



# Engaging Socially Vulnerable Populations in Community Wildfire Protection Plans

August 2008

**Prepared by:**

Resource Innovations, University of Oregon  
Forest Guild, New Mexico  
Watershed Research & Training Center,  
California





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# Table of Contents

<b>1. INTRODUCTION.....</b>	<b>4</b>
Purpose.....	4
Background.....	4
Policy Issues and Implications .....	5
Audience .....	5
Organization of the Document .....	5
<b>2. CWPP STRATEGIES FOR LOW CAPACITY COMMUNITIES.....</b>	<b>6</b>
Step 1. Collaborate! .....	6
Step 2. Incorporate Community Capacity Indicators in Risk Assessment.....	6
Step 3. Plan for Vulnerable Populations .....	7
<b>3. FOSTERING COLLABORATION.....</b>	<b>8</b>
Collaborating with Diverse Partners .....	8
Developing Targeted Goals and Objectives.....	8
Case Studies .....	8
Partnering with Social Service Agencies in Planning and Implementation, Josephine County, OR..	8
Collaborating to Develop a Vulnerable Populations Disaster Registry, Southwestern Oregon .....	10
Building Collaborative Relationships through the Firewise Communities USA Program, Utah.....	11
<b>4. ASSESSING COMMUNITY CAPACITY IN A WILDFIRE RISK ASSESSMENT .....</b>	<b>13</b>
Measuring Community Capacity .....	13
Incorporating Community Capacity in Risk Assessments.....	13
Case Studies .....	14
Developing an Index of Community Capacity, Forest Guild, New Mexico .....	14
Identifying Low-Capacity Communities in a CWPP, Curry County, OR .....	16
<b>5. VULNERABLE POPULATIONS.....</b>	<b>18</b>
Identifying Vulnerable Populations.....	18
Developing Actions to Meet the Needs of Vulnerable Populations .....	19
Case Studies .....	19
Identifying Vulnerable Populations in Jackson County, Oregon .....	19
Creating Defensible Space for Vulnerable Residents, Walker Range, OR .....	20
<b>APPENDICES .....</b>	<b>22</b>
Appendix A. Methods for assessing community capacity .....	22
Appendix B. Sample questions for a vulnerable populations’ assessment .....	23
General Background .....	23
Eligibility Requirements .....	23
Disasters and Vulnerability .....	23



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## 1. INTRODUCTION

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Recent catastrophic wildfires in the United States provided images of the destruction of multimillion-dollar homes, dense urban neighborhoods, and vast estates that overlook beautiful forests or the southern California ocean. These images depict real pain and suffering for those who have lost their homes and possessions. What the images fail to show, however, are the small homes, rural communities, and working settlements that experience the same kind of pain and suffering. All communities risk tremendous losses in the face of wildfires, but some communities risk losing more of their assets when their homes or their properties burn. Many rural and under-served communities have no insurance to rebuild their homes; renters are displaced and have no means to recover their valuables; and elderly and disabled residents confront additional threats when responding to events and caring for themselves and their families. Catastrophic wildfire can result in the loss of livelihood for residents and communities as a whole, including loss of jobs, natural resource and tourism industries, and other economic opportunities in the community.

### Purpose

The purpose of this document is to provide tools to low-income and under-served communities for protection from wildfire.

- Ensure that low capacity communities are incorporated within Community Wildfire Protection Plan (CWPP) goals.
- Conduct risk assessments that include social as well as biophysical dimensions of risk.
- Identify vulnerable populations and develop strategies to meet their needs within a CWPP.
- Monitor and evaluate the impact of CWPPs.

### Background

Since the advent of the National Fire Plan in 2000, numerous policies and programs, including the Healthy Forests Restoration Act and Community Wildfire Protection Plans (CWPP) have been created for communities across the nation to work collaboratively with public agencies to identify and reduce wildfire risk. In a recent revision of the 10-year comprehensive implementation strategy for the National Fire Plan, national partners have updated a guide to assist communities with the development, implementation, and monitoring of their CWPPs. These resources are critical for all communities to engage in wildfire-risk reduction activities.

Some communities, however, lack the human capital and social capacity to successfully develop and implement these plans on their own. Rural, low-income, and under-served communities may lack the financial resources, staff, or even volunteers to work hand-in-hand with public agencies to identify high risk areas and recommend strategies for fire protection. Technical assistance and direct education and outreach can make a great difference in assisting these communities. Furthermore, many CWPP processes are multi-jurisdictional. Counties and municipalities engaged in CWPP development and implementation have an opportunity to consider how their plans can best meet the needs of low capacity communities.



## Policy Issues and Implications

As the annual costs of wildfire suppression rise, so do the impacts on rural, low capacity communities. By recognizing the needs of low capacity communities and developing resources (such as this guide) and through the allocation of state and federal assistance, the risk of wildfire in these communities can be significantly reduced.

Currently, there are few performance measures at the local, state, and national level to measure the impacts and effectiveness of state and federal assistance efforts in low capacity communities. These measures are critical for understanding whether low capacity communities are benefiting from existing programs and to introduce strategies for reducing wildfire risk in the future. However, the data gathered about vulnerable populations in local assessments and the priority actions identified within a CWPP may be used to measure the risks to low capacity communities on a regional or national level.

## Audience

The users of this document might include:

- low-income and under-served communities that want to develop and implement CWPPs;
- communities that need to incorporate poverty and capacity indicators in risk assessments;
- agencies that need to collaborate with communities to ensure the needs of low capacity communities are being met; and
- communities, agencies, and organizations using the Revised CWPP Handbook to assist them in addressing the needs of low capacity communities in their CWPP development and implementation processes.

## Organization of the Document

- **Section 2: Community Wildfire Protection Plan Strategies for Low Capacity Communities** presents a summary of actions that each community can use to ensure that its CWPP addresses the needs of low capacity communities and vulnerable populations.
- **Section 3: Fostering Collaboration** illustrates strategies for engaging new partners to ensure the needs of all stakeholders are addressed.
- **Section 4: Assessing Community Capacity in a Wildfire Risk Assessment** provides indicators that can be used in risk assessment to identify low capacity communities.
- **Section 5: Vulnerable Populations** presents strategies for conducting an assessment of vulnerable populations and recommended actions for serving their needs.

## Tips

### Community Wildfire Protection Plans

In 2003, the Healthy Forests Restoration Act established three guiding principles for the development of the CWPP:

1. Collaboration
2. Prioritized Fuel Reduction
3. Treatment of Structural Ignitability

To assist communities in developing their CWPPs, a handbook for Wildland-Urban Interface Communities was developed and sponsored by Communities Committee, Society of American Foresters, National Association of Counties, National Association of State Foresters, and Western Governors' Association. The Handbook outlines an eight-step process to convene interested parties, identify elements to consider in assessing community risks and priorities, and develop a mitigation or protection plan to address those risks.

In 2008, partners involved with the original Handbook are developing an update that includes in-depth information on fuels reduction and restoration planning, collaboration, and monitoring and evaluation. The update also includes information on planning for low capacity communities.

More information on these CWPP Handbooks can be found at: <http://www.forestsandrangelands.gov/communities/index.shtml>



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## 2. COMMUNITY WILDFIRE PROTECTION PLAN STRATEGIES FOR LOW CAPACITY COMMUNITIES

This section serves as both an executive summary for the document and an illustration of key steps for incorporating the concepts of capacity and vulnerability into the planning and implementation of CWPPs. A brief summary of strategies for three CWPP components—*collaboration, risk assessments, and planning for vulnerable populations*—is presented here. Subsequent sections provide more information about these subjects and include case studies in which the strategies have been translated into action.

### Step 1. Collaborate!

***Include social service agencies and other organizations representing low capacity communities and vulnerable populations on the CWPP planning team and throughout the public involvement process.***

A rigorous outreach effort should be made to include representatives from all communities and ensure that the concerns of low capacity communities are addressed. Social service providers and other organizations that work with low capacity communities can bring valuable insights to the planning process about the populations they serve. Participants should serve as liaisons between the collaborative group and the interests they represent and, when appropriate, advocate within their constituencies for the CWPP action plan. Partnerships developed in the planning phase aid in the implementation of the CWPP.

***Identify goals and objectives related to low capacity communities.***

The core CWPP planning team is responsible for identifying the goals and objectives that will guide the development of the CWPP. Making certain that these decision makers represent and consider the variety of communities and capacities within the planning area is an important step in ensuring that the needs of low capacity communities will be addressed.

***Seek partnerships to accomplish shared goals.***

Some goals in a CWPP may complement other community objectives, including natural resource education, public safety, and economic development. Seek opportunities to leverage resources to achieve common goals, such as partnering with a local scout troop to do defensible space work for elderly residents.

### Step 2. Incorporate Community Capacity Indicators in Risk Assessment

***Incorporate existing data about vulnerable populations.***

The planning team can utilize many existing data sources to identify and evaluate potentially vulnerable populations and low capacity communities within the planning area. Data from the US Census and the Department of Housing and Urban Development (HUD) are frequently used to assess disaster vulnerability associated with socioeconomic condition.

***Develop a list of local indicators to identify low capacity communities.***

A variety of socioeconomic measures may be used as indicators of capacity and vulnerability. Examples include poverty, employment, and education level. When developing a wildfire risk assessment, involve community and social services institutions to identify which indicators are most useful for understanding the particular issues that relate to managing wildfire risk.



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Representatives from low capacity communities may have valuable information to provide to a wildfire risk assessment, but may be difficult to reach via traditional efforts, e.g., mailings, TV announcements, newspaper. To contact these community representatives, consider using local religious institutions, civic organizations, or landowner associations.

***Develop a map to identify low capacity communities in high risk areas.***

Community risk assessments are used in CWPPs to identify areas with the greatest risk to wildfire. Including a map that illustrates the location of low capacity communities can highlight locations where social vulnerability and biophysical risk create the potential for a wildfire disaster.

**Step 3. Plan for Vulnerable Populations**

***Engage social service providers in the assessment of issues and opportunities that are relevant to vulnerable populations.***

Once the planning team has identified vulnerable populations, the next step is to understand which strategies will be effective in addressing their needs. Social service providers can bring useful insights to the planning process from their experience working with these populations.

***Capitalize on opportunities to improve emergency response capacity.***

Building emergency response capacity for wildfire disasters can improve the overall capacity to respond and recover from other types of natural and technological disasters. The identification of opportunities for synergy increases the potential to access local, state, and federal resources that aren't directly related to wildfire. For example, FEMA grants for evacuation or mapping could be used to address wildfire and other natural hazards.

***Provide technical assistance, grant resources, and other support to high risk, low capacity communities.***

Low capacity communities may lack the resources or ability to engage in projects to reduce structural vulnerability. Special funding or technical assistance may be needed to help low capacity communities create defensible space around their homes, improve accessibility for emergency responders, and install fire resistant building materials.

***Monitor and evaluate efforts***

Monitoring and evaluation are critical to helping communities identify challenges, celebrate successes, and strengthen future efforts. The *2008 Community Wildfire Protection Plan Evaluation Guide*<sup>1</sup> describes the importance of monitoring at local, regional, and national levels and includes indicators that measure specific efforts to reduce risk in low capacity communities. These measures are included in the *2008 Community Guide to Developing and Implementing Community Wildfire Protection Plans*.<sup>2</sup>



Resource Innovations Photo

1 *Community Wildfire Protection Plan Evaluation Guide*. June 2008. Resource Innovations. <http://ri.uoregon.edu/programs/CCE/CWPPresources.html>

2 *Community Guide to Developing and Implementing Community Wildfire Protection Plans*. Resource Innovations. June 2008. <http://www.forestsandrangelands.gov/communities/index.shtml>.

## 3. FOSTERING COLLABORATION

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### Collaborating with Diverse Partners

The first step in developing a Community Wildfire Protection Plan involves the formation of a planning team composed of key stakeholders and decision makers that will steer the process. This early step is the first opportunity for members of the planning team to consider the needs of low capacity communities and vulnerable populations that may exist within the planning area.

CWPPs are diverse in scope and scale; whereas some CWPPs encompass large areas that include many diverse communities, others are specific to individual communities that may be relatively homogenous. The planning team should assess whether its membership represents the breadth of the diverse population in the planning area.

The planning team should consider including representatives from agencies or organizations that work with low capacity communities and vulnerable populations in the area. If direct participation on the steering committee isn't feasible, there are many other ways to engage these key informants in the planning process, such as interviews, focus groups, or the development of a vulnerable populations committee.

A vulnerable populations committee can serve as a forum for local citizens and representatives of social service and public health agencies and community organizations to discuss issues facing the most vulnerable members of their community. If no such committee exists, the CWPP team could create a subcommittee to help in the planning process and possibly continue meeting as part of an ongoing monitoring and evaluation effort.

### Developing Targeted Goals and Objectives

Goals help to establish the priorities of the planning team and guide the development of the CWPP. Early in the process, a set of broad goals helps to frame the issues that the CWPP will address and organize the effort to gather information and create more specific objectives within each goal. As the planning team conducts research, receives community input, and deliberates the critical wildfire issues, it should include goals and objectives that address the needs of low capacity and vulnerable populations.

### Case Studies

#### Partnering with Social Service Agencies in Planning and Implementation, Josephine County, OR

Excerpted from the *Josephine County Integrated Fire Plan 2006 Annual Report and Updated Action Plan*, Appendix D. 2006. Resource Innovations. [http://www.co.josephine.or.us/files/jcifp\\_annual\\_report\\_final\\_10-3-06.pdf](http://www.co.josephine.or.us/files/jcifp_annual_report_final_10-3-06.pdf)

In 2004, adoption of the Josephine County Integrated Fire Plan (JCIFP) marked the completion of a comprehensive planning process that included efforts to address the needs of vulnerable populations within the county. Josephine County is home to a large number of people with special needs, including, but not limited to, the elderly, physically and mentally disabled, and those with low-incomes. Approximately 10% of the county's population is classified as having special needs, the majority of whom are 65 years and older. According to the 2000 census, more than 2,400 families live below the poverty level and account for 16.1%

#### Tips

Include social service agencies and other organizations representing low-capacity communities and vulnerable populations on the CWPP planning team and throughout the public involvement process.



of the county's population.<sup>3</sup>

JCIFP partners established a special needs committee to develop education and outreach materials for vulnerable populations and worked with social service agencies to implement actions that pertained to vulnerable populations. A subsequent survey of JCIFP partners revealed that many felt the planning process had been effective in engaging vulnerable populations within the community.<sup>4</sup>

In 2005 the JCIFP partners received two federal grants (Secure Rural Schools and Community Self-Determination Act, Title II) to fund fuels reduction work for low-income homeowners. These funds were used to pay for fuels reduction work that can cost between \$600 and \$1,200, depending on the condition of the property.

In 2005, the Forest Service awarded the county \$62,620 to perform fuels reduction work, and the BLM awarded the county \$90,049. Josephine County then contracted with the Illinois Valley Community Development Organization (IVCDO) to administer the funds. The grant sought to create a total of 138 acres of defensible space for landowners with special needs. Eligible homeowners had to live in a community-at-risk, near federal lands, and be elderly, disabled, or receive incomes at less than 200% of the federal poverty level. This project involved a variety of partners. Social service agencies conducted outreach to eligible residents, county Geographic Information System (GIS) staff identified at-risk communities near federal lands, and, where required, federal agency staff conducted necessary National Environmental Policy Act (NEPA) requirements. Other partners included the Job Council (a local youth employment and job training program) and local contractors with the ability to run heavy equipment and conduct controlled burning.

## Tips

### Elements of Successful Collaboration in Community Wildfire Protection Planning

- **Broad Participation.** A rigorous outreach effort should be made. Potential participants include property owners, local and state governments, tribes, fire and emergency services departments, public land management agencies, forest industry groups, forestry contractors and workers, insurance companies, environmental organizations, community-based forestry groups, watershed councils and other non-government organizations, academics, scientists, and other interested persons. Including social service agencies helps ensure that the concerns of low-income and vulnerable populations are addressed. No one should be excluded. Participants should serve as liaisons between the collaborative group and the interests they represent and, when appropriate, advocate within their constituencies for the CWPP action plan.
- **A Fair, Equitable Process.** The collaborative process must be open, transparent, accessible, and civil. All participants' ideas and values should be respected. Goals for the process should be clearly articulated and achievable, and the collaborative group should agree upon ground rules for meetings and a process for making decisions. Commitments made must be honored.
- **Multiple Avenues for Participation.** Collaborative involvement is needed in all aspects of the CWPP process—assessment of existing conditions, identification of issues and concerns, delineation of the WUI, identification and prioritization of action items, inventory of resources, development of an action plan, plan implementation, monitoring, and periodic plan reviews and updates. While the process may focus on meetings of a broadly representative collaborative group, there should be additional ways to engage the general public—getting their input, increasing their knowledge of wildfire protection needs, and encouraging their involvement in CWPP implementation activities or on a multiparty monitoring and evaluation team. The community should also receive regular updates on CWPP activities.

*\*Excerpt from 2008 Community Guide to the developing and implementing Community Wildfire Protection Plans: <http://www.forestsandrangelands.gov/communities/index.shtml>*



Firewise photo

## Tips

In the initial goal-setting processes, incorporate goals and objectives related to low-capacity communities.

Throughout this process, the JCIFP partners learned many lessons from which others can benefit. It is important to anticipate the amount of time and coordination necessary to identify eligible clients, conduct NEPA assessments, and schedule the work. Protecting the confidentiality of citizens with special needs can also be challenging. Careful planning and coordination to identify which partners are responsible for each task in the process can lead to an efficient and effective partnership.<sup>5</sup>

### **Collaborating to Develop a Vulnerable Populations Disaster Registry, Southwestern Oregon**

*This case study highlights an effective collaboration between emergency services, fire districts, and human services and is an example of how to develop and maintain a disaster registry of vulnerable populations.*

A massive flood event in Southwestern Oregon in 1997 spurred the Office of Emergency Services to identify strategies to plan for and meet the needs of people with disabilities. The results were a strong collaboration between agencies with no history of collaboration and a grant-funded program to perform community outreach to vulnerable populations. The program included a video, posters, and community presentations to build awareness among these populations. It also reached other residents who might be able to lend assistance to individuals with special needs.

A key outcome of the collaboration was the development of a disaster registry - a tool for emergency responders, such as the local fire stations, police, and 911 call centers. Currently, there are approximately 450 individuals enrolled in the database, which is updated quarterly. Copies of the database are given to emergency responders who can use the Geographic Information System (GIS) enabled software to produce spreadsheet lists of people within an effected area. During the Biscuit Fire of 2002, the local Emergency Operations Center used the disaster registry to locate six individuals who required assistance for evacuation and placement in assisted living facilities.

During the development phases of the project, input from local emergency responders was critical in creating a registry customized to their informational needs. In addition to data about individuals, the registry has information about assisted living centers, hospitals, and mental health group homes. After the initial investment of time and resources to develop the registry, it is now supported almost entirely by volunteers, including a volunteer coordinator. Many of the volunteers are enrolled in the registry themselves. Each quarter, volunteers call or send e-mail to remind people to update their information in the registry.

Residents in two counties can volunteer information for the registry; although intended for people with special needs, there is no screening of applicants. The criteria are simple: anyone who can't evacuate himself, or provide shelter in his home for at least three days, or who needs special notification (a person with cognitive disability) can register or be registered by a care provider. Connie Saldana with the Rogue Valley Council of Governments offers these tips for communities interested in developing their own disaster registry of vulnerable populations:

- Before beginning the project, be certain that the community has the capacity

<sup>5</sup> Josephine County Integrated Fire Plan Annual Report and Updated Action Plan. 2006. Resource Innovations.

to maintain the data in the registry. Inaccurate information is worse than no information.

- Social service providers in the community are important partners for outreach and education about the registry. It is crucial to meet with social service agency staff for their input on the project. Meet with emergency responders for recommendations on what information to collect.
- Outreach through public service announcements, newspaper advertisements, and community gatherings keeps people aware of the registry.
- Incorporate the disaster registry into table-top exercises so that emergency management staff become familiar with available data and establish how to use them if necessary.



Firewise photo

### **Building Collaborative Relationships through the Firewise Communities USA Program, Utah**

*This case study illustrates an avenue for building collaborative relationships between wildland/urban interface (WUI) residents and wildfire management practitioners.*

Throughout the United States, many communities have taken steps to mitigate their risk to wildfire by organizing a community board, developing a community fire plan, and investing time and resources in local wildfire mitigation projects. Through these steps, communities can become a “Firewise-recognized community” through the Firewise Communities USA program. As of March 2008, 316 communities have earned recognition status across the United States.

Recognition status does yet not entitle the community to special benefits. However, the process builds collaborative relationships, community pride, and ownership over wildfire management issues. In the future, recognition status may have implications for access to wildfire mitigation grant funds or become a requirement for obtaining homeowner’s insurance.

In Utah, the community of Sundance was one of the first participating communities to earn recognition status in 2002. Community members have since participated in efforts to create defensible space, raise funds for the use of a wood chipper, replace wood shake roofs with fire-resistant materials, reduce fuels along primary evacuation routes, purchase warning sirens, develop an emergency phone tree, and conduct a mock evacuation exercise. Many of these projects involved collaborative partnerships with agencies, such as the Division of Forestry and State Lands, U.S. Forest Service, the county fire chief, sheriff, and the local chapter of the American Red Cross.

Although there are only three recognized communities in the state at present, the state Firewise coordinator anticipates that 100 additional communities could earn recognition status by fall 2008. This dramatic increase can in part be attributed to the efforts of the staff of the Division of Forestry, Fire, and State Lands, who have worked hard during the off-season to reach out to WUI communities. According to the state Firewise coordinator, these participating communities represent a broad socioeconomic spectrum, including ten to fifteen communities at the lowest end of the income scale. The coordinator speculates that these communities might be motivated to participate in anticipation of obtaining grant funds, should recognition status become an application criterion in the future or simply as “cheap insurance” against wildfire losses.

Often the most significant barrier for low-income communities to participation in

#### **Tips**

Seek partnerships to accomplish shared goals.





Firewise photo

a Firewise program is that they are widely dispersed, which makes community organizing difficult. But the state Firewise coordinator notes that this barrier can be overcome by having one or more “spark plugs,” i.e., community representatives who are motivated and successful at rallying other community members to the cause.

To assist community-based initiatives, the Division of Forestry, Fire, and State Lands developed a Community Fire Plan workbook (available at: <http://www.ffsl.utah.gov/firemgt/wui/cfp/CommunityFirePlan%20revision.doc>), which has since been used in the development of more than 150 Community Wildfire Protection Plans throughout the state. They are also in the process of creating a model for community-based all-hazards planning and emergency management by drawing on other programs, including FEMA’s Community Emergency Response Training (CERT) program, the National Crime Prevention Council’s Neighborhood Watch program, and the Firewise Communities USA program. This project is approximately a year from completion.



Forest Guild photo



# WILDFIRE RISK ASSESSMENT

Risk assessments are used in all types of natural hazard mitigation plans to determine the probability of a disaster and its potential for harm. Although an overall rating can identify the most vulnerable locations, understanding the component parts of a risk assessment reveal opportunities to lower risk through specific actions. Recent natural disaster research focuses on how societal conditions influence the impact of natural disasters and suggests that social, economic and political factors are as important in understanding risk and vulnerability as the natural processes that lead to disasters.<sup>6</sup>

## Measuring Community Capacity

Community capacity is a multidimensional concept that incorporates social, economic, cultural, and political attributes.<sup>7</sup> Consequently, efforts to assess community capacity in the fields of public health, economic development, and natural resource management tend to draw on measures, such as poverty, education attainment, and civic participation. Most assessments of community capacity balance quantitative and qualitative approaches. Quantitative summary data have some advantages because they are readily available and consistent across communities. But data specificity and freshness can be a problem. Qualitative assessments of capacity can provide data that are current and specific to relevant, local community issues and are potentially richer than data from secondary sources. But such assessments also require more time and resources to conduct. Regardless of the choice of measures, involving the CWPP planning team in the process will ensure that the indicators are locally relevant. Appendix A provides detailed methods to assess community capacity in the wildfire context.

## Incorporating Community Capacity in Risk Assessments

Community Wildfire Protection Plans consistently include a comprehensive wildfire risk assessment of biophysical factors that are needed to identify priority fuels reduction projects. Although there has been much research on the interactions between weather, fuels, and fire behavior, less is known about the social factors that contribute to wildfire risk and resilience. Collectively these social factors can be described by the related concepts of social vulnerability and community capacity. Whereas social vulnerability refers to factors that increase the probability and magnitude of harm, community capacity is the ability to adapt and respond to change. When communities are threatened by wildfire, these adaptations and responses include actions to prepare and respond to a wildfire and steps to rebuild and recover after a wildfire. Thus, in the context of wildfire planning, understanding community capacity is critical to developing effective strategies and allocating resources within a planning area with diverse communities.<sup>8</sup>



Forest Guild photo

6. E. Haque and D.Etkin. 2007. "People and community as constituent parts of hazards: The significance of societal dimensions in hazards analysis." *Natural Hazards* 41(2):271-82.

7. E.M. Donoghue and V.E. Sturtevant. 2007. "Social Science Constructs in Ecosystem Assessments: Revisiting Community Capacity and Community Resiliency" *Society and Natural Resources* 20:899-912.

8. A. Evans, M. DeBonis, E. Krasilovsky, and M. Melton. 2007. *Measuring Community Capacity to Resist and Repair After Wildfires*: Forest Guild.

## Tips

- Incorporate existing data on vulnerable populations.
- Develop a list of locally relevant indicators to identify low capacity communities.

## Tips

Develop a map illustrating low capacity communities in relationship to high risk areas.

Indicators of community capacity could improve current risk assessments and wildfire planning efforts in two ways. Planning teams would have access to objective information to aid in developing strategies tailored to community needs. Also, agencies would have objective criteria to prioritize the allocation of resources to low-capacity communities in high fire-risk areas.

## Case Studies

### Developing an Index of Community Capacity, Forest Guild, NM

*This case study illustrates a method for measuring community capacity using secondary data that could be used in a Community Wildfire Protection Plan. The data could also be used to identify challenges to community involvement in the broader issue of forest management in WUI communities.*

In 2007, The Forest Guild in New Mexico developed a methodology to measure community capacity based upon a suite of indicators, such as poverty, unemployment, education, and language skill, which are readily available from secondary data sources (Appendix A). The Guild has since worked to promote the use of the community capacity measures in CWPP planning processes.

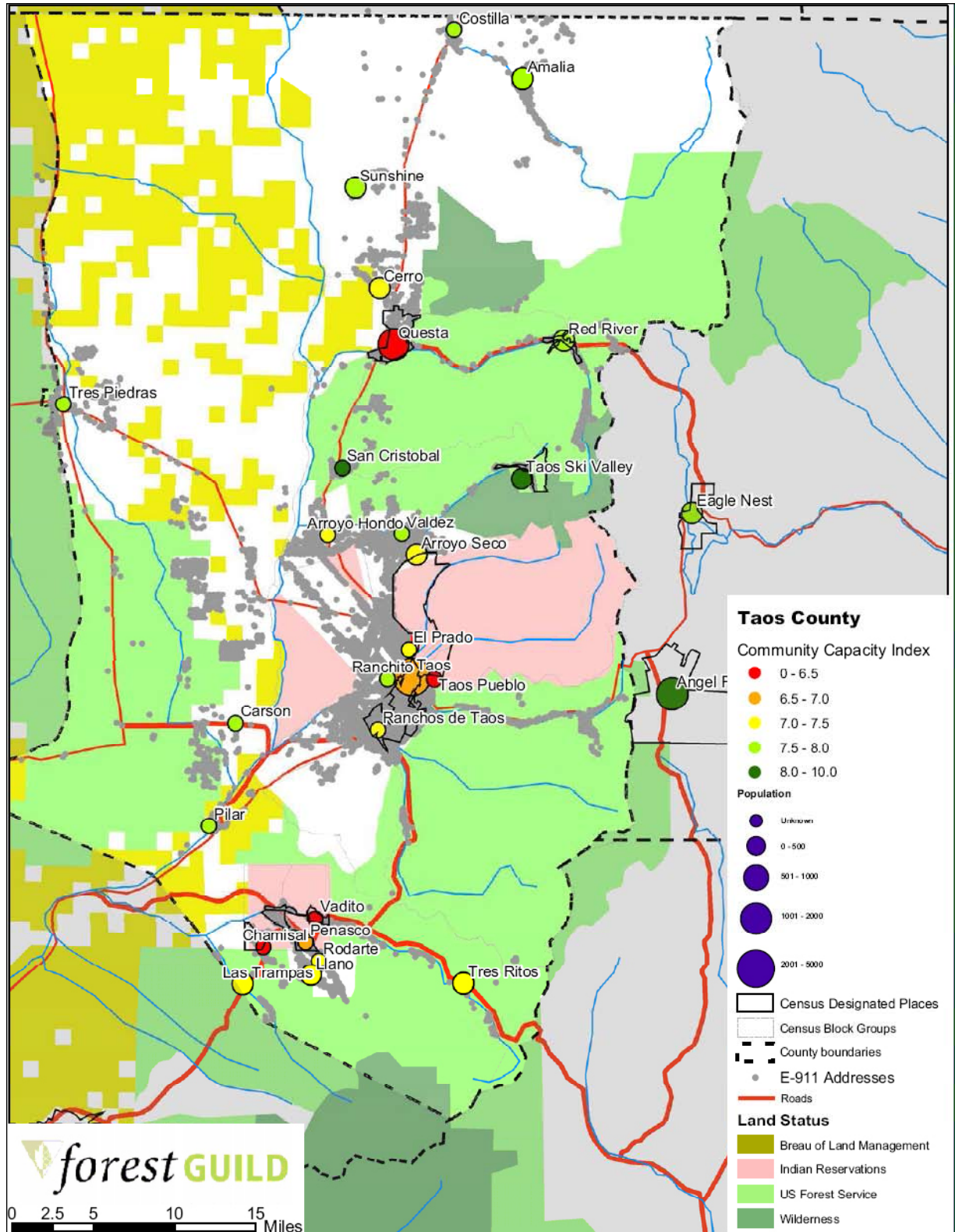
The CWPP planning team for Taos County, NM was the first to incorporate the Guild's *Index of Community Capacity to Prepare for Wildfire* (ICCPW). Using census data and voter turnout records, the Guild developed a map of the ICCPW by census-designated places (CDP) (figure 1). Although the initial reaction from the planning team was supportive, in practice, the CWPP maps of priority fuels treatments did not ultimately reflect community capacity. Instead, they were based on WUI geography. The Guild recommended that the plan consider the relative capacities of all communities within the plan area and consider how communities with different capacities would be able to implement the recommended actions. This process highlighted the importance of engaging all CWPP stakeholders in discussions about socioeconomic indicators and community capacity at the outset of the planning process to gauge acceptance and increase interest and commitment for using capacity indicators within the risk assessment.

Researchers at the Forest Guild noted that the ICCPW may not adequately measure social capital – the component of community capacity that includes community cohesion, the strength of social networks, and other such qualities that are difficult to gauge from quantitative data. Using the ICCPW as a starting point, a community discussion about these aspects could benefit future planning.

### ***Community Capacity beyond Fire Planning***

The community capacity index developed by the Forest Guild has utility beyond the wildfire context. The Gifford Pinchot Task Force (GPTF), a nonprofit organization that promotes preservation and restoration of ecosystems and communities, incorporated the community capacity index into its restoration plan, “Restoring Volcano Country.” The Guild assisted the GPTF by creating maps that used the ICCPW at the census block group level. Instead of using the ICCPW to estimate the capacity of communities to protect themselves from wildfire, GPTF used the ICCPW as a first step towards understanding the ability of communities to react to changes and opportunities in national forest management. The GPTF has only recently released the restoration plan, so it is too soon to judge community reaction to the ICCPW or its ability to capture the ability of communities to respond to changing forest management. However, inclusion of the ICCPW early in the restoration planning process opens a conversation about the impact of forest management decisions on communities of differing capacities.

Figure 1. ICCPW map for the Taos County CWPP. The Forest Guild.







Firewise photo

## Identifying Low-Capacity Communities in a Community Wildfire Protection Plan, Curry County, OR

*In this case study, a survey of social services staff was used to identify locally relevant community capacity indicators to produce a map of low capacity communities. The map will be used as a tool for fire district staff and other members of the Curry Wildfire Preparation Team in implementing their CWPP.*

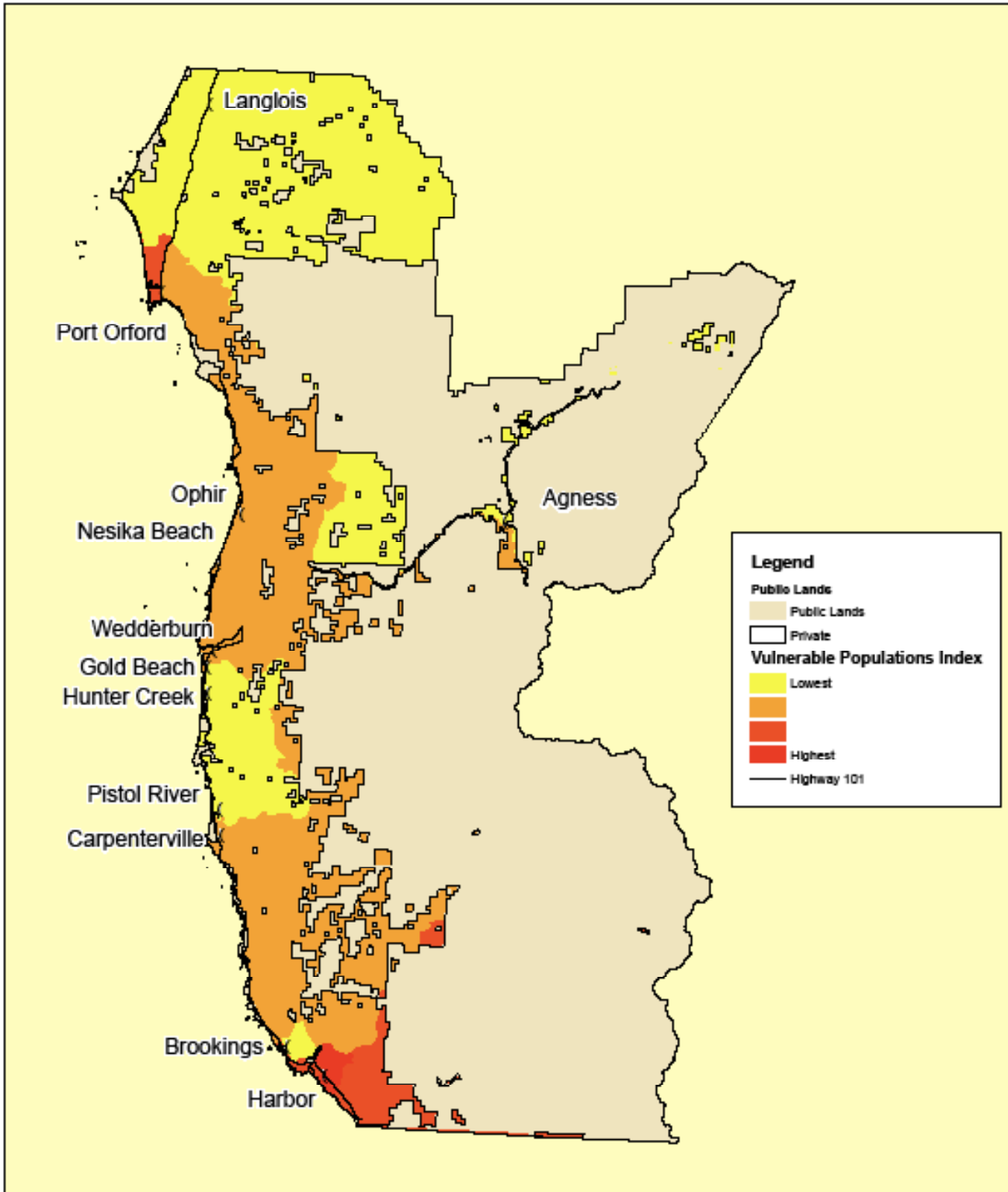
Curry County, like many of Oregon's rural counties, is characterized by small isolated communities that have been challenged by the economic downturn in the timber industry. A new influx of retirees, particularly in the southern portion of the county, has increased the median age in Curry County to the highest in the state; in fact the county is now one of the top ten counties in the nation in percent of elderly (aged 65+). A high percentage of individuals in the county have disabilities, perhaps due to the age of the population.

The Curry Wildfire Preparation Team (CWPT) sought to create a Community Wildfire Protection Plan that served the needs of low capacity communities and contracted Resource Innovations to include community capacity indicators in the planning process. Resource Innovations conducted an assessment of vulnerable populations by interviewing social services staff and used their input to identify the factors that limit capacity in the populations they serve. Study participants cited poverty, disability, and age as the principle factors that limit the capacity of their clients to prepare for, respond to, and recover from a wildfire.

Resource Innovations adapted the methodology developed by the Forest Guild and mapped an index of community capacity, based on three indicators; poverty as measured by HUD income limits, the age dependency ratio, and percent populations with disabilities. Using Geographic Information System (GIS) software, the data can be graphically displayed to highlight areas of low capacity (figure 2). Using this map in conjunction with a comprehensive fire risk assessment allows wildfire managers to target specific regions of the county where residents may need additional assistance to create defensible space and help during an evacuation.



Figure 2. Community Capacity Map for the Curry County CWPP





0 2.5 5 10 Miles

### Vulnerable Populations Map

Created by: Ryan Ojerio & Jim Wolf, February 5, 2008



This map is a public resource of general information. Use this information at your own risk. Curry County makes no warranty of any kind, expressed or implied, including any warranty of merchantability, fitness for a particular purpose, or any other matter.

## **5. VULNERABLE POPULATIONS**

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An assessment of vulnerable populations helps communities understand which citizens in their community have special needs, the risks they face from natural disasters, and the strategies needed to help them prepare for, respond to, and recover from disasters. This type of assessment varies by community. As shown by Hurricane Katrina in 2005, children, the poor, elderly, people with mental or physical disabilities, and minority populations have special needs that are critical to address.

An assessment of vulnerable populations that draws on local knowledge is a tool for communities to use to prepare at-risk populations for natural disasters. Although there is no formal structure for its use, a vulnerable populations' assessment can help people with disabilities, or those who have additional risks prepare for and reduce the likelihood of loss from natural disasters. Beyond its use as an emergency preparedness tool, the data contained in an assessment of vulnerable populations can be integrated into hazard mitigation plans and included in grant applications for emergency management funds.

### **Identifying Vulnerable Populations**

From: *Conducting a Special Needs Assessment*. 2006. Resource Innovations. [http://ri.uoregon.edu/publicationspress/cce/special\\_needs\\_assessment\\_Bollig&Lynn.pdf](http://ri.uoregon.edu/publicationspress/cce/special_needs_assessment_Bollig&Lynn.pdf)

The guide provides guidelines and a process for conducting a vulnerable populations' assessment. The methodology relies on the valuable insights of social service providers about populations in the community that have special needs and the factors that increase their vulnerability to natural disasters.

An inventory and subsequent interviews with social service and public health agencies and other community service organizations can lead to a stronger understanding among these agencies of the perception of disaster risk. An inventory and interviews provide greater awareness of citizens with special needs. Coordination with social service and community groups can result in increased collaboration with emergency managers. Risk reduction measures can be targeted for such vulnerable populations.

The assessment process has three components:

1. identify populations in your community who have special needs;
2. understand the risks faced by special needs populations and their needs in relationship to disaster management; and
3. design and direct emergency management and communication strategies, education and outreach processes, and risk-reduction efforts to meet the needs of vulnerable populations.

A well-crafted interview script with questions that cover each of these components will ensure a productive interview. See Appendix B for a sample interview script. However, the questions should be open-ended and allow the conversation to follow relevant tangents. Initially it may be difficult to create a complete list of potential interviewees. However, social service agencies often network with other agencies and nonprofit organizations in their community, and initial interviewees provide contact information for additional potential participants.

## Developing Actions to Assist Vulnerable Populations

The risk assessment and the vulnerable populations' assessment go hand-in-hand towards helping the Community Wildfire Protection Plan planning team understand who requires special assistance, where they are located, and what type of strategies might be effective. When this information has been compiled, the planning team can build a number of actions into the CWPP. Although communities may consider these assessment steps in the context of a CWPP, a vulnerable populations' assessment can be applied to a broad range of natural hazards and disaster events.

- **Create a vulnerable populations' registry** that keeps a record of people in the community with special needs. This type of registry can be invaluable for emergency managers to use to ensure that people with special needs receive needed assistance in a disaster.
- **Develop evacuation routes and ensure access to transportation** for individuals during natural disasters. Also identify shelters to ensure people's safety during catastrophic events.
- **Create emergency kits** for vulnerable citizens to encourage their safety during natural disasters. Important considerations include appropriate materials for different types of disaster and the length of time the kit must sustain the individual.
- **Conduct training** for social service agencies to prepare for emergencies. Use education as a forum for agencies to educate their own employees and facilitate emergency information to clients.
- **Develop education and outreach programs** to help vulnerable populations understand risks that natural disasters pose in relation to where they live. Assist people to create plans for preparing and developing evacuation plans for such events. Conduct informative sessions in social service agencies, schools, and other community locations. Use public campaigns and other appropriate venues to reach target audiences. Outreach media must employ audio, visual, and tactile methods.
- **Strengthen communication strategies** to keep vulnerable populations informed about what to do in a natural disaster. Establish a plan that uses effective methods to ensure that the vulnerable population receives adequate notice of impending natural disasters.
- **Identify specific mitigation actions** to help special-needs citizens prepare for disasters before they occur. Examples include targeting grant funding for disaster-resistant building materials, defensible space (in the case of wildfire), or seismic retrofitting work in assisted-living facilities in case of earthquakes.



USDA photo

## Case Studies

### Identifying Vulnerable Populations in Jackson County, OR

Excerpted from the *Jackson County Integrated Fire Plan*. 2007. Resource Innovations. [http://www.co.jackson.or.us/Files/JaCIFP\\_final%20version\\_2-2007.pdf](http://www.co.jackson.or.us/Files/JaCIFP_final%20version_2-2007.pdf)

During the development of the Jackson County Integrated Fire Plan (JaCIFP), JaCIFP partners contracted Resource Innovations to conduct a vulnerable populations' assessment. The process revealed important information about perceptions of wildfire risk, challenges to assisting vulnerable populations, and ultimately created strategies in the plan to address those challenges.

Resource Innovations reviewed online resources, a Jackson County social service directory, and talked with the Rogue Valley Council of Governments to identify a sample of social service agencies to participate in the survey. Many of the people served by those social service agencies are low-income, elderly, have mental and physical disabilities, or language barriers.

Throughout the process, Resource Innovations coordinated with the Jackson County Vulnerable Populations Committee, which provides emergency management planning assistance to social service agencies that serve elderly and disabled citizens.

Many of the social service agencies were not aware that the people they serve may be at risk from wildfire. They agreed that because wildfire is not an immediate concern for their clients, they are probably not prepared for wildfire risks. Most agencies agreed that educating these households about the risks of a wildfire is critical. Social service agencies reported that they currently do not have such information available for their clients. About 50 percent of the agencies reported they are not focusing their efforts on educating their clients about the risk of wildfire risk because of more pressing issues. Study participants cited a lack of funding as a key challenge.

Other findings from the study revealed a need to work more closely with social service agencies to promote awareness of programs that serve vulnerable populations. These include a local disaster registry and a program to fund fuels reduction offered by the Oregon Department of Forestry.

Ultimately the findings from the study contributed to the development of eleven actions that address education and outreach, emergency management, and fuels reduction issues. Social service agencies that participated in the study developed a better understanding of wildfire risk and ways that they could collaborate with JaCIFP partners to implement the CWPP.

Since the completion of the CWPP, the Vulnerable Populations Committee has initiated the development of a vulnerable populations 'annex' to the county Emergency Operations Plan. In addition, the committee has sponsored an Incident Command System (ICS) training and submitted a grant to fund outreach and education to vulnerable populations, including Spanish language marketing materials.

### Tips

- Capitalize on opportunities to improve emergency response capacity for all types of hazards.
- Engage social service providers in assessing issues and opportunities that are relevant to vulnerable populations.



Firewise photo



## Defensible Space for Vulnerable Residents in Walker Range, OR

*In this case study, assisting vulnerable populations with fuels reduction work is part of an effort to support community-based wildfire preparation.*

The Walker Range CWPP serves several community clusters located in central Oregon in Northern Klamath County. The communities in the plan area are small, isolated, rural towns surrounded by public land or private industrial forestlands.<sup>9</sup> The Walker Range Forest Protection Association (WRFPA), using National Fire Plan (NFP) funds, has successfully assisted vulnerable populations to create defensible space around their homes since 2003. The program serves low-income senior citizens and people with disabilities. The guideline for eligibility is an income that is less than \$20,000. Most applicants learn of the program through word of mouth, but the WRFPA also advertises via a brochure, public service announcements on the local radio, and in newspapers.

After an applicant has been approved, WRFPA staff conducts an initial consultation to evaluate the property and discuss the treatment with the resident. The appropriate agency representatives, either BLM or USFS are also involved to satisfy any NEPA requirements. WRFPA staff return to do the fuels reduction work, which can involve a half-day to three days, depending on the condition of the property. Regardless of the size of the job, the work is free to the residents.

Although the WRFPA absorbs administrative costs through its general operating budget, the cost of their labor at the site is covered by the NFP grant funds. As NFP grant requirements become more stringent, the WRFPA may be required to demonstrate a 50% match, but the staff anticipates being able to continue operating the program as long as NFP funds are available.

The WRFPA offers additional services, including neighborhood evaluations and free chipping to residents who create their own defensible space. According to the WRFPA grant coordinator, their pro bono work for vulnerable populations often serves as a catalyst for other residents in the neighborhood to follow suit and take advantage of the free chipping and consulting services that WRFPA offers to all residents.

### Tips

- Provide technical assistance, grant resources, and other support to high risk, low capacity communities.
- Monitor and evaluate efforts in low capacity communities and among vulnerable populations.

<sup>9</sup> Walker Range Community Wildfire Protection Plan. July 2005. <http://www.odf.state.or.us/AREAS/eastern/walkerrange/CWPP.asp>



Josh McDaniels photo

## APPENDIX A: METHODS FOR ASSESSING COMMUNITY CAPACITY

This section describes two efforts to incorporate community capacity indicators into wildfire risk assessments. The first describes the relationship between wildfire and poverty on a national scale, and the second focuses on development of an index of community capacity at a local level. Both efforts provide insights into the challenges of using community capacity indicators in risk assessments.

### *Poverty as a Proxy for Community Capacity*

In 2005, Resource Innovations and the National Network of Forest Practitioners produced a study titled *Mapping the Relationship between Wildfire and Poverty*. Using Department of Housing and Urban Development (HUD) income limits as an indicator of poverty, the study found that, across the United States, there are more poor households in close proximity to federal lands, and a higher percentage of poor households are in inhabited wildland areas not considered part of the Wildland Urban Interface (WUI). Given the choice between HUD data and census data on the federal poverty level, the author chose the HUD data. The methodology to derive the HUD measure includes adjustments for the cost of housing and is thus a more comprehensive indicator of poverty. Poverty may be a good measure of financial capability, but it represents only part of the overall concept of community capacity. Nonetheless, identifying areas where high risk of wildfire and high poverty rates overlap is useful for locating where limitations to community capacity could be an issue in preparing for wildfire. The study is available at: [http://www.uoregon.edu/~cwch/publicationspress/firepovertydraft\\_11-21-05.pdf](http://www.uoregon.edu/~cwch/publicationspress/firepovertydraft_11-21-05.pdf)

### *Development of a Community Capacity Index*

Researchers with the Forest Guild in New Mexico took a different approach by identifying capacity indicators from a synthesis of literature and creating an Index of Community Capacity for Protection from Wildfire (ICCPW) to rank capacity across communities in planning efforts. Their report, *Measuring Community Capacity to Resist and Repair after Wildfires*, describes their methodology, limitations and application in a local fire planning effort. The ICCPW is composed of nine equally weighted indicators that integrate social, human, financial and political capital into a single measure. Eight of the indicators come from Census data and one comes from state voter records. The study's authors acknowledge the limitations of the ICCPW including the spatial scale of census data and the difficulty of capturing qualitative aspects of capacity such as social capital. They recommend using the ICCPW in combination with local knowledge in developing strategies to mitigate fire risk. The report is available at: [http://www.forestguild.org/publications/research/2007/community\\_capacity\\_wildfire.pdf](http://www.forestguild.org/publications/research/2007/community_capacity_wildfire.pdf)

### *Indicators of Community Capacity*

Ideal community capacity indicators would yield information that is current, objective, and comparable across communities. It is also helpful if the indicators can be linked to a geographic location of appropriate scale (i.e., census block, county, state, or national) through maps and/or GIS data layers. The table below lists indicators used in the *Index of Community Capacity to Prepare for Wildfire*.

**Table 1. Index of Community Capacity to Prepare for Wildfires (ICCPW)<sup>1</sup>**

Indicator	Data Source	Concept Measured
Age dependency ratio	U.S. Census	Social Capital
Percent without disabilities	U.S. Census	Social Capital
Female-only-headed households	U.S. Census	Social Capital
Percent with high school diploma	U.S. Census	Human Capital
Percent employed	U.S. Census	Human Capital
Percent English speakers	U.S. Census	Human Capital
Median income	U.S. Census	Financial Capital
Poverty (% of households below poverty line)	U.S. Census	Financial Capital
Voter turnout	Secretary of State	Political Capital

There is a tradeoff between a complex index of many facets of community capacity and an assessment based on one or two indicators. As the number of indicators increases, the index may cover more of the factors that combine to form community capacity, but it also becomes more complex. Less complex measures are easier to keep up to date, communicate to an audience of laypersons, and relate to specific actions in a Community Wildfire Protection Plan. Another tradeoff is deciding on an appropriate area for analysis. In a predominantly rural county, census-designated places (CDP) data were not available for all communities in the county because of their small populations. Therefore, the Forest Guild chose to use Census Block Groups (CBG) to map community capacity in the county. The Guild scaled the CBG data at the county level, emphasizing community capacity differences within the county. However, CBGs cover relatively large areas in sparsely populated counties, so communities of varying capacity might be combined into one CBG. To validate the ICCPW analysis, the Forest Guild recommends working with the planning team and using its local knowledge to “ground truth” the analysis findings and adjust if appropriate. When the data have been assembled and calculated, communities can be ranked from high to low capacity or grouped by classes of high, medium, and low; in either approach, the ICCPW provides a solid starting point.

## **APPENDIX B: SAMPLE QUESTIONS FOR A VULNERABLE POPULATIONS' ASSESSMENT**

This interview script may be tailored for use in a local-level vulnerable populations' assessment using focus groups or individual interviews with social service providers who work in the community.

### **General Background**

- What populations do you serve?
- What services do you provide to your clients?
- How many employees does your agency/organization have?
- How are you funded?
- In what part of the county are they located (cities, rural areas, fire districts, etc.)?
- Are your clients predominantly renters or homeowners?
- How many people does your organization serve?

### **Eligibility Requirements**

- What indicators or guidelines do you use to determine eligibility for the services or programs that you offer (e.g., age, disability, per cent of the federal poverty line, HUD income limits)?
- What methods would you use to encourage awareness of natural disasters (e.g., marketing and outreach)?

### **Disasters and Vulnerability**

- Which disasters do you consider to be an important concern and risk to your community?
- What kind of barriers/limitations do you think your clients may experience in terms of natural disasters?
- What needs do your clients have to reduce their risk to natural disasters?
- What are the best strategies for educating the population you serve about disaster preparation?
- What could your agency/organization or other social service organizations do to help your clients reduce their risk to natural disasters?
- Do your clients have needs that relate to the reduction of their risk to natural hazards?
- Do you recommend other social service agencies with whom we should talk?

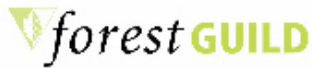
1 *Measuring Community Capacity to Resist and Repair after Wildfires*. 2007. Forest Guild, New Mexico.

2 *Mapping the Relationship between Wildfire and Poverty*. 2005. Resource Innovations and the National Network of Forest Practitioners.



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