

Considering the influence of previous fire experience on perceived risk, 90 percent of respondents with fire experience rated risk of damage to both property and the environment as high (rank 4 and 5) over the next 10 years, while only 66 percent of those without fire experience rated risk of property damage as high and 78 percent rated risk to the environment as high. Sixty-six percent of respondents who had not experienced a previous fire ranked risk of home damage in the next 10 years as low, while only 33 percent of those who had experienced fire ranked

risk of home damage as low. Those who had not experienced a fire before the 2005 season were slightly more concerned about injury than those with experience. Disruptions to job or daily activities did not vary significantly with experience levels.

*Evacuation*

All of the respondents who decided to evacuate their homes found the fire district to be knowledgeable to a very great extent (rank of 5). They also reported a high confidence in the knowledge of the local government (rank 4 and 5). A majority of evacuees (75 percent) felt that the fire district was responsible for protecting them from wildfire, while 50 percent of nonevacuees felt this way. Those who chose not to evacuate indicated that they felt the local government was more responsible for their protection than those who did evacuate.

Recommendations

*Education and Outreach/Communication and Coordination*

Just over half of survey respondents were aware of the JCIFP (57 percent) and the Illinois Valley Fire Plan (53 percent). Survey respondents also reported that meetings, such as the community meeting on September 28, are helpful in protecting people and property (93 percent for both) and do not require much skill or effort. The perception that community meetings have high benefits and low costs may help in education and outreach, communication, and planning efforts for the community, at least to the extent that this study sample represents the level of engagement for the broader community. Other recommendations to enhance education and outreach efforts related to wildfire are the following:

1. Continue to increase awareness about the Illinois Valley and Josephine County fire plans and the educational information within those plans.

Implementation Strategies:

- Coordinate with the JCIFP Education and Outreach Committee.
- Disseminate fire plan information through the Josephine and Jackson counties spring wildfire campaigns.
- Submit news articles and advertisements during fire season about how citizens can prepare for wildfire.
- Coordinate with television and radio media

to include information on prevention and mitigation prior to fire season.

2. Encourage residents to share their experiences and choices with fellow residents.

#### Implementation Strategies:

- Coordinate with neighborhood organizations, homeowners associations, rotary, and other citizen or business groups to share stories at upcoming meetings.

#### *Emergency Management*

3. Train and use fire safe councils and community emergency response teams to assist in disseminating information before, during, and after a wild-fire event.

#### Implementation Strategies:

- Recruit people interested in volunteering with their fire district to join a fire safe council or community emergency response team.
- Provide training and help set expectations for how volunteers can assist the fire agencies. For example, volunteers can assist in educating the public during county fairs and community events or in helping at a shelter during an evacuation.

4. Ensure that there is educational information available to citizens about evacuation prior to fire season.

#### Implementation Strategies:

- Include information on family evacuation plans.
- Provide information about evacuating pets and domestic animals.

#### *Fuels Reduction*

5. Increase education and opportunities for citizens to create defensible space.

#### Implementation Strategies:

- Create a model demonstration fuels reduction project that is accessible to the community so that they have a greater understanding of what fuels reduction is.
- Recruit fire safe councils or other community groups to help coordinate neighborhood cleanup days or fuels reduction projects.

#### *Postfire Debrief*

6. Continue to hold postfire debriefing sessions after a significant fire event. The fire agencies and community organizations that participated in the Deer Creek meeting found great value in having a forum to debrief the community about the events that took place and losses that occurred. Citizens had an opportunity to express concerns and all participants were able to work together to find solutions to the problems experienced during the fire.

#### Implementation Strategies:

- Develop a process that can be implemented in any fire event that brings together fire agencies and affected citizens.

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## **Notes**

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<sup>2</sup> Cave Junction.com. Area information. 2004. <http://www.cavejunction.com/cavejunction/areainfo.shtml>.

<sup>3</sup> Illinois Valley Rural Fire Protection District. 2004. <http://www.ivfire.com/>.

<sup>4</sup> Illinois Valley fire plan, March 2004: U.S. Census Bureau. 2000. Summary File 1-Matrices P13 and PCT12. <http://www.census.gov/>. Data compiled uses four zip codes in the Illinois Valley (97523, 97531, 97534, and 97538).

<sup>5</sup> Ibid.

<sup>6</sup> Rogue Web. 2005. Cave Junction – Illinois Valley Oregon profile. <http://www.rogueweb.com/cjunct/>.

<sup>8</sup> Firewise. 2006. Firewise glossary. <http://www.firewise.org/glossary/fwglossary.pdf>.

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