
# Walker Range
# Community Wildfire Protection Plan

# 2012

A Partnership Update.

A special acknowledgement to Klamath County Commissioners Al Switzer, Cheryl Hukill, and Dennis Linthicum for providing funding for project costs through PL 106-393 Title III "Secure Rural School and Community Self-Determination Act of 2000".

# Walker Range Community Wildfire Protection Plan
# Executive Summary

## Purpose

The Walker Range Community Wildfire Protection Plan (CWPP) was originally written in 2005 and updated in 2010-2011. The Steering Committee developed an action plan and performance measurers, which will be assessed annually during the local regional group convenes. The action plan details the action needed including hazardous fuels reduction, community infrastructure development, defensible space, fire readiness and prevention education. Funding for the update was provided by the Klamath County Commissioners from the Secure Rural Schools Title III Program.

Wildland fire is a natural part of the ecosystems of central Oregon. It has shaped the forests and rangelands valued by the area's residents and visitors. However, the forests and rangelands in Walker Range have been significantly altered. The area's forests are a mosaic of private, public, and industrial forestland. Decades of logging, grazing, and fire suppression have increased forest fuels, in some cases resulting in more closed, thicker forests that tend to burn more intensely than in the past. Much of the private industrial timberlands, however, tend to be more open due to past harvests. In addition, recent population growth has led to more residential development close to the forests, in what is called the wildland urban interface (WUI). To address these issues, a multi-jurisdictional group of agencies, organizations, and individuals have collaborated to develop the Walker Range Community Wildfire Protection Plan (CWPP).

The Walker Range CWPP is a district-wide strategic assessment of the risks, hazards, mitigation and prevention opportunities associated with wildfire in our communities. Although reducing the threat of wildland fire is the primary motivation behind this plan, managing the forests and rangelands for hazardous fuel reduction and fire resilience is another part of the larger picture. Residents and visitors alike want healthy, fire-resilient forests that provide habitat for wildlife, recreation opportunities, and scenic beauty.

The plan outlines a strategy, identifies priorities for action, and suggests immediate steps that can be taken to protect the communities from wildland fire while simultaneously protecting other important social and ecological values.

The goals of the Walker Range CWPP are to:

- Increase public understanding of living in a fire-adapted ecosystem
- Instill a sense of personal responsibility for taking preventative actions regarding wildland fire
- Restore fire-adapted ecosystems
- Improve the landscape's fire resilience while protecting other social and ecological values

To achieve these goals, the plan contains several objectives, including:

- Assess the risk and hazard of wildland fire on all lands within the plan boundary
- Identify priorities for fuel reduction projects
- Examine emergency operations within the plan area and identify areas to improve community response and preparedness for wildland fire
- Create an action plan that prioritizes actions to reduce hazardous fuels, enhance emergency response, and strengthen public education and prevention activities

The Walker Range CWPP integrates information from a variety of sources to present a comprehensive picture of risk and possible treatments on the landscape and enable community organizations and their partners to act in a coordinated fashion. A completed plan also allows the adjacent federal land management agencies to make use of the recent expedited authorities provided by the Healthy Forest Initiative (HFI) and the Healthy Forest Restoration Act (HRFA). In addition, for communities seeking federal grant funding from the National Fire Plan, a completed community wildfire protection plan has become a *de facto* requirement. Lastly, developing a community wildfire protection plan is a powerful tool to help get local residents and visitors involved in fire protection efforts.

## Planning Area Boundaries

The Walker Range CWPP is multi-jurisdictional and addresses all lands and all ownerships within the boundaries of the plan area. It includes the following communities:

- Odell Lake Summer Homes
- Crescent Lake Summer Homes
- Crescent Lake Community
- Oregon Outback
- Schoonover and vicinity
- Crescent/Gilchrist
- Wagon Trail & Vicinity
- Two Rivers/Little Deschutes River

The Walker Range plan area contains the Walker Range Forest Protective Association and the following five rural fire protection districts:

- Chemult Rural Fire Protection District
- Crescent Rural Fire Protection District
- Central Cascades Fire & EMS District
- LaPine Rural Fire Protection District
- Oregon Outback Rural Fire Protection District

## Geography and the Environment

Walker Range is located in central Oregon, in northern Klamath County, on the east side of the Cascade Mountains. The community fire protection plan boundary parallels the boundary of the Walker Range Forest Protective Association and lies within the larger area of the eastern Cascade slopes and foothills.

The plan area contains several vegetative ecosystems: the high desert dominated by western juniper, sage brush, and grasses in the east, and a transition from open dry-site ponderosa pine and lodgepole pine to mixed conifer to a sub-alpine mix of tree species near the crest of the Cascades in the west. The vegetation is adapted to the prevailing dry, continental climate and is highly susceptible to wildland fire.

## Wildland Fire Risk Assessment

The CWPP steering committee undertook a wildland fire assessment to gauge the relative risk and hazard due to wildland fire for the lands and communities within the planning area. It is a tool to direct implementation of wildfire mitigation activities to the highest priority areas and promote cross-boundary coordination. The assessment:

1) Assessed risk, hazard, fire protection capability, structural vulnerability, and values to be protected
2) Identified and ranked "communities at risk" within the plan area. These community rankings identified the priority areas for fuel reduction activities and other mitigation projects within the plan area.
3) Identified the wildland urban interface (WUI) across the plan area

The Walker Range CWPP used the risk assessment methodology from the National Association of State Forester and the Oregon Department of Forestry. The assessment considers five categories in determining the relative severity of fire risk:

- ***Risk*–** the likelihood of a fire occurring (based on past occurrences of human and lightning caused fires)
- ***Hazard*–** the conditions that hinder control of a wildland fire once it starts (fuels, slope, aspect, elevation and weather)
- ***Values*–** the people, property, natural resources, and other resources that could be lost in a wildland fire event
- ***Structural Vulnerability*–** the elements of a structure (roof type and building materials, access to the structure, and existing defensible space or fuels reduction around the structure) that affect its likelihood of burning
- ***Protection Capability*–** the ability to mitigate losses and prepare for, respond to, and suppress wildland and structural fires

## Wildland Fire Assessment Findings

### Risk

The map shows that large numbers of fires are most heavily concentrated in and around the populated areas (ex. Crescent Lake Community and Crescent/Gilchrist). Moreover, with the added risk from higher structural densities, these areas are at an even higher risk.

### Hazard

The areas of highest hazard are located around the Odell Lake, Crescent Lake, and Crescent Lake community clusters. In addition, the Schoonover and vicinity cluster contains many medium-to-high hazard level areas. Most of the communities/subdivisions themselves are at medium to high hazard, while the surrounding lands are often lower hazard. The clusters of Wagon Trail & Vicinity, Oregon Outback, Two Rivers/Little Deschutes River, and Crescent/Gilchrist contain a number of lower hazard areas outside of the subdivisions.

### Values Protected

Most of the highest risk areas for Values Protected layer are a result of high structural density areas within the at-risk communities. Clusters containing a number of high-risk areas include: Crescent Lake Community, Crescent/Gilchrist, Wagon Trail & Vicinity, and Oregon Outback.

### Structural Vulnerability

Odell Lake Summer Homes, Crescent Lake Summer Homes, Schoonover and Mahn Acres are the only subdivisions/communities rated as high for structural vulnerability. All others rate as moderate. Areas outside of the at-risk communities were not evaluated but are addressed in the action plan for structural vulnerability.

### Protection Capability

This map provides a simplistic display of the fire protection capacity of local rural fire protection districts by community cluster. The local fire professionals rated each cluster based on fire response times and community preparedness. Based on these criteria, the clusters of Crescent Lake Community, Crescent Lake Summer Homes, and Odell Lake Summer Homes show the lowest protection capability while the Crescent/Gilchrist and Wagon Trail & Vicinity cluster have the highest. A lower level of protection capability (and longer response times) translates to higher risk for the communities.

### Assessment Summary

The assessment summary map shows a combination of the five landscape layers of the assessment (risk, hazard, values protected, structural vulnerability, and protection capability). The at-risk communities in each cluster emerge as the areas with the highest risk and hazard, due to the high density of structures and the structural vulnerability ratings. However, Odell Lake Summer Homes, Crescent Lake Summer Homes, and Crescent Lake Community are the clusters that have the highest total risk values for land *directly surrounding* the subdivisions and communities within the 3-mile buffer. While the other clusters contain subdivisions and communities with areas of extreme risk, most of the adjacent lands are classified at a risk of medium or below. The tables below provide a ranking for each at-risk community and its surrounding 3-mile primary buffer.

**Assessment Community Rankings**

| Community Name | Average Score |
|---|---|
| Odell Lake Summer Homes | 205 |
| Crescent Lake Summer Homes | 195 |
| Crescent Lake Community | 190 |
| Two Rivers | 185 |
| Schoonover and vicinity | 220 |
| Wagon Trail & Vicinity | 210 |
| Oregon Outback | 195 |
| Crescent/Gilchrist | 180 |

## Action Plan Goals and Objectives

Using the risk assessment as a guide, the CWPP steering committee developed goals and objectives in a number of key areas.

### Hazardous Fuel Reduction Goals

| Community Cluster | Recommended Hazardous Fuel Reduction Actions |
|---|---|
| Crescent Lake Summer Homes | Intense treatment around structures |
| | Improve defensible space, widen driveways |
| | Improve access and evacuation routes |
| | Reduce crown bulk density, decrease likelihood of crown fire |
| Crescent/Gilchrist | Develop defensible space |
| | Control bitterbrush on Cascade Timberland |
| | Maintenance schedule for all ownerships, revisit plan in five years |
| Crescent Lake Community | Work on access, evacuation and escape routes |
| | Complete all planned fuel reduction treatments on federal lands |
| | Meet or exceed SB 360 standards around residences and structures |
| Wagon Trail & Vicinity | Treat vegetation on roadsides of Michaels Rd |
| | Build access to river in Little River Ranch for firefighting |
| | 500 ft buffer on east side of Wagon Trail Ranch (WTR) and Stagecoach |
| | Intensive treatment on BLM blocks and west side of river |
| | Improve evacuation routes for River Pine Estate (treat and maintain vegetation and sign the route) |
| | Treat west side of Little River Pines and Wildwood (Cascade) |
| | Maintain Cascade Timberland surface fuel at low levels |

| Community Cluster | Recommended Hazardous Fuel Reduction Actions |
|---|---|
| | Treat common lands and vacant lots in Wagon Trail Ranch.<br>Put in hiking trial and fire break<br>Work with homeowners to develop defensible space |
| Odell Lake Summer Homes | Treat Forest Service land up to wilderness boundary |
| | Add or improve access, evacuation and escape routes |
| Oregon Outback | Treat evacuation routes out of Forest Meadows to Split Rail, and on Michael Rd |
| | Expand existing THAW treatment buffers to 1500 feet |
| | |
| | Develop defensible space on private property around residences in interior of the subdivision |
| | |
| | Proposed treatment: homeowners and Cascade |
| Schoonover and vicinity | Treat roadsides – widen and add better signs, control brush |
| | Improve proposed evacuation routes, provide signage |
| | Complete Forest Service planned treatments |
| | Meet or exceed Senate Bill360 standards around residences and structures |
| Two Rivers/Little Deschutes | Put proposed evacuation route on west side of gates |
| | Decrease vegetation on either side of evacuation routes |
| | Treat southwest corner, use pre-commercial thinning (PCT) |
| | Treat east side with PCT |

## Hazardous Fuel Reduction Private Residential Land Goals

## Protect the safety of people, property, and natural resources from wildland fire

- Increase the ability to suppress a wildland fire in the wildland urban interface by treating hazardous fuels
- Protect and restore watersheds
- Meet landowners' objectives for forest health and restoration
- Maintain a balance of hazardous fuel reduction, aesthetics, wildlife habitat, and property values
- Priority areas for hazardous fuel reduction treatments in the wildland urban interface include:
  - Defensible space around homes and structures
  - Add or improve access, evacuation and escape routes
  - Roadside fuel reduction treatments along main transportation corridors
- Meet or exceed the standards set by Senate Bill 360
  - Establish a fuel break around structures
  - Create fuel breaks along roadsides and property lines
  - Improve driveway access for fire trucks

Remove tree branches near chimneys and dead branches overhanging roofs

Move firewood away from structures or cover it

Remove flammables from under decks and stairways[1]

## Hazardous Fuel Reduction Private Forest Land Goals

- Focus treatments around developed home sites and access routes
- Treat fuels adjacent to subdivisions and communities identified as high priority in the wildland fire assessment
- Decrease the risk of uncharacteristic wildland fire behavior by decreasing hazardous fuels to create flame lengths less than four feet
- Treat dense seedlings, saplings and pole stands and contiguous bush to a condition that can be maintained by mechanical means in treatment buffers adjacent to identified communities at risk
- Continue to meet existing standards for multiple objectives (Oregon Forest Practices Act and federal requirements under grant payments)
- Protect adjacent properties and resources from a wildland fire that originates on private forestland
- Meet landowner's objectives for forest health and restoration
- Add or improve access, evacuation and escape routes

## Hazardous Fuel Reduction Federal Land Priority Goals

- Focus hazardous fuel reduction treatments in the wildland urban interface around communities identified as high risk by the wildland fire assessment.
- Reduce hazardous fuels with the goal of achieving Condition Class 1 while protecting and enhancing key ecological and social values associated with the areas.

  Establish maintenance program to address future fuel build-up

  Address on a landscape, not acre by acre
- Decrease the risk of uncharacteristic wildland fire behavior by reducing hazardous fuels in order to achieve flame lengths less than four feet

  Reduce crown fire potential
- Continue to meet existing standards for multiple objectives (Wild and Scenic Rivers, Endangered Species Act, National Environmental Policy Act, etc.)
- Protect private property, tribal property, and natural resources
- Protect and restore watersheds
- Add or improve access, evacuation and escape routes
-

[1] Oregon Forestland-Urban Interface Fire Protection Act, *Property Evaluation and Self-Certification Guide for Deschutes County,* August 2004.

## Fire Protection Capacity Goals

The primary goal of fire protection capacity is to improve communities' ability to prepare for and respond to wildland fire events. Much of the effort to develop the goals and actions regarding community fire protection capacity was completed by the Fire Protection Capacity Working Group. The working group developed the following broad goals:

- Improve and expand ability to deliver water for fire suppression
- Improve and maintain communication between all jurisdictions
- Improve the ability of the rural fire protection districts to respond to wildland and structural fires
- Improve emergency access AND ESCAPE routes
- Improve residential and street signage
- Encourage compliance with state and local fire codes (e.g. SB360 and Klamath County Article 69)

## Education

- Increase homeowner responsibility
  - Increase level of compliance with SB 360 and Klamath County Article 69
  - Increase responsibility for treating vacant lots
  - Improve home addressing, evacuation route signage
  - Increase local residents' and visitors' understanding of living with wildland fire
  - Increase and enhance existing education programs
- Improve web page
  - Post CWPP plan on the web
  - Get information to local builders/zoning officials
- Keep working with education cooperatives
  - Provide education kits for local rural fire protection districts
  - Educate people about noxious weeds and how to address them
  - Recognize need for long-term maintenance
- Distribute the Defensible Space Checklist at appropriate opportunities (see Appendix D)

## Structural Vulnerability

- Increase the fire-safe characteristics of structures within the plan area
- Increase the likelihood of communities and structures surviving a wildland fire
- Meet or exceed the standards set for Senate Bill 360 and Klamath County Article 69
  - Establish a fuel break around structures
  - Create fuel breaks along roadsides and property lines
  - Improve driveway access for fire apparatus and equipment

Remove tree branches near chimneys and dead branches overhanging roofs

Move firewood away from structures or cover it

Remove flammables from under decks and stairways

Implement neighborhood recognition award for property owners who comply with SB360 and Article 69

## Social and Ecological Values to be Protected

- Protect life and property while maintaining and enhancing the communities' sense of place
- Protect the areas and locations that are important to the community and visitors historic, cultural, ecological, and economic values
- Meet existing federal and state standards for natural resource protection
-

## Biomass Utilization

- Support increased local and regional manufacturing capacity to utilize and add economic value to woody biomass
- Support the implementation of the Coordinated Resource Offering Protocol (CROP) in Central Oregon
- Support the development and implementation of the Business Alliance for Sustainable Energy (BASE)

## Implementation

- Evaluate progress toward meeting goals
- Set priorities
- Update goals and maps
- Review grant opportunities

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**CHAPTER 1**

# Executive Summary

The Walker Range forest Protective Association Community Wildfire Protection Plan (CWPP) was originally written in 2005 and updated in 2010-2011. The current CWPP contains 8 community clusters and 56 residential communities. The steering committee will assess fuel treatments, prevention efforts, and fire readiness and community infrastructure development annually. Annual reviews will be conducted every year and a review and risk assessment analysis completed every five years.

# Introduction

The Walker Range Forest Protective Association Community Wildfire Protection Plan (CWPP) is a district wide strategic assessment of the risks, hazards, mitigation and prevention opportunities associated with wildfire in our communities. This plan was initially developed in 2005 and updated in 2010-2011. Funding for the update was provided by The Klamath County Board of County Commissioners from a Secure Rural Schools Title II Program. The CWPP will be reviewed annually to identify changes or updates; evaluate effectiveness of coordination between cooperating agencies, community groups and neighborhoods; evaluate progress in meeting specific performance measures; and will adjust any monitoring protocols as needed. Coordination and communication will be the critical operative requirements. The CWPP Steering Committee will conduct a thorough review and risk assessment analysis every 5 years.

# Purpose

The purpose of the CWPP is to indentify communities at risk, identify what constitutes the risk, and develop an action plan to mitigate the risk thereby providing for a community that is more resilient to the effects of wildland fire.

Wildland fire is a natural part of the ecosystems of Central Oregon. It has shaped the forests and rangelands valued by the area's residents and visitors. However, the forests and rangelands in Walker Range have been significantly altered. The area's forests are a mosaic of private, public, and industrial forestland. Decades of logging, grazing, and fire suppression have increased forest fuels, in some cases resulting in more closed, thicker forests that tend to burn more intensely than in the past. Much of the private industrial timberlands, however, tend to be more open due to past harvests.

In addition to denser forests, more people now live and recreate in or near forestlands. Recent population growth and increased residential development close to the forests in the wildland urban interface (WUI) have significantly increased the risk and potential losses from wildland fire.

This plan promotes two broad concepts: intergovernmental cooperation and personal responsibility. First, the plan is envisioned as a way to coordinate hazardous fuel reduction

treatments across boundaries because wildland fires pay no attention to our boundaries. The development of the Walker Range Community Wildfire Protection Plan (Walker Range CWPP) has been a multi-jurisdictional collaborative effort and implementation will continue in the same vein.

Second, this plan seeks to promote better understanding of living in a fire-adapted environment and promote personal responsibility for taking preventative action. It is hoped that with education by example and incentives, residents will take the steps necessary to protect their homes and property from wildland fire. By working together, citizens, government, and the private sector can create fire resilient communities in the Walker Range area.

Although reducing the threat of wildland fire is the primary motivation for this plan, managing the forests and rangelands for hazardous fuel reduction and fire resilience is only one part of the larger picture. Residents and visitors alike want healthy, fire-resilient forests that provide habitat for wildlife, recreation opportunities, and scenic beauty. The forests and rangelands in and around the communities in Walker Range contribute significantly to the community's sense of place. Balancing the need for fuel reduction with protecting and enhancing the sense of place unique to the Walker Range is also an important goal of the wildland fire protection plan.

The purpose of the Walker Range CWPP is to protect human life and reduce property loss due to wildland fire in lands within the plan area. The boundary of the plan parallels the boundary of the Walker Range Forest Protective Association. The plan outlines a strategy, identifies priorities for action, and suggests immediate steps that can be taken to protect the communities from wildland fire while simultaneously protecting other important social and ecological values.

## Why a Community Wildfire Protection Plan?

Currently, there is no law that requires communities to develop community wildfire protection plans. Beyond the inherent logic of working together to coordinate fuel reduction treatments, education and prevention programs, and emergency preparedness activities, the development of a community wildfire protection plan is opportunistic and strategic. It allows communities and their federal land management partners to act more quickly and effectively.

A community wildfire protection plan provides several concrete benefits. It brings together a large volume of information to present a comprehensive picture of risk, hazard, emergency preparedness and possible hazardous fuel reduction treatments across the landscape. This enables community organizations and their partners to act in a coordinated fashion. A completed plan also allows the adjacent federal land management agencies to make use of the recent expedited authorities provided by the Healthy Forest Initiative (HFI) and the Healthy Forest Restoration Act (HRFA). In addition, for communities seeking federal grant funding from the National Fire Plan, a completed community wildfire protection plan has become a *de facto* requirement. Lastly, a plan is a powerful tool to help get local residents and visitors involved in fire protection efforts. For more on fire plan policies and programs see Appendix A.

In April 2004, the first version of the Walker Range Forest Protective Association CWPP was completed. This plan was a collaboration between Walker Range FPA, Crescent Rural Fire District, Central Cascades Rural Fire District, Chemult Rural Fire District, Oregon Outback Rural Fire District, Lapine Rural fire District, the USDA Forest Service – Crescent Ranger District, Bureau of Land Management (BLM), and Cascade Timberlands. The plan includes the communities and residences within the Walker Range Forest Protective Association boundary, as well as other nearby neighborhoods (see Walker Range CWPP Boundary Map).

## Walker Range CWPP Mission Statement

The mission of the Walker Range CWPP is to reduce the loss to life, property, and natural resources from wildland fire in the communities within the plan.

The goals of the plan are to:

- Increase public understanding of living in a fire-adapted ecosystem
- Instill a sense of personal responsibility for taking preventative actions regarding wildland fire
- Restore fire-adapted ecosystems
- Improve the landscape's fire resilience while protecting other social and ecological values.

To achieve these goals, the plan contains several objectives including:

- Assess the risk and hazard of wildland fire on all lands within the plan boundary
- Identify priorities for fuel reduction projects
- Examine emergency operations within the plan area and identify areas to improve community response and preparedness for wildland fire
- Create an action plan that prioritizes actions to reduce hazardous fuels, enhance emergency response, and strengthen public education and prevention activities

## Organization of the Plan

The plan is organized into six chapters and several appendices.

**Chapter 1 (Introduction)** describes the mission and intent of the Walker Range CWPP. This chapter also describes how the plan was developed, who was involved, and what steps were taken during the process.

**Chapter 2 (Community Profile)** provides a brief overview of the communities and rural fire protection districts involved in the Walker Range CWPP.

**Chapter 3 (Forest Conditions and Wildland Fire)** examines the forest types, trends, and fire history for the lands in the plan area.

**Chapter 4 (Wildland Fire Assessment Methods)** illustrates the purpose and methods, of the assessment of wildland fire risk and hazard in the plan area. The chapter provides details on data sources, methods, data limitations, and future data needs.

**Chapter 5 (Wildland Fire Assessment Findings)** discusses the findings from the wildland fire assessment.

**Chapter 6 (Community Outreach)** provides a brief summary of the community priorities, values to be protected, threats, and potential actions that community residents identified through public meetings and written comments.

**Chapter 7 (Action Plan Goals and Objectives)** states the goals of the Walker Range CWPP and describes steps to achieve those goals. This section includes priorities for private residential, private industrial, public land. The action plan and objectives cover hazardous fuel reduction, fire protection capability, education, structural vulnerability, social and ecological values to be protected, biomass utilization, and monitoring and evaluation.

**Appendix A (Fire Policies and Programs)** reviews some of the key local, state, and federal laws that relate to community wildfire protection planning such, as the Healthy Forest Restoration Act and the Oregon Forestland Urban Interface Fire Protection Act of 1997 (Senate Bill 360).

**Appendix B (Wildfire Hazard Rating Form)** presents the form used by Walker Range Forest Protective Association to assess and evaluate communities' structural vulnerability to wildland fire. Table 6, Chapter 5.

**Appendix C (Defensible Space Checklist)** comes from the Josephine County Integrated Fire Plan and outlines steps that homeowners can take to increase defensible space around their homes.

**Appendix D (Wildfire Hazard Rating Form)** presents the form used by the Protection and Fuels Committees to assess and evaluate communities weather, topography, slope, aspect, elevation, fuels, fuel model and crown fire potential. Table 5 in Chapter 5.

**Appendix E (GIS Data Sources)** identifies the data sources and statistical methods used to develop and calculate scores for the wildland fire assessment.

## Planning Area Boundaries

The Walker Range CWPP is multi-jurisdictional and addresses all ownerships within the boundaries of the plan area. The plan includes the Walker Range Forest Protective Association and surrounding unprotected areas (see the Walker Range CWPP Base Map). Communities north of the Klamath-Deschutes boundary are covered by the Oregon Department of Forestry and the La Pine Rural Fire Protection District. For the purpose of the plan, we identified eight community "clusters" within the plan boundary to simplify the analysis and prioritization of potential actions. The eight community clusters are: Odell Lake Summer Homes, Crescent Lake Summer Homes, Crescent Lake Community, Oregon Outback, Schoonover and vicinity, Crescent/Gilchrist, Wagon Trail & Vicinity, and Two Rivers/Little Deschutes River. The Walker Range CWPP is a strategic plan; it provides a broad framework for all agencies and ownerships – private, private industrial, county, state, and federal – within the plan area. Specific planning and implementation is the responsibility of each landowner/jurisdictional agency, acting in concert with the guidelines expressed in the plan.

## The Planning Process

The development of the Walker Range CWPP was a collaborative effort that relied upon the participation and input from many different organizations and individuals. The plan was developed by four main committees and incorporated public input gathered at a series of public meetings. The four committees were as follows:

- Steering Committee
- Fire and Fuels Committee
- Fire Protection Capacity Committee
- Education and Prevention Committee

The **Steering Committee**:

- Provided oversight to all activities related to the CWPP
- Developed and refined goals for fire protection in the planning area
- Developed a long-term structure for sustaining the efforts of the CWPP

Participants on the steering committee included:

| | |
|---|---|
| Echo Murray, Leader | Walker Range Forest Protective Association |
| Sheldon Rhoden | Bureau of Land Management, Prineville District |
| Bill Swarts | Cascade Timberlands LLC & Olympic Resource Mgmt |
| Lisa Clark | Central Oregon Fire Management Service |
| Kyle Kirchner | Crescent Rural Fire Protection District |
| Tim Cramblit | Central Cascades Fire & EMS District |
| John Pellissier | Oregon Department of Forestry, Klamath |
| Curtis Owens | Oregon Outback Rural Fire Protection District |
| Garland Miller | Chemult Rural Fire Protection District |
| Holly Jewkes | US Forest Service, Deschutes National Forest |
| Jeff Bishop | US Forest Service, Deschutes National Forest |
| Kevin Carlson | US Forest Service, Deschutes National Forest |
| RD Buell | Walker Range Forest Protective Association |

Although the steering committee did not identify a specific decision-making process, almost all decisions were made by consensus to ensure that the outcomes were strongly supported.

The **Fire and Fuels Technical Committee**:

- Advised steering committee on technical issues related to wildland fire
- Advised geographic information system (GIS) contractor on the development of the wildland fire assessment
- Advised steering committee on the development of hazardous fuel treatment projects

Participants on the Fire and Fuels Technical Committee included:

| | |
|---|---|
| Kevin Carlson, Leader | US Forest Service, Deschutes NF |
| Sheldon Rhoden | Bureau of Land Management, Prineville District |
| Lisa Clark | Central Oregon Fire Management Service |
| Bill Swarts | Cascade Timberlands |
| John Pellissier | Oregon Department of Forestry, Klamath |

The Fire and Fuel Technical Committee met monthly during the initial phases of the wildland fire assessment. They played an important role in identifying and interpreting data and ensuring that the Walker Range CWPP was consistent with other ongoing fire management efforts.

The **Fire Protection Capacity Committee**:

- Developed goals, objectives, and timelines to increase and improve the ability of the local community to prepare and respond to wildfire events

Participants on the Fire Protection Capacity Committee included:

| | |
|---|---|
| Mike Carlson, Leader | Walker Range Forest Protective Association |
| Kathy Page, Leader | US Forest Service, Deschutes National Forest |
| Bill Swarts | Cascade Timberlands LLC & Olympic Resource Mgmt |
| Kyle Kirchner | Crescent Rural Fire Protection District |
| Tim Cramblit | Central Cascades Fire & EMS District |
| Brad Kahler | Central Cascades Fire & EMS District |
| Curtis Owens | Oregon Outback Rural Fire Protection District |
| Freda Owens | Oregon Outback Rural Fire Protection District |
| Garland Miller | Chemult Rural Fire Protection District |
| Jeff Bishop | US Forest Service, Deschutes National Forest |
| Darrel Smith | US Forest Service, Deschutes National Forest |
| Echo Murray | Walker Range Forest Protective Association |
| RD Buell | Walker Range Forest Protective Association |

The **Education and Outreach Committee**:

- Developed goals and objectives aimed at improving local residents' understanding of wildfire
- Developed goals and objectives that increase homeowners' sense of responsibility for preventative action regarding wildfire safety

Participants on the Education and Outreach Committee included:

| | |
|---|---|
| Lisa Clark | Central Oregon Fire Management Service |
| Darrel Smith | US Forest Service, Deschutes National Forest |
| Echo Murray | Walker Range Forest Protective Association |
| Freda Owens | Oregon Outback Rural Fire Protection District |

# Chapter 2
# Community Profile

This chapter provides a brief overview of the Walker Range area. It discusses the communities, the general environment, and population growth, and profiles the structural and wildland fire protection districts within the area.

## Geography and the Environment

Walker Range is located in central Oregon, in northern Klamath County, on the east side of the Cascade Mountains. The community fire protection plan boundary lies within the larger area of the eastern Cascade slopes and foothills.

Due to the rain shadow effect of the Cascade Mountains, most of the planning area has significant temperature extremes and less precipitation than the areas west of the Cascades. However, the higher elevation Willamette Pass area in the northwest section of the plan area receives significant annual precipitation. Temperatures vary throughout the plan area, depending on elevation. Summer temperatures in the Crescent/Gilchrist area range from average highs in the upper 70s (degrees Fahrenheit) to average lows in the mid 40s. Average highs in winter are in the low 40s and average lows in the low 20s. Annual precipitation values range from under 20 inches on the eastern side of the Walker Range boundary to 70-80 inches near Willamette Pass in the northwestern area.[2] The climate in central Oregon is typical of the east slopes of the Cascade Mountains, with most of the annual precipitation coming as winter snow, or fall and spring rain. Summers are dry and prone to frequent thunderstorms that may be wet or dry. These thunderstorms frequently cause multiple fire ignitions during any given storm.

July, August, and September are the most active months for wildland fire occurrences.

> Depending on elevation, vegetation greens between late March and early May. The general pattern in central Oregon is for fire potential to increase through June, with July, August and September being the most active months for fire suppression. The end of fire season is often signaled by snow in the fall.[3]

The plan area contains several vegetative ecosystems: the high desert dominated by western juniper, sage brush, and grasses in the east and a transition from open dry-site ponderosa pine and lodgepole pine to mixed conifer to a sub-alpine mix of tree species near the crest of the Cascades in the west. The vegetation is adapted to the prevailing dry, continental climate and is highly susceptible to wildland fire. Volcanic cones and buttes dot the landscape across much of the region. Most of the communities in the area lie at an elevation of 4,200 feet and higher.[4]

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2 Spatial Climate Analysis Service, "Prism Data Explorer," http://mistral.oce.orst.edu/www/mapserv/nn/index.phtml (accessed May 19, 2005).
3 Central Oregon Fire Management Services, *Fire Management Plan*, 2004, Section III, page 10.
4 Deschutes County Emergency Management, Oregon Emergency Management, Federal Emergency Management, *Deschutes Natural Hazard Mitigation Plan* (Oregon: 2004).

The plan area is located entirely within northern Klamath County. The plan area is approximately 692,000 acres. The federal government manages about 73 percent of the land in Walker Range plan area (about 69 percent Forest Service and 4 percent BLM). Twenty-six percent of the land is privately owned.

## Walker Range Communities

In general, the communities in the plan area are small, rural, and isolated. Almost all of the communities are located in the wildland urban interface and all are surrounded by either public forestland or private industrial forestland. The plan area contains three unincorporated towns– Gilchrist, Crescent, and Crescent Lake - and a number of subdivisions. These areas can be classified as rural residential land. For the purposes of the fire plan, nearby towns and subdivisions have been grouped together into the following eight community "clusters":

- Odell Lake Summer Homes
- Crescent Lake Summer Homes
- Crescent Lake Communities
- Oregon Outback
- Schoonover and vicinity
- Crescent/Gilchrist
- Wagon Trail & Vicinity
- Two Rivers/Little Deschutes River

The eight community "clusters" are comprised of fifty one towns and/or communities. The list below shows the towns and/or communities within each cluster.

**Odell Lake Summer Home**
**Crescent Lake Summer Homes**

**Crescent Lake Cluster**
Balducci Acres
Brewers Ranchos
Camp Makualla (Boy Scout Camp)
Cres-Del Acres
Crescent Lake Community
Crescent Meadows
Crescent Pines
Diamond Peaks
Diamond Meadows
Delaney Road
Leisure Woods

**Schoonover & Vicinity Cluster**
Cascade Estates
Marsha Way
Schoonover & Vicinity
Starlight Area (Grey's Place)
Tall Pines

**Oregon Outback Cluster**
Antelope Meadows
Beal Road
Bear Track Meadows
Brian Acres
Forest Meadows
Ingle Estates
New Pine Acres
Old Howard Estates
Split Rail Estates
Sun Forest Estates

**Wagon Trail Ranch Cluster**

Chapman Tracts
Doreen Meadows
Dority Tract
Jackpine Village
Mahn Acres
River Pine Estates
Stage Coach Acres
Sun Country Estates
Wagon Trail Ranch
Whispering Meadows
Wildwood
Willis Lane

**Crescent / Gilchrist Cluster**

Crescent
Crescent Cut Off Road
Friendly Acres (East & West)
Gilchrist
Kaehn Road
Ramey Acres (Jug Drive)
Red Rock Acres
River View Road
Roberts River Acres
Pinney Acres

**Two Rivers North & Vicinity**

Little Deschutes River Estates
Two Rivers North

## Population

The Walker Range area contains about 10,000 permanent, year-round residents and has no incorporated towns or cities. Gilchrist has a population of 500, Crescent has a population of 1,000[5], and Crescent Lake is home to a population of approximately 125 full time residents with 1000 part time residents[6]. There is a growing senior citizen community of retirees as well as part-time residents and large numbers of tourists in the winter and summer. Central Oregon has recently experienced a period of rapid population growth. Increased business and residential development, as well as recreational use, heightens the need for wildland fire mitigation activities.

## Development

Gilchrist originated as a private lumber mill town in 1937. Since its inception, the communities in the plan area have been dependent on natural resources. In the past, the wood products sector mostly drove the local economy. More recently, tourism and second home development draw residents and visitors to the area.

Property values in northern Klamath County have grown within the last two decades. A lumber mill, grade school, and tourist-related businesses provide employment opportunities for some residents, while others commute to larger communities such as Bend. New subdivisions are planned for the future and are currently in the permit application process. Tourism is a large part of the area's economic base. Willamette Pass Ski Area attracts many tourists during the winter (and summer) and both Odell Lake and Crescent Lake have resorts and areas containing cross

[5] Crescent and Gilchrist population numbers are based on 1996 population estimate, Klamath County Chamber of Commerce.
[6] Personal communication, Tim Cramblit, Central Cascades Rural Fire Protection District, June 13, 2005.

country ski trails and snowmobile trails. During other times of the year, tourists visit the area to take advantage of many outdoor activities, including biking, hiking, camping, horseback riding, hunting, fishing, boating, and mushroom collecting. Tourists can increase the area's population by several thousand during peak periods.

## Transportation

The communities of the Walker Range CWPP are bound together by US Highway 97 and Oregon State Highways 58 and 31. The Walker Range area is also traversed by County Highways 46 and 61, the Burlington Northern and Union Pacific Railroads, the Little Deschutes River, and Crescent Creek.

With the recent growth of central Oregon, more residents and tourists travel the highways and increase congestion, particularly during the summer months when fire season reaches its peak. Improving the transportation system could augment emergency response by improving access routes in the event of a major wildland fire.

## Walker Range Fire Protection Districts

The Walker Range plan area contains five rural fire protection districts and the Walker Range Forest Protective Association:

### Crescent Rural Fire Protection District

The Crescent Rural Fire Protection District is located in the southern part of central Oregon, in northern Klamath County along Highway 97, 50 miles south of Bend, Oregon. The 20 square mile fire district provides structural fire protection, first responder hazardous materials response, and rescue/extrication. The district also provides advanced life support ambulance transport to 140 square miles of north Klamath County. The ambulance service area coverage extends from the Highway 97/Highway 58 Junction north to milepost 174 on Highway 97, west to the Willamette Pass Summit on Highway 58, and includes the communities of Crescent and Gilchrist and the subdivisions of Jackpine Village and River Pines Estates (Hackett Dr.). The district works closely in mutual aid with the Walker Range Forest Protective Association for wildland and interface fire protection.

### Central Cascades Fire & EMS District

The Central Cascades Fire & EMS District is nestled in the Cascade Mountains in northern Klamath County along the Oregon State Highway 58 corridor from Willamette Pass to the Crescent Cut-Off highway, 13 miles east. The district protects approximately 30 square miles of private homes and property as well as National Forest lands. Elevations range from 4,000 feet to over 6,600 feet above sea level. Located approximately 120 miles north of the Oregon – California border, the district is about 70 miles from Eugene-Springfield or Bend and 100 miles from Klamath Falls, the county seat. In addition to the Oregon State Highway 58 corridor and adjacent lands, the district includes Crescent and Odell Lakes and the Willamette Pass Ski Area.

District population varies from a few hundred full-time residents to many thousands during ~~the~~ winter and summer recreation seasons. The district operates out of the Central Cascades Fire &

EMS Community Services Center / Fire Station, located on Crescent Lake Highway ¼ mile south of Highway 58, which houses apparatus and equipment and provides the base for response operations. A 24/7 lighted helipad is located at the station and the Crescent Lake State Airport is approximately ¼ mile northwest.

District personnel include structure/wildland firefighters, emergency medical service (EMS) only personnel and additional auxiliary members who provide support and assistance to the district and its residents. The district currently employees a ¼ time Chief and no other paid staff, relying entirely on volunteers. District services include: fire, rescue and EMS first response and mutual aid support for adjoining districts.

## Chemult Rural Fire Protection District

The Chemult Rural Fire Protection District serves rural communities in northern Klamath County. It is a small volunteer district operating out of three stations. The Chemult district provides fire protection for the Two Rivers North subdivision at the southernmost part of the Walker Range plan area.

## La Pine Rural Fire Protection District

La Pine Rural Fire Protection District provides fire, rescue and EMS services to 20,000 people, in a 117 square mile service area, in South Deschutes County and a small portion of North Klamath County. The district operates out of three stations, protecting a primarily rural forested area, with many subdivisions. The department was formed in 1971 and is a combination of career, student resident, and volunteer reserve firefighters and is supported by local property tax. The district provides and receives mutual aid to the Central Oregon Fire Chief's Mutual Aid agreement, as well as individual agreements with neighboring departments. The district also provides ambulance transport services to a larger area of 1,000 square miles, most of which is state and federal lands. Within the Walker Range plan area, the La Pine Rural Fire Protection District provides fire protection for a few subdivisions directly south of the Klamath/Deschutes county line including Old Howard Estates, and Wagon Trail Ranch.[1]

## Oregon Outback Rural Fire Protection District

The Oregon Outback is the newest fire protection organization in the Walker Range area. Local residents passed a levy in October 2004 and formed a board of directors. The district is located in northern Klamath County, just south of the Deschutes County boundary and west of Highway 31. The district covers about 35 square miles and serves about 700 residents. The forestland in the district consists mostly of lodgepole pine. The district is still in the formative stages but has been making steady progress. It has acquired numerous apparatus and several of the volunteers have recently completed beginning fire fighter and EMS trainings. The Oregon Outback Rural Fire Protection District provides fire protection for Antelope Meadows, Beal Road, Forest Meadows, Ingle Estates, Split Rail, and Sun Forest Estates.

## Walker Range Forest Protective Association

The Walker Range Forest Protective Association is located in central Oregon and High Desert recreation areas and provides wildland fire protection to approximate 200,000 acres of private, county, and state lands in northern Klamath and Lake Counties. The Association employs both full time personnel and seasonal firefighters. The Association covers portions of Oregon State Highways 58 and 31, and part of US Highway 97, including the towns of Crescent Lake, Crescent, Gilchrist and approximately 56 wildland-urban interface communities located within Northern Klamath County.

The owners of Shevlin Hixon Company, Fremont Land Company, Gilchrist Timber Company, and Ralph E. Gilchrist formed the Association in May 1927 to protect commercial forests from fire and insect depredations. The original place of business was in Deschutes County in Bend, Oregon, with stations at Shevlin Stations, La Pine and Crescent. In 1975, the boundary lines of the Association were changed, dropping Deschutes County and keeping Klamath and Lake Counties as the northern boundary.

# Chapter 3
# Forest Conditions and Wildland Fire

A basic understanding of the landscape characteristics and functions is important to effective land management. Timber harvest, fire suppression, and development have all dramatically altered the landscape of central Oregon (Klamath, Deschutes, Jefferson, and Crook Counties). This chapter describes the main ecotypes in the plan area, their characteristics, and fire ecology. It also offers a brief narrative on recent wildland fire history and trends.

## Ecotypes

Walker Range is a mosaic of forest types.

1) Mixed conifer (Douglas-fir/true fir/ponderosa pine/larch/lodgepole pine on both wet and dry sites)
2) Ponderosa pine
3) Lodgepole pine
4) Western juniper woodlands[7]

1) **Mixed conifer (wet and dry)** is a complex forest type that varies considerably depending on elevation and site conditions. In the plan area, dry mixed conifer and wet mixed conifer forest types occur.

The dry mixed conifer includes Douglas-fir, ponderosa pine, and true fir. On the eastern slope of the Cascades, this forest type is usually found below the subalpine fir zone and above the Douglas fir or ponderosa pine zone at elevations ranging from 3,600 to 4,500 feet. Depending on conditions, any one of the species can dominate. The dry mixed conifer forest type is found at lower elevation than the true fir mixed conifer forest type discussed above. It is a mix of Douglas-fir, ponderosa pine, larch, and lodgepole pine and occupies a transitional zone between the higher elevation mixed conifer zone and the true ponderosa pine or lodgepole pine zone.

The wet mixed conifer plant association is found in the higher elevations (4,000 – 7,000 feet) on the west side of the fire plan area. Productivity in wet mixed conifer wet sites is generally higher than in the dry mixed conifer plant associations. Similar to the dry mixed conifer sites, vegetation consists of Douglas-fir, white fir, ponderosa pine, western larch, and lodgepole pine. Spruce can be found in the wetter riparian areas. Understory vegetation may include traditional dry site species as well as species that survive well in wetter, more shaded areas such as golden chinquapin and sword fern.

The fire regimes—the combination of fire frequency, predictability, intensity, seasonality, and extent characteristic of fire in an ecosystem—can vary considerably in the mixed conifer types.

[7] William G. Loy, ed., *Atlas of Oregon* (Eugene: University of Oregon Press, 2001).

The fire cycle or fire return interval can range from 35 to 200 years. Fires may be of variable intensity; from low intensity maintenance burns to stand replacement events.[8]

The exclusion of natural fire in this forest type (as a result of fire suppression activities over the pass 100 or more years) has led to the buildup of fuels and stands that are more closed in appearance than when fire was a more frequent visitor. According to Agee, "Frequent low intensity fires kept such sites open so that they were less likely to burn intensely even under severe fire weather… Fires are more likely to be more intense over time with [fire] protection."[9]

2) The **ponderosa pine forest type** is relatively rare in the Pacific Northwest, though is it is locally prevalent. It generally separates the more closed and dense dry mixed conifer forests described above and the juniper and grassland communities found in drier and lower elevations. It also often borders lodgepole pine forest types in the southern reaches of the plan area.

Historically, ponderosa pine forest types contained more understory grasses and shrubs than are present today. These plants, combined with fallen pine needles, formed fast-burning fuel that led to frequent widespread burning. Frequent, low-intensity ground fires that occur on a fire return interval of 11 to 15 years characterize the fire regime for ponderosa pine. The pattern of low ground fires and stand dynamics resulted in the open park-like conditions that early inhabitants and visitors to the region found.

The suppression of naturally occurring fires and decades of timber harvest have significantly altered the ponderosa pine forest type. Removal of the larger "yellow belly" pines has dramatically decreased clumpy, open forest, replacing them with more evenly spaced and smaller "black-bark" forests. Similar to the mixed conifer forest type described above, the exclusion of fire has greatly increased the stocking levels (number of trees) and density of trees, creating ladder fuels, and putting the stands at risk of attacks from insects and disease. These factors have contributed to more intensive fires in ponderosa pine in recent years.

3) The climax **lodgepole pine forest type** in central Oregon is characterized by dense, uniform stands, an absence of other species, and a general lack understory shrub or herbs (although bitter brush is often associated with climax lodgepole pine). The lodgepole pine forest type exhibits a moderate severity fire regime with a fire return interval between 60 and 80 years. Fire can be low, moderate, or severe over time. In addition to fire, mountain pine beetles are an important disturbance agent and the two processes are linked.

The fire cycle in lodgepole pine is 60 to 80 years, and occurs as follows: A stand replacement fire leads to stand regeneration. Dead snags from the fire fall to the forest floor and fuels begin to accumulate. A windstorm blows more trees to the ground. A forest fire burns some of the downed logs and leads to heart rot in the standing trees. The heart rot in the trees stresses the stand and makes it vulnerable to attack by the mountain pine beetle. A major outbreak of the beetle causes significant mortality and soon the conditions are ripe for another stand replacing fire.[10]

[8] James K. Agee, *Fire ecology in Pacific Northwest forests* (Washington D.C.: Island Press, 1993).
[9] *Ibid.*, 294.
[10] *Ibid.*, 348.

4) **Western juniper woodlands** occur on the driest sites in the region that are able to support forest cover (the easternmost portion of the Walker Range plan area). Where western juniper is often the climax species with dominant plant associations of big sagebrush and, to a lesser extent, rabbit brush, Idaho fescue, and blue bunch wheatgrass. The fire return interval in western juniper woodlands is approximately 25 years and is generally limited by the availability of fuels. Western juniper trees have thin bark and fires kill them easily.

Western juniper appears to be expanding its range over the previous century. Several factors may account for the expansion: a) fire suppression which allows the stands to grow unchecked by fire, b) overgrazing by domestic livestock with opens up new sites for colonization, c) reestablishment of juniper after being logged, and d) climate change.[11]

## Wildland Fire History

The forests and rangelands of central Oregon have evolved with wildland fire as a part of the landscape. Most observers agree that in recent years, wildland fires have been burning hotter, moving faster, and scorching more acres than the historical pattern. Six of the top thirteen most destructive wildland-urban interface fires in Oregon's history have occurred in central Oregon.[12]

Table 1 shows that the acres burned in central Oregon between 2000 and 2004 exceeds the number of acres burned in the previous hundred years. This recent and dramatic increase in large fires has heightened community awareness and willingness to address fire safety.

**Table 1**
**Acres Burned by Decade in Central Oregon, 1900-2010**

| Decade | Acres burned | % of total |
|---|---|---|
| 1900-1909 | 11,913 | 5% |
| 1910-1919 | 45,564 | 18% |
| 1920-1929 | 5,491 | 2% |
| 1930-1939 | 699 | 0% |
| 1940-1949 | 13,761 | 5% |
| 1950-1959 | 1,123 | 0% |
| 1960-1969 | 10,640 | 4% |
| 1970-1979 | 5,605 | 2% |
| 1980-1989 | 5,932 | 2% |
| 1990-1999 | 25,519 | 10% |
| 2000-2010 | 128,817 | 51% |
| **Total** | **255,064** | |

Source: Central Oregon Fire Atlas, The Nature Conservancy, Upper Deschutes Fire Learning Network Project, v2.0, February 9, 2004 as cited in the Deschutes County Natural Hazard Mitigation Plan, 2004

Wildland fires destroyed 83 structures during the last 22 years in the greater central Oregon area (see Table 2), though none were in the Walker Range area. One of the closest fires to the Walker Range area was the Lone Pine Fire in 1992, which burned 31,000 acres and three homes east of Chiloquin.

[11] *Ibid.*, 376.
[12] Forest Log, National Interagency Coordination Center situation reports, as cited in Oregon Department of Forestry, http://egov.oregon.gov/ODF/FIRE/SB360/wui_history_table.shtml (accessed June 8, 2005).

**Table 2**
**Structures Lost to Wildland fire in Central Oregon, 1981-2003**

| Year | # of Structures Lost to Wildland Fire | % of total |
|---|---|---|
| 1981 | 5 | 6% |
| 1990 | 22 | 27% |
| 1996 | 30 | 36% |
| 2001 | 5 | 6% |
| 2002 | 20 | 24% |
| 2003 | 1 | 1% |
| Total | 83 | |

Source: Central Oregon Fire Atlas, The Nature Conservancy, Upper Deschutes Fire Learning Network Project, v2.0, February 9, 2004 as cited in the Deschutes County Natural Hazard Mitigation Plan, 2004

## Wildland Fires in the Walker Range Area

A number of wildland fires have occurred within the Walker Range plan boundary over the last century and are listed in the Table 3 below.

**Table 3**
**Wildland Fires within Walker Range, 1900-2010**

| Year | Fire Name | Acres | Cause | Description |
|---|---|---|---|---|
| 2008 | Royce Butte | 390 | Human | Campfire |
| 2005 | Crescent Lake Community | 8 | Wind | Powerline |
| 2003 | Davis Lake | 21,116 | Human | |
| 2003 | Odell | 14 | Human, unknown | |
| 2002 | Little Deschutes | 110 | Human, unknown | |
| 2001 | Odell Pasture | 1 | Wind | Powerline |
| 2001 | McCarty Butte | 20 | Lightning | Lightning |
| 2000 | Muttonchop | 78 | Human, unknown | |
| 1990 | Spring Butte | 946 | Human | Arson |
| 1980 | Beales Butte Slash | 6 | | |
| 1979 | Walker Mt (US 97) | 80 | | |
| 1947 | Big Marsh | 49 | | |
| 1940 | Fremont Siding | 1,946 | | |
| 1930 | Maklaks Mtn | 62 | | |
| 1919 | County Line | 702 | | |
| 1919 | Hinkle Town | 2,040 | | |
| 1918 | Rim Rock Butte | 3,797 | | |
| 1914 | Spring Butte | 1,032 | | |
| 1914 | Ipsoot Butte | 180 | | |

| Year | Fire Name | Acres | Cause | Description |
|---|---|---|---|---|
| 1911 | North Odell Lake | 61 | | |
| 1910 | Ringo Butte | 65 | | |
| 1910 | Odell Spring | 1,449 | | |
| UNK | Hemlock Butte | 141 | | |
| UNK | Odell Butte | 92 | | |

Source: Walker Range Forest Protective Association; Deschutes National Forest 2003 geographic information systems (GIS) data

# Chapter 4
# Wildland Fire Assessment Methods

One of the central purposes of planning is to enable action based on current, comprehensive information. Although funding for hazardous fuel reduction and other activities around communities has increased in recent years, the need for funding greatly outstrips available resources. The consistent budget shortfall highlights the importance of targeting implementation to the highest priority areas.

The purpose of the wildland fire assessment is to gauge the relative risk and hazard due to wildland fire for the lands and communities within the planning area. It is a tool to direct implementation to the highest priority areas and promote cross-boundary coordination. The assessment is key to developing an understanding of the risk of potential losses to life, property, and natural resources during a wildland fire. Specifically, the assessment:

4) Assesses risk, hazard, fire protection capability, structural vulnerability, and values to be protected.
5) Identifies and ranks "communities at risk" within the plan area. These community rankings identify the priority areas for fuel reduction activities and other mitigation projects within the plan area.
6) Identifies the wildland urban interface across the plan area.

The Walker Range CWPP used the wildland fire assessment methodology based on guidance from the National Association of State Foresters and adapted by the Oregon Department of Forestry. The steering committee chose this method because it provided a simple and consistent approach that will enable comparison with other communities across that state.

## Definition of Terms

### Communities at Risk

The Healthy Forest Initiative (HFI) and the Healthy Forest Restoration Act (HFRA) provide multiple benefits to communities at risk from wildland fire. A community at risk is one that:

- Is an interface community as defined in the Federal Register notice of January 4, 2001, or a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) in or adjacent to federal land
- Has conditions conducive to large-scale wildland fire
- Faces a significant threat to human life or property as a result of a wildland fire[13]

All of the communities in the Walker Range area are considered to be communities at risk.

[13] USDA Forest Service, DOI Bureau of Land Management, *The Healthy Forests Initiative and the Healthy Forests Restoration Act: Interim Field Guide* (February 2004).

## Wildland Urban Interface

Title I of HFRA defines the wildland urban interface as:

A. An area within or adjacent to an at-risk community that is identified in a community wildfire protection plan; or

B. In the case of any area for which a community wildfire protection plan is not in effect:

    a. An area extending ½ mile from the boundary of an at-risk community;

    b. An area within 3 miles of the boundary of an at-risk community, including any land that—
        i. Has sustained steep slopes that creates that potential for wildfire behavior endangering the at-risk community
        ii. Has a geographic feature that aids in creating an effective fire break, such as a road or a ridge top; or
        iii. Is in Condition Class 3, as documented in a project-specific environmental analysis.

    c. An area that is adjacent to an evacuation route for an at-risk community that requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

HFRA states that community wildfire protection plans can identify the wildland urban interface for the at-risk communities in the plan.

## Healthy Forest Initiative

HFI provides several categories of projects that can be categorically excluded from an environmental assessment (EA) or an environmental impact statement (EIS). Hazardous fuel reduction projects are only one of the categories. To be categorically excluded under HFI, a proposed hazardous fuel reduction activity must meet the following requirements:

- Hazardous fuel reduction activities using prescribed fire are less than 4,500 acres
- Hazardous fuel reduction activities using mechanical methods are less than 1,000 acres
- Activities shall be limited to areas in the wildland urban interface or to areas in Condition Classes 2 and 3 in Fire Regime Groups I, II, or III outside of the wildland urban interface
- Projects shall be identified collaboratively using the framework identified in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan.[14]

[14] Department of the Interior and Department of Agriculture, *The Healthy Forests Initiative and the Healthy Forests Restoration Act: Interim Field Guide*, August 2001.

## Healthy Forest Restoration Act

HFRA authorizes special procedures for environmental assessments and environmental impact statements for a variety of land management goals including authorized hazardous fuel reduction. The Forest Service and the BLM are not required to analyze alternatives to the proposed action, as is typically required by the National Environmental Policy Act, if:

- The project area is inside the wildland urban interface and is within 3 miles of the boundary of an at-risk community except if the proposed action does not implement the recommendations in the adopted community wildfire protection plan. In that case, the agencies are required to analyze the recommended actions in the plan as an alternative to the proposed action.[15]

The use of both the categorical exclusion from HFI and the "one alternative" analysis with HFRA may be powerful tools to streamline the planning process and accomplish more work on the ground. Use of both tools requires the identification of communities at risk, a determination of the wildland urban interface, and a completed community wildfire protection plan.

## Communities at risk in Walker Range

To determine communities at risk, the steering committee first had to define "community." The steering committee used three criteria to determine communities within the plan area:

1) Established city/town
2) Recognized development (e.g. Odell Lake Resort); and
3) Significant grouping of structures (e.g. Sun Forest Estates)

These criteria identified 56 at-risk communities

**Odell Lake Summer Home**
**Crescent Lake Summer Homes**

**Crescent Lake Cluster**
Balducci Acres
Brewers Ranchos
Camp Makualla (Boy Scout Camp)
Cres-Del Acres
Crescent Lake Community
Crescent Meadows
Crescent Pines
Diamond Peaks
Diamond Meadows
Delaney Road
Leisure Woods

**Schoonover & Vicinity Cluster**
Cascade Estates
Marsha Way
Schoonover & Vicinity
Starlight Area (Grey's Place)
Tall Pines

**Oregon Outback Cluster**
Antelope Meadows
Beal Road
Bear Track Meadows
Brian Acres
Forest Meadows
Ingle Estates
New Pine Acres
Old Howard Estates
Split Rail Estates
Sun Forest Estates

**Wagon Trail Ranch Cluster**
Chapman Tracts
Doreen Meadows
Dority Tract
Jackpine Village
Mahn Acres
River Pine Estates
Stage Coach Acres
Sun Country Estates
Wagon Trail Ranch
Whispering Meadows
Wildwood
Willis Lane

**Crescent / Gilchrist Cluster**
Crescent
Crescent Cut Off Road
Friendly Acres (East & West)
Gilchrist
Kaehn Road
Ramey Acres (Jug Drive)
Red Rock Acres
River View Road
Roberts River Acres
Pinney Acres

**Two Rivers North & Vicinity**
Little Deschutes River Estates
Two Rivers North

There are several structures and residences in the plan area that are beyond the boundaries of the 56 communities named above. Although not included on the list of communities at risk, the plan addresses all lands and all property regardless of its designation.

## Wildland Fire Assessment

The previous section defines the communities at risk in the Walker Range area. This section outlines the methods used to assess the relative wildfire risk to these communities. The Walker Range wildland fire assessment describes the relative level of risk to life, property, and natural resources within the plan area. The assessment compares communities and lands to each other rather than to a set standard. The assessment considers five categories to determine the relative severity of fire risk. Local knowledge of the fire community assisted in this process.

**Table 4**
**Walker Range CWPP Wildland Fire Assessment**
**Category and Point Summary**

| Assessment Categories | Elements | Score |
|---|---|---|
| Risk | Ignition Density (Human and Lightning caused) | 0-40 |
| Hazard | Fuels (developed from vegetation information), Slope, Aspect, Elevation, Weather | 0-80 |
| Values | Structural Density (derived from tax assessor's information on structure values over $1,000.) | 0-50 |
| Structural Vulnerability | Based on the community, subdivision assessments and SB 360 improvement conducted by Walker Range Forest Protective Association | 0-90 |
| Protection Capability | Based on the capacity of the rural fire protection districts as evaluated by local fire protection professionals and volunteers | 0-40 |
| TOTAL | | 300 |

Source: Walker Range CWPP

**Risk—the likelihood of a fire occurring:** This factor uses density of historical fire ignitions (human and lightning caused). The layer combines historic fire ignition and structural densities from the Oregon Department of Forestry and the Deschutes National Forest.

**Hazard – the conditions that may hinder control of a wildland fire:** The hazard factor is a compilation of weather, topography, and fuels information.

> ***Weather*** is the most important factor in the hazard layer. This factor is based on the number of days per season that forest fuels are capable of producing a significant fire event. This score is constant across the Walker Range CWPP area (although the western part of the plan area is significantly wetter than the east) because all of central Oregon is in Zone 3—the most hazardous rating.
>
> ***Topographic characteristics*** include slope, aspect and elevation. Steeper slopes can cause wildland fires to spread more quickly and increase the difficulty of suppression efforts. Aspect is divided into three classes roughly corresponding to the amount of insulation or sun exposure expected on the site. Finally, elevation values are broken at 3,500 and 5,000 ft. Lower elevations are considered more hazardous due to generally drier conditions.
>
> ***Natural vegetation fuel hazard*** describes the condition of the vegetation across the landscape and its ability to influence fire behavior. It is comprised of three parts: fuel model, crown fire potential, and local knowledge. The fuel model classification refers to the amount of dead

and down woody debris on the surface of the forest floor, which could ignite and burn during a wildfire. Crown fire potential refers to the ability of the forest canopy to sustain a high intensity fire above the forest floor. (A passive crown fire refers to a small group of trees torching; active means that there is a surface fire and crown fire moving through the forest canopy; and independent indicates that the crown fire is moving through the forest canopy without a surface fire.) Crown fires are a challenge to control in the wildland-urban interface.

The hazard factor also uses local knowledge and experience to account for recent hazardous fuels reduction treatments that do not appear in the fuel model and crown fire potential data used in the other two layers. Local fire professionals created a series of bands around the perimeter of the at risk communities and evaluated each one for surface fuels and crown fuels. The bands went from the community perimeter to 500 ft., from 500 ft. to 1,500 ft., and from 1,500 ft. to 3 miles. The fire professionals evaluated the bands and assigned scores. The bands were converted to polygons and then to raster data and incorporated into the fuel model and crown fire potential information.

**Values—the people, property, natural and other resources that could be lost in a wildland fire:** The wildland fire assessment identified structures with an assessed value over $1,000 to determine values to be protected. The members of the steering committee, community residents, and local fire professionals also contributed their knowledge of the other values to be protected such as the location of riparian areas, wildlife habitat, and other scenic and natural areas. However, lacking comprehensive data on other important values, the wildland fire assessment only accounts for structures valued over $1,000. All communities received an additional 20 points for natural resources and community infrastructure.

**Structural Vulnerability—the elements that affect vulnerability and ignitability of individual structures:** The analysis examined the vulnerability of existing structures to wildland fire in the plan area. This layer uses information developed by the Walker Range Forest Protective Association as part of their efforts to improve the fire safety of the communities and subdivisions in their area. The Protection Capacity group evaluated each of the 56 communities and subdivisions using a wildfire hazard rating form developed by the Federal Emergency Management Administration. Each community received a score based on subdivision design (roads, access, lot size, street signs), vegetation (fuel type, defensible space), topography, roofing material, fire protection, construction material, and utilities. The score was based on the percentage of residences in the community that fit into each category. Each community received a low, moderate, high, or extreme rating. These ratings were converted to numerical scores and incorporated into the wildland fire assessment.

**Protection Capability—the ability to mitigate losses, prepare for, respond to and suppress wildland and structural fires:** The numerical values for this layer were based on the evaluation of the fire response capacity (response time, equipment, personnel) of each of the local rural fire protection districts and the Walker Range Forest Protective Association.

The local fire professionals evaluated each district based on a worst-case scenario. In addition to the capacity of each district, the communities were awarded points for community preparedness on the assumption that more organized, active communities would be better prepared.

Communities that were organized and active in fire prevention and/or education efforts were given no additional points, while those communities that had no active effort at the time were given up to four points.

**Table 5**
**Walker Range CWPP Wildland Fire Assessment**
**Categories, Elements, Points, and Data Sources**

| Category | Elements | Points |
|---|---|---|
| Risk | Density of fire ignitions per 1000 acres per 10 years | 0—40 |
| Historic fire occurrence | Density of fire ignitions per 1000 acres per 10 years | 0-30 |
| Low | 0-0.1 ignitions per 1,000 acres | 3-14 |
| Moderate | 0.1-1.1 ignitions per 1,000 acres | 15-29 |
| High | 1.1 or more ignitions per 1,000 acre | 30 |
| Structural Density | Home density: homes per 10 acres | 0-10 |
| Rural | 0.1-0.9 homes per 10 acres | 0-4 |
| Suburban | 1.0-5.0 homes per 10 acres | 5-9 |
| Urban | >5.0 home per 10 acres | 10 |
| Source: Deschutes Fire Atlas – fire ignitions 1990-2010 | | |
| Hazard, Appendix D | Weather, topography, and fuels | 0—80 |
| Weather | The number of days per season that fuels are capable of producing a significant fire event. | 0—40 |
| Zone 1 | Oregon Coast | 0 |
| Zone 2 | Willamette Valley | 20 |
| Zone 3 | Southwestern, central, and eastern Oregon | 40 |
| Source: Oregon Department of Forestry | | |
| Topography | Slope, aspect, and elevation | 0—10 |
| Slope | 0-25 % | 0 |
| | 26-40 % | 2 |
| | More than 40 % | 3 |
| Aspect | N, NW, NE | 0 |
| | W, E | 3 |
| | S, SW, SE | 5 |
| Elevation | More than 5,000 feet | 0 |
| | 3,501-5,000 feet | 1 |
| | 0-3,500 feet | 2 |
| | | |
| Fuels (vegetation) | Natural vegetation fuel hazard | 0—30 |
| Fuel Model | | 0-20 |
| | Non-forest | 0-4 |
| | Fuel hazard factor 1 | 5-9 |
| | Fuel hazard factor 2 | 10-19 |
| | Fuel hazard factor 3 | 20 |
| Crown Fire Potential | | 0-10 |

| Category | Elements | Points |
|---|---|---|
| | Passive-Low | 0-4 |
| | Active-Moderate | 5-9 |
| | Independent-High | 10 |
| Source: Local knowledge/local fire expertise | | |
| Values Protected | Density of structures valued over $1,000 | 0—50 |
| Structural Density | Structures per 10 acres | 0-30 |
| Rural | 0.1—0.9 | 2-14 |
| Suburban | 1.0—5.0 | 15-29 |
| Urban | 5.1 or more | 30 |
| Source: Klamath County Tax lots; improved value over $1,000 | | |
| Natural Resources | Presence of identified natural resources | 0-10 |
| | None | 0 |
| | One present | 5 |
| | More than one | 10 |
| Source: Walker Range CWPP Steering Committee | | |
| Community Infrastructure | Presence of identified community infrastructure | 0-10 |
| | None | 0 |
| | One present | 5 |
| | More than one | 10 |
| Source: Walker Range CWPP Steering Committee. Definition is in Chapter 4, page 28 | | |
| Structural Vulnerability, Appendix B | Walker Range Subdivision Assessment | 0—90 |
| | Medium | 30-59 |
| | High | 60-74 |
| | Extreme | 75-90 |
| Source: Walker Range Forest Protective Association | | |
| Protection Capability, Table 7 | The ability to mitigate losses, prepare for, respond to and suppress wildland fire and structural fire. | 0—40 |
| Fire Response | | 0-36 |
| | Organized structure response < 10 min | 0-6 |
| | Inside structure protection district, but response >10 min | 7-13 |
| | Structure protection with delayed and/or limited response > 20 min | 14-20 |
| | No structure protection, wildland/rangeland response < 20min | 21-27 |
| | Wildland protection with mutual aid response > 20 min | 28-35 |
| Not to exceed 36 points | No structure response but has wildland protection > 20 min | 36 |
| Source: Walker Range CWPP Steering Committee and local fire professionals | | |
| Community Preparedness | | 0-4 |
| | Organized stakeholder group(s) (HOAs, etc.)w/primary agency effort | 0 |
| | Primarily agency effort (agency outreach) | 2 |
| | No effort | 4 |
| Source: Walker Range CWPP Steering Committee and local fire professionals | | |
| TOTAL | | 300 |

## Wildland Urban Interface

The 2004 Central Oregon Fire Management Service (COFMS) Fire Management Plan identifies the wildland urban interface (WUI) as a 3-mile area surrounding each community on the list of over 100 central Oregon at-risk communities identified in the federal register. [16] The steering committee considers the 3-mile area a sufficient distance for firefighters to safely control a crown fire (and blowing embers) and cause the fire to drop to the surface and burn with manageable intensities. Flame lengths of less than four feet are considered manageable by ground-based suppression forces.

## Analysis

The Walker Range CWPP Wildland Fire Assessment examined all of the lands within the boundary of the plan area. Of the five factors in the analysis, four factors (risk, hazard, values protected, and protection capability) are evaluated across the entire plan area using 30-meter pixels. The 56 identified at-risk communities were also awarded the numerical scores developed for the structural vulnerability ranking. The inclusion of the structural vulnerability layer completed the development of the five "layers" of the wildland fire assessment. The lands outside of the at-risk communities did not receive scores for structural vulnerability, as they did not meet the criteria for a "community".

Once the layers were completed, each community was given a composite score by summing the scores for each of the layers inside the boundaries of the community. This produced a ranking of the relative risk inside the communities. However, this number told us little about the risk and hazard of wildland fire outside of the communities. To better understand the relative risk immediately adjacent to the communities, we developed a 3-mile buffer[17] and calculated the scores for the five layers within the buffer. This analysis produced two final scores, an interior score for each community at risk and a second score for the 3-mile buffer around each community at risk.

The Wildland Fire Assessment Findings section discusses the scores for the communities and the buffers in more detail.

## Limitations of the Wildland Fire Assessment Data

"All models are wrong, some are useful."[18] This quote neatly sums up the perils of using computer models to predict and evaluate real world conditions. The wildland fire assessment is an approximation of what we predict to be present on the landscape. Some of the data used can no longer be considered current and some of the data are subjective. Also, some important information is not included in the analysis. For example, the only values protected considered in the wildland fire assessment analysis are structures valued over $1,000. Obviously, communities contain critical infrastructure and facilities that are essential to protect from wildland fire. Also

[16] Central Oregon Fire Management Service. *Fire Management Plan*. 2004.

[18] G. E. P. Box. "Robustness in scientific model building," in *Robustness in Statistics*, eds. R. L. Launer, & G. N. Wilkinson (New York: Academic Press, 1979), 202.

the assessment does not systematically factor in information about other natural resource values, such as habitat, recreation, or ecologically important areas. We lacked the resources to accurately identify and analyze all of the special ecological, cultural, and recreational resources in the Walker Range area.

Implementation of fuel reduction projects could and should identify critical infrastructure and ecological values.

## Critical Infrastructure

Per Department of Homeland Security;
"Critical infrastructure includes any system or asset that, if attacked or impacted by a hazardous event, would result in catastrophic loss of life or catastrophic economic loss. Critical infrastructure includes the following: public water or power systems, major business centers, chemical facilities, nuclear power plants, major rail and highway bridges, petroleum and natural gas transmission pipelines or storage facilities, telecommunications facilities, or facilities that support large public gatherings, such as sporting events or concerts."

All of these facilities are present in the Walker Range CWPP area, minus the nuclear power plants, albeit to a smaller scale than more populated metropolitan areas. Fuels reduction projects should take into account the impact of the project as well as the potential for loss of infrastructure services resulting from a wildfire event. Protection of critical infrastructure should be considered a high priority.

Specific protection and/or response plans for these facilities are discussed in more detail in local area emergency operations and disaster plans.

# Chapter 5

# Wildland Fire Assessment Findings

This chapter describes the results from the risk assessment. The risk assessment resulted in a series of maps and tables that display the results of the analysis. A base map sets the boundary of the CWPP area, shows the at-risk communities, ownership, and the wildland urban interface. Six landscape maps show the five layers of the risk assessment and the summary calculation for the plan area. In addition, two other landscape maps show the perimeter of large fires over the last 10 years and display ecologically important areas in the plan boundary.

The 56 at-risk communities in Walker Range are also displayed on smaller-scaled "community" maps. These maps are intended as a tool for more specific project planning and implementation. They show the summary calculation (incorporating the five layers) from the risk assessment with the planned and completed hazardous fuel reduction treatments. While the five layers of the risk assessment identify and prioritize risk and hazard across the planning area, the community maps help identify priorities areas for treatment within and around the individual at-risk communities.

## Landscape Assessment

### Walker Range CWPP Base Map

This map shows the boundary of the plan area, the eight community clusters, the at-risk communities, land ownership, major roads, railroads, rivers, lakes, and the location of the wildland urban interface (WUI).

### Risk

The risk map is based on a) historic fire occurrence (fire start information from 1990-2010) and b) ignition risk (based on home density). The map shows that large numbers of fires are most heavily concentrated in and around the populated areas (ex. Crescent Lake Community and Crescent/Gilchrist). Moreover, with the added risk from higher structural densities, these areas are at an even higher risk. The areas with the highest concentrations of fires and ignition risk (structural density) are shown in red and those with the least are shown in light gray.

### Hazard

The hazard map displays variations in the ability to control a wildland fire. The map is a compilation of weather, topography, and natural vegetation fuel hazard (comprised of fuel model and crown fire potential). Weather is fairly constant across the plan area and topography variations are minimal; therefore the map mostly displays variations in fuel hazards and crown fire potential. The areas with the highest hazard are displayed in red and those with the least in blue.

The map shows that large portions of Walker Range are classified as high hazard. Areas of high hazard are located around the Odell Lake, Crescent Lake, and Crescent Lake Community community clusters. In addition, the Schoonover and vicinity cluster contains many medium-to-high hazard level areas. Most of the actual communities or subdivisions

themselves are at medium to high hazard, while the lands around them are often lower hazard. The clusters of Wagon Trail & Vicinity, Oregon Outback, Two Rivers/Little Deschutes River, and Crescent/Gilchrist contain many areas of a lower hazard outside of the subdivisions.

## Values Protected

This map displays the location of structures valued over $1,000 and is colored according to the density of structures. Each cluster received the full 20 points for the presence of natural resources and community infrastructure. The areas ranking the highest for values protected are shown in red and those with the lowest are shown in light purple. Clusters containing a number of high-risk areas include: Crescent Lake, Crescent/Gilchrist, Wagon Trail & Vicinity, and Oregon Outback.

## Structural Vulnerability

Structural vulnerability is mapped according to the analysis completed by the Walker Range Forest Protective Association. Each community is colored according to the evaluation. All of the other clusters contain at least one area that rates as medium. Areas outside of the at-risk communities were not evaluated but are addressed in the action plan for structural vulnerability.

## Protection Capability

This map provides a simplistic display of the fire protection capacity of local rural fire protection districts by community cluster. The local fire professionals rated each cluster based on fire response times and community preparedness. Based on these criteria, the clusters of Oregon Outback, Schoonover and vicinity, and Two Rivers/Little Deschutes River communities show the lowest protection capability while the Crescent/Gilchrist and Crescent Lake community clusters have the highest. A lower level of protection capability (and longer response times) translates to higher risk for the communities.

## Assessment Summary

The assessment summary map shows a combination of the five landscape layers of the assessment (risk, hazard, values protected, structural vulnerability, and protection capability). The at-risk communities displayed on the map emerge as the areas with the highest risk and hazard, due to the high density of structures and the structural vulnerability ratings. Table 8 provides a ranking for each at-risk community and 3 mile buffer surrounding each community. All of the community clusters contain some areas of high risk. However, Odell Lake Summer Homes, Crescent Lake Summer Homes, and Crescent Lake Community are the clusters that have the highest total risk values for land *directly surrounding* the subdivisions and communities within the 3 mile buffer. While the other clusters contain subdivisions and communities with areas of high risk, most of the adjacent lands are classified at a risk of medium or below.

### Historic Large Fires

Four large fires have burned in Walker Range from 1990 to 2010. The largest fire was the Davis Fire of 2003 (delineated on the map), which burned in the western portion of the Walker Range area. The three other fires are Muttonchop (2000) and Little Deschutes (2002) and Royce Butte (2008).

### Ecological and Special Areas

Walker Range contains numerous identified ecological and special areas. Community residents also noted many additional special and important places during the community meetings. The Walker Range Ecological and Special Areas map is taken from the Forest Plan from the Deschutes National Forest and does not contain information on private land or lands managed by the BLM.

The map of the ecological and special areas would be useful when considering hazardous fuel reduction activities and how to protect other important resource values.

## Wildland Fire Assessment Rankings

The Walker Range Wildland Fire Assessment used five factors (risk, hazard, protection capability, structural vulnerability, and values protected) to calculate the relative risk of wildland fire to the 56 at-risk communities in the plan area. This section provides community by community or cluster by cluster results for structural vulnerability and protection capability, and then discusses five layer aggregate scores for the at-risk communities.

### Structural Vulnerability

The vulnerability of individual structures to wildland fire is an important aspect of fire protection. The steering committee was fortunate that the Walker Range Forest Protective Association had been actively addressing this issue for several years prior to the development of the community fire plan. The community fire planner from Walker Range assessed the structural vulnerability communities and subdivisions in Walker Range during 2002 through 2010. The evaluation was completed on a community or subdivision level and provided key local level data that could be easily incorporated into the wildland fire assessment.

The evaluation of structural vulnerability examined many factors, including defensible space, roof type, and building materials and suppression/response characteristics of primary roads, water sources, topography, and fuels characteristics. Table 6 shows the evaluation results; higher scores indicate increased risk and vulnerability. Acres refer to the average lot size in a particular subdivision/community. The wildfire hazard rating form used in the assessment is included in Appendix B.

**Table 6**
**Subdivision Structural Vulnerability Assessment**
**Wildfire Hazard Rating Form (Appendix D)**

| | | | Risk Factors | | | Suppression/Response Factors | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Subdivision Clusters** | **Rating** | **Acres** | **Dfnsbl Space** | **Roof Type** | **Building Materials** | **Roads** | **Water Sources** | **Topo-graphy** | **Veg** | **Utilities** | **Total** |
| **Odell Lake Summer Homes** | | | | | | | | | | | |
| **Crescent Lake Summer Homes** | | | | | | | | | | | |
| **Camp Makualla (Boy Scout)** | Mod | | 3 | 5 | 10 | 20 | 5 | 1 | 10 | 3 | 57 |
| **Crescent Lake Cluster** | | | | | | | | | | | |
| Balducci Acres | Mod | 3 | 3 | 1 | 10 | 15 | 5 | 4 | 10 | 3 | 54 |
| Brewers Ranchos | Mod | 3 | 3 | 1 | 10 | 13 | 2 | 1 | 10 | 3 | 46 |
| Camp Makualla (Boy Scout) | Mod | 1 | 3 | 5 | 10 | 20 | 5 | 1 | 10 | 3 | 57 |
| Cres-Del Acres | Mod | 3 | 5 | 1 | 10 | 9 | 5 | 1 | 10 | 5 | 49 |
| Crescent Lake Area | Mod | 3 | 3 | 3 | 10 | 11 | 2 | 1 | 10 | 3 | 46 |
| Crescent Meadows | Mod | 3 | 3 | 5 | 10 | 6 | 5 | 1 | 10 | 5 | 48 |
| Crescent Pines | Mod | 3 | 3 | 1 | 10 | 9 | 2 | 1 | 10 | 3 | 42 |
| Diamond Peaks | Mod | 3 | 3 | 5 | 10 | 11 | 1 | 7 | 10 | 3 | 51 |
| Delaney Road | Mod | 3 | 3 | 5 | 10 | 6 | 5 | 1 | 10 | 5 | 48 |
| Leisure Woods | Mod | 3 | 3 | 5 | 10 | 11 | 1 | 7 | 10 | 3 | 51 |
| **Schoonover & Vicinity Cluster** | | | | | | | | | | | |
| Cascade Estates | Mod | 3 | 5 | 1 | 10 | 8 | 10 | 1 | 10 | 3 | 51 |
| Marsha Way | Mod | 3 | 1 | 1 | 10 | 11 | 7 | 1 | 10 | 1 | 41 |
| Schoonover & Vicinity Cluster | High | 3 | 5 | 3 | 10 | 13 | 10 | 1 | 10 | 5 | 65 |
| Starlight (Grey's Place) | High | 3 | 5 | 5 | 10 | 15 | 10 | 1 | 10 | 3 | 62 |
| Tall Pines | Mod | 3 | 3 | 3 | 10 | 12 | 5 | 1 | 10 | 3 | 50 |
| | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Crescent/Gilchrist Cluster** | | | | | | | | | | | |
| Crescent | Mod | 3 | 3 | 3 | 10 | 5 | 1 | 1 | 10 | 3 | 41 |
| Crescent Cutoff Road | Mod | 3 | 3 | 3 | 10 | 18 | 2 | 1 | 10 | 3 | 52 |
| Friendly Acres | Mod | 3 | 3 | 2 | 10 | 10 | 1 | 1 | 10 | 3 | 43 |
| Gilchrist | Mod | 5 | 3 | 1 | 5 | 5 | 1 | 4 | 10 | 3 | 38 |
| Kaehn Road | Mod | 3 | 3 | 3 | 10 | 13 | 1 | 1 | 10 | 3 | 47 |
| Ramey Acres (Jug Drive) | Mod | 3 | 3 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 53 |
| Red Rock Acres/River View | High | 3 | 3 | 5 | 10 | 17 | 7 | 1 | 10 | 5 | 61 |
| Riddle Road | Mod | 3 | 3 | 3 | 10 | 13 | 1 | 1 | 10 | 3 | 47 |
| River West (Airport) | Mod | 3 | 3 | 3 | 10 | 15 | 1 | 1 | 10 | 3 | 49 |
| Roberts River Acres | Mod | 3 | 3 | 5 | 10 | 13 | 7 | 1 | 10 | 3 | 55 |
| Pinney Acres | Mod | 3 | 3 | 3 | 10 | 13 | 1 | 1 | 10 | 3 | 47 |
| **Wagon Trail Cluster** | | | | | | | | | | | |
| Chapman Tracts | Mod | 3 | 3 | 5 | 10 | 5 | 10 | 1 | 10 | 3 | 50 |
| Doreen Meadows | Mod | 3 | 3 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 53 |
| Dority Tract | Mod | 3 | 3 | 5 | 10 | 13 | 10 | 1 | 10 | 3 | 58 |
| Jackpine Village | Mod | 3 | 3 | 3 | 10 | 6 | 7 | 1 | 10 | 3 | 46 |
| Little River Ranch | Mod | 3 | 3 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 53 |
| Mahn Acres | High | 3 | 5 | 5 | 10 | 19 | 10 | 1 | 10 | 5 | 67 |
| River Pine Estates | Mod | 3 | 3 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 53 |
| Stage Coach Acres | Mod | 3 | 3 | 5 | 10 | 13 | 10 | 1 | 10 | 3 | 58 |
| Sun Country Estates | Mod | 3 | 3 | 3 | 10 | 6 | 7 | 1 | 10 | 3 | 46 |
| Wagon Trail Ranch | Mod | 3 | 5 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 55 |
| Whispering Pines | Mod | 3 | 5 | 3 | 10 | 5 | 7 | 1 | 10 | 1 | 45 |
| Wildwood | Mod | 3 | 5 | 3 | 10 | 5 | 7 | 1 | 10 | 1 | 45 |
| Willis Lane | Mod | 3 | 3 | 3 | 10 | 15 | 7 | 1 | 10 | 3 | 52 |
| Yoke Road | Mod | 3 | 5 | 3 | 10 | 13 | 7 | 1 | 10 | 3 | 55 |
| **Oregon Outback Custer** | | | | | | | | | | | |
| Antelope Meadows | Mod | 3 | 3 | 5 | 10 | 10 | 10 | 1 | 10 | 3 | 55 |
| Beal Road | Mod | 3 | 3 | 5 | 10 | 10 | 10 | 1 | 10 | 3 | 55 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bear Track Meadows | Mod | 3 | 5 | 5 | 10 | 7 | 10 | 1 | 10 | 5 | 56 |
| Brian Acres | Mod | 3 | 3 | 5 | 10 | 10 | 10 | 1 | 10 | 3 | 55 |
| Chapman Tracts | Mod | 3 | 3 | 5 | 10 | 5 | 10 | 1 | 10 | 3 | 50 |
| Forest Meadows | Mod | 3 | 3 | 3 | 10 | 11 | 7 | 1 | 10 | 3 | 51 |
| Ingle Estates | Mod | 3 | 5 | 3 | 10 | 6 | 10 | 1 | 10 | 3 | 56 |
| New Pine Acres | Mod | 3 | 3 | 5 | 10 | 10 | 10 | 1 | 10 | 3 | 55 |
| Old Howard Estates | Mod | 3 | 3 | 3 | 10 | 11 | 7 | 1 | 10 | 3 | 51 |
| Split Rail Estates | Mod | 3 | 5 | 5 | 10 | 7 | 10 | 1 | 10 | 5 | 56 |
| Jackpine Village | Mod | 3 | 3 | 3 | 10 | 6 | 7 | 1 | 10 | 3 | 46 |
| SunForest Estates | Mod | 3 | 5 | 3 | 10 | 6 | 10 | 1 | 10 | 3 | 56 |
| **Two Rivers North & Vicinity** | | | | | | | | | | | |
| Little Deschutes River Estates | Mod | 5 | 3 | 5 | 10 | 7 | 7 | 1 | 10 | 3 | 51 |
| Two Rivers North | Mod | 5 | 3 | 5 | 10 | 7 | 7 | 1 | 10 | 3 | 51 |

## Protection Capability Rankings

Protection capability rankings were comprised of response time for each fire protection district (based on a worst-case scenario) and community preparedness (whether there is or not, communities were involved in fire prevention/education efforts). A maximum of 36 points could be awarded based on response time and a maximum of 4 points for community preparedness. The combination of these two factors resulted in a protection capability ranking for each cluster, shown in Table 7. Higher numerical scores indicate lower protection capability and greater risk.

**Table 7**
**Protection Capability Rankings**

| Cluster Names | Fire Response (local RFPD) | Community Preparedness | Total |
|---|---|---|---|
| Crescent Lake Community | 16 | 0 | 16 |
| Crescent Lake Summer Homes | 17 | 0 | 17 |
| Odell Lake Summer Homes | 18 | 0 | 18 |
| Oregon Outback | 28 | 2 | 30 |
| Schoonover and vicinity | 34 | 2 | 36 |
| Two Rivers/Little Deschutes River | 28 | 2 | 30 |
| Crescent/Gilchrist | 14 | 2 | 16 |
| Wagon Trail & Vicinity | 20 | 2 | 22 |
| | 36 point max | 4 point max | 40 point max |

Source: Walker Range Fire Protection Capacity Group

## At-Risk Community Rankings

The Walker Range CWPP wildland fire assessment used a combination of five factors (risk, hazard, protection capability, structural vulnerability, and values protected) to calculate the relative risk to wildland fire to the eight community clusters in the plan area (Table 8). It is important to note that the minimum and maximum scores within each community varied considerably. This is key when considering potential hazardous fuel reduction treatments as it signals that not all acres within the community boundary are equally at risk.

**Table 8**
**Walker Range Wildland Fire Assessment Rankings by Cluster**
**(for 3 mile buffer and inner community perimeter)**

Community Clusters

| Name | Risk | Haz | Value | Stru Vul | ProCap | Total | Assessment Ranking |
|---|---|---|---|---|---|---|---|
| Odell Lake Summer Homes | 30 | 76 | 40 | 75 | 18 | 239 | Extreme |
| Crescent Lake Summer Homes | 30 | 67 | 40 | 68 | 17 | 222 | Extreme |
| Crescent Lake Community | 30 | 60 | 40 | 50 | 16 | 196 | High |
| Two Rivers & vicinity | 30 | 60 | 40 | 51 | 30 | 211 | High |
| Schoonover & vicinity | 30 | 72 | 40 | 65 | 36 | 243 | Extreme |
| Wagon Trail & Vicinity | 30 | 66 | 40 | 58 | 22 | 216 | High |
| Oregon Outback | 30 | 66 | 40 | 55 | 30 | 221 | High |
| Crescent/Gilchrist | 30 | 62 | 40 | 50 | 16 | 198 | High |

Source: Protection and fuels group developed a scoring system.
Data from Table 5

| | |
|---|---|
| Low | 0-75 |
| Mod | 76-125 |
| High | 126-224 |
| Extreme | 225-300 |

The following fire assessment categories are not intended to prioritize funding or treatment location, but rather provide an assessment of a larger geographic area.

Low: A cluster rating of "low" indicates the group of communities within the cluster and the area surrounding these communities will require only maintenance of existing fuels treatments. A "low" rating also indicates the protection capabilities and response times of the responsible fire protection district to be adequate in all expected situations.

Moderate: A cluster rating of "moderate" indicates the group of communities within the cluster and the area surrounding these communities will require some fuels treatments and will also require maintenance of existing fuels treatments. A "moderate" rating also indicates the protection capabilities and response times of the responsible fire protection district to be adequate in most situations, but may become taxed during periods of high demand.

High: A cluster rating of "high" indicates the group of communities within the cluster and the area surrounding these communities will require multiple fuels treatment and will also require maintenance of existing fuels treatments. A "high" rating also indicates the protection capabilities and response times response times of the responsible fire protection district may be a limiting factors in some situations, especially during periods of high demand.

Extreme: A cluster rating of "extreme" indicates the group of communities within the cluster and the area surrounding these communities will require multiple fuels treatment and will also require maintenance of existing fuels treatments. An "extreme" rating also indicates the protection capabilities and response times of the responsible fire protection district are often limiting factors.

## Community Cluster Wildland Fire Assessment

We produced maps for each of the community clusters as tools for smaller scale project planning and implementation. The cluster maps show the composite scores for each cluster: both the interior at-risk communities and their surrounding 3-mile buffers. In addition, a second set of cluster maps displays both planned and completed hazardous fuel reduction treatments by the Forest Service and BLM for each area. Completed fuel reduction treatments are shown with black crosshatches. Planned treatments are displayed in varying shades of pink, depending on the type of treatment. Planned treatments for the Forest Service may occur up to seven or more years out. Often, the map shows planned treatments over top of completed treatments to indicate follow-up entries or maintenance activities. It is important to note that planned treatments are just that –planned– and may or may not actually occur in the exact manner specified on the maps.

Completed treatments include: thinned, thinned and treated, underburned, and THAW (interagency fuels treatments). Planned treatments include: thinning and treating (T&T), thinning, treating and underburning, and underburning. Thinned treatments are areas either commercially thinned via a timber sale, post and pole sale, firewood sale, or some other type of sale where commercially usable products are removed and sold, or pre-commercially thinned where small trees that do not have commercial value are cut. These treatments aim to reduce the crown bulk density and/or remove ladder fuels to improve forest health and reduce intense fire behavior.

Treated areas are areas where the slash (leftover limbs, tops, and trees that have been cut during thinning) from thinning is either removed (piled/burned, piled/removed, utilized for firewood, poles, etc.) or minimized in some way either by underburning or mastication of some kind (chipping, broken into small pieces close to the ground so it will degrade more quickly). Underburned treatments are areas where ground fuels and some ladder fuels are burned and reduced by low intensity prescribed fire. It is important to note that areas labeled 'Thin, Treat,

and Underburn' represent a mix of treatments and do not necessarily indicate that all three types of treatment will take place on every acre.

The five landscape layers of the wildland fire assessment identify and prioritize risk and hazard across the planning area. The cluster maps help identify priorities areas for treatment within the boundaries of an individual at-risk community.

### Odell Lake Summer Homes

Areas of highest risk in this cluster are the homes on the perimeter of the lake. There are only a few small areas of land surrounding Odell Lake that have been treated. Planned treatments include thinning and treating lands northeast and southeast of the lake. An evacuation route is proposed for the south end of the lake along the Union Pacific Railroad Right-of-Way toward Crescent Lake State Airport.

### Crescent Lake Summer Homes

The cluster of structures on the northwest perimeter of the lake presents the highest risk area on Crescent Lake. Treatments have been accomplished around Crescent Lake. In addition, the Forest Service completed a large treatment north of the lake between the Union Pacific Railroad and the community of Crescent Meadows and north east toward Crescent Lake State Airport. Treatments include large areas to the southeast and northeast of the lake. A proposed evacuation route runs from Crescent Lake Summer Homes on the west side of the lake around to the southeast side toward Umli and Highway 58.

### Crescent Lake Community

The areas of highest risk lie within the community perimeters, especially to the west of Oregon State Highway 58. The largest fuel treatments in this cluster include a treatment southwest of Crescent Meadows, extending to the east side of the Union Pacific Railroad, and a treatment directly east of Crescent Lake Community. A number of smaller patchy treatments exist primarily in the south and southeast area, right inside of the 3 mile buffer. A number of thinning and treating projects are planned for areas west of the railroad tracks, east and northeast of Diamond Peak/Leisure Woods, and surrounding Crescent Lake Community and Crescent Meadows.

### Oregon Outback

The areas of highest risk in this community cluster are Sun Forest Estates and the northern part of Old Howard Estates. According to the map, most of the communities have had THAW treatments around some or all of their perimeters where they border BLM land. Proposed treatments include expanding the existing THAW project buffers to 1,500 feet around the communities of Sun Forest Estates, Forest Meadows, Split Rail, and Antelope Meadows.

Oregon Department of Forestry is in the process of creating a 200 acre fuels reduction buffer around the Jack Pine Village Subdivision. This includes a 200ft fuels reduction buffer along the property line, widening and thinning along roadways, thinning, and brush and slash mastication.

## Schoonover and vicinity

Each of the communities within this cluster has pockets of extreme risk. Most of the accomplished treatments have been carried out in the southern part of the cluster, especially around Cascade Estates and Tall Pines. Planned treatments include thinning, treating, and underburning projects surrounding Cascade Estates, the western side of Tall Pines, and areas west of Crescent and in a number of Forest Service lands within the cluster.

## Crescent/Gilchrist

Robert River Acres is the highest risk area in this cluster. Cascade Timberlands and Oregon Department of Forestry owns most of the land surrounding the communities of Crescent and Gilchrist. The Forest Service has completed some thinning and burning treatments to the west and southwest of the community, south of County Highway 61. The Forest Service plans to maintain and expand these treatments (thin, mow, and burn), as well as add a treatment to the south of the Kaehn/Riddle Road Area. The map does not show any treatments planned for the northern or eastern boundary.

Oregon Department of Forestry has plans to thin and masticate slash along the East boundary of the communities of Gilchrist and Crescent.

## Wagon Trail & Vicinity

The areas of highest risk are River Pines Estates, Mahn Acres, Wagon Trail Ranch, and parts of Stage Coach. There are no treatment areas within the 3 mile buffer in this cluster and no planned treatments. However, the Walker Range Steering Committee identified a number of hazardous fuel reduction actions for the area including treating areas on BLM lands, along Michaels Rd, behind Hackett- River Pines and Wildwood, and areas in and to the west and north of Wagon Trail Ranch and Stagecoach.

## Two Rivers/Little Deschutes River

More than fifty percent of the community of Two Rivers is classified as extreme risk. The lands surrounding Two Rivers have been thinned and treated and underburned, especially to the south and southwest of the community, along the Little Deschutes River. The completed treatments will be maintained or continued with a mix of thinning, mowing, and prescribed burning. Additional treatments are also planned for areas to the northeast along the Little Deschutes River and to the southwest of Two Rivers. Few treatments are planned to the east of the community.

# Chapter 6
# Community Outreach

Community wildfire protection plans rely on coordinated action and strong local involvement to be effective. From the beginning, the steering committee planned to ensure that the needs, issues, and suggestions from the public were identified and incorporated into the community wildfire protection plan whenever feasible. The steering committee also made sure to include opportunities and education efforts to give the public the opportunity to understand the risk of wildland fire and what they should do about it.

In addition to educating and motivating local residents, the information gathered at the early community meetings helped the steering committee tailor fuel reduction projects and emergency response improvements to local needs. The original and subsequent wildland fire assessments examined risk and hazard across the landscape in the Walker Range area, while the community meetings identified the perspectives and insight from local residents. These two sources of information allowed the steering committee to better link the landscape issues to local actions.

In 2005 there were community meetings at the beginning and end of the planning process. Members of the public identified the areas they thought were at risk and any areas that might hinder effective emergency response in the wildland urban interface (e.g. locked gates, lack of evacuation routes, long narrow driveways, etc.). The meetings also had residents identify the places (beyond their homes) that were important to them that they would protect from wildland fire.

The wildland and structural agencies and prevention groups worked together to begin implementing education programs and the steering committee identified additional opportunities to communicate wildland fire risk and mitigation to the public.

## Education and Outreach Objectives

In addition to continuing the programs already in place, the steering committee identified the following objectives to continue developing and implementing:

- Strategies for increasing citizen awareness and action for fire prevention.

- Education outreach targeted at citizens in the northern part of the county (including people of all ages, ethnicity, and income levels, etc.)

### Existing Prevention and Education Activities

- Educational Programs:

    - Outdoor Fire Safety Program with Boy Scouts.

- Conduct educational classes at the local school Child Safety Fair.
- Focused educational efforts on debris burning, burn barrel, campfires, and outdoor portable fireplaces.
- Organize and teach Smokey Bear Fire Safety Program at elementary schools.
- Conduct home site assessments on properties throughout the CWPP area.
- Take advantage of homeowner association and road district meetings to present educational materials.
- Promote and conduct fire resistant garden tours
- Actively participate in Central Oregon Fire Prevention Coop (COFPC) and Klamath Fire Prevention Coop (KFPC.)

- Recreation:

  - Developed dispersed campsite book on locations.
  - Daily patrols in recreation areas.
  - News releases
  - Off Highway Vehicle (OHV) education regarding safe use, spark arrestors, etc.

- Hunting/Mushroom Season:

  - Conduct patrols
  - Provide educational materials at seasonal hunting booths
  - News releases
  - Regulation handouts
  - Provide education designed for mushroom season related to campfire safety, cigarettes, etc.

- Woodcutting:

  - Provide information regarding industrial use precaution levels
  - Use of spark arrestors, etc.
  - Brochures on cutting areas and restrictions

- Community Action:

  - Road District, Home Owners Association (HOA), Community Action Team (CAT.)
  - Local Fire Departments & Organized Community Groups.
  - Community Emergency Response Team (CERT Team.)

- Funding Opportunities and Implementation:
  - Identify and apply for grants for completing projects.

- Treating vacant lots. This issue emerged strongly at the community meetings and continues to be a prominent issue with the revision. Ideas to address the issue include:
-

Developing buffers on public and private lands around particularly bad vacant lots

Developing a vacant lot and education, personal homeowner responsibility.

Continuing with the vacant lot campaign with Walker Range

Vacant lots regulations under the Oregon Forestland Urban Interface Fire Protection Act of 1997 (Senate Bill 360).

Identify opportunities to implement Firewise standards in neighborhoods and neighborhoods that could organize to achieve Firewise recognition.

- Improving emergency evacuation by:
- Widening, thinning along roadsides
- Developing new evacuation routes
- Avoid unduly providing access for off highway vehicles (OHVs)

- Treating common areas within subdivisions:
- Emerged strongest in Wagon Trail Ranch
- Use Firewise or Senate Bill 360 for standards

- Need to build in a maintenance program into the strategy:
- Many brush/shrub communities will grow rapidly when the overstory is thinned
- Need to take care of brush piles—brush piles tend to make homeowners nervous

- Improving signage - most pressing in Two Rivers North, Little Deschutes River Woods, Schoonover, Tall Pines, and Wagon Trail Ranch:

- Concerns with smoke associated with prescribed burning and burning slash piles:
- Improving communications with federal agencies and general public (concerning things like burning, planned projects, firewood availability etc….)
- Improve communication with homeowners by compiling an email contact list by subdivision, local news letters, and websites.
- Provide advance information about what to expect during fuel reduction projects
- Use education to address public perceptions of the visual effects of fuels treatments. Work with residents to understand the cost/benefits of fuels reduction with respect to reducing risk of high-intensity wildfires vs. changes to forest density and tree spacing.

# Chapter 7

# Action Plan Goals and Objectives

The purpose of the action plan is to guide implementation based on the results of the wildland fire assessment, community meetings, and planning process. The steering committee, fire protection capacity committee, and education committee developed goals and objectives for action in three key areas: hazardous fuel reduction, fire protection capacity, and education. Proposed actions were also developed for structural vulnerability, social and ecological values to be protected, biomass utilization, and monitoring and evaluation. The group then developed an implementation strategy to achieve these goals and objectives.

## Hazardous Fuel Reduction

Reducing hazardous fuels in the wildland urban interface was one of the primary purposes of the Walker Range CWPP. The steering committee used the community cluster maps showing the wildland fire assessment information, the planned and completed treatment maps, and their extensive local knowledge to develop the following hazardous fuel reduction recommendations for each of the eight community clusters in the Walker Range area.

**Table 9**
**Hazardous Fuel Reduction Recommendations**

| Community Cluster | Recommended Hazardous Fuel Reduction Actions |
|---|---|
| Crescent Lake Summer Homes | Intense treatment around structures |
| | Improve defensible space, widen driveways |
| | Improve access and evacuation routes |
| | Reduce crown density, decrease likelihood of crown fire |
| Crescent/Gilchrist | Develop defensible space |
| | Control bitterbrush on Cascade Timberland |
| | Maintenance schedule for all ownerships |
| Crescent Lake Community | Improve access, evacuation and escape routes |
| | Complete fuel reduction treatments on federal lands |
| | Meet or exceed SB 360 standards around structures |
| Wagon Trail & Vicinity | Treat vegetation on roadsides of Michael Rd |
| | Build access to river in Little River Ranch for firefighting |
| | 500 ft buffer on east side of Wagon Trail Ranch (WTR) and Stagecoach |
| | Intensive treatment on BLM blocks and west side of river |
| | Improve access & evacuation routes for River Pine Estate (treat and maintain vegetation and sign the route) |
| | Treat west side of Little River Pines and Wildwood (Cascade) |
| | Maintain Cascade Timberland surface fuel at low levels |
| | Treat common lands and vacant lots in Wagon Trail Ranch.<br>Put in hiking trial and fire break<br>Work with homeowners to develop defensible space |

| Community Cluster | Recommended Hazardous Fuel Reduction Actions |
|---|---|
| Odell Lake Summer Homes | Treat Forest Service land up to wilderness boundary |
| | Improve access and evacuation routes |
| Oregon Outback | Treat evacuation routes out of Forest Meadows to Split Rail, and on Michael Rd |
| | Expand existing THAW treatment buffers to 1500 feet |
| | |
| | Develop defensible space on private property around residences in interior of the subdivision |
| | |
| | Proposed treatment: homeowners and State Forestlands |
| Schoonover and vicinity | Treat roadsides – widen and add better signs, control brush |
| | Improve proposed access & evacuation routes, provide signage |
| | Complete Forest Service planned treatments |
| | Meet or exceed Senate Bill360 standards around residences and structures |
| Two Rivers/Little Deschutes | Put proposed evacuation route on west side of gates |
| | Decrease vegetation on either side of evacuation routes |
| | Treat southwest corner, use pre-commercial thinning (PCT) |
| | Treat east side with PCT |

In addition to the community-specific goals described above, more general goals divided by the main types of land ownership (private residential, private forestland, and federal land) are listed below.

## Private Residential Land Goals

- Protect the safety of people, property, and natural resources from wildland fire
- Increase the ability to suppress a wildland fire in the wildland urban interface by treating hazardous fuels
- Protect and restore watersheds
- Meet landowners' objectives for forest health and restoration
- Maintain a balance of hazardous fuel reduction, aesthetics, wildlife habitat, and property values
- Priority areas for hazardous fuel reduction treatments in the wildland urban interface include:
    - Defensible space around homes and structures
    - Emergency escape routes
    - Roadside fuel reduction treatments along main transportation corridors
- Meet or exceed the standards set by Senate Bill 360
    - Establish a fuel break around structures
    - Create fuel breaks along roadsides and property lines
    - Improve driveway access for fire trucks

Remove tree branches near chimneys and dead branches overhanging roofs

Move firewood away from structures or cover it

Remove flammables from under decks and stairways[19]

## Private Forest Land Goals

- Focus treatments around developed home sites and access routes
- Treat fuels adjacent to subdivisions and communities identified as high priority in the wildland fire assessment
- Decrease the risk of uncharacteristic wildland fire behavior by decreasing hazardous fuels to create flame lengths less than four feet
- Treat dense seedlings, saplings and pole stands and contiguous bush to a condition that can be maintained by mechanical means in treatment buffers adjacent to identified communities at risk
- Continue to meet existing standards for multiple objectives (Oregon Forest Practices Act and federal requirements under grant payments)
- Protect adjacent properties and resources from a wildland fire that originates on private forestland
- Meet landowner's objectives for forest health and restoration

## Federal Land Priorities

- Focus hazardous fuel reduction treatments in the wildland urban interface around communities identified as high risk by the wildland fire assessment.
- Reduce hazardous fuels with the goal of achieving Condition Class 1 while protecting and enhancing key ecological and social values associated with the areas.

  Establish maintenance program to address future fuel build-up

  Address on a landscape, not acre by acre
- Decrease the risk of uncharacteristic wildland fire behavior by reducing hazardous fuels in order to achieve flame lengths less than four feet

  Reduce crown fire potential
- Continue to meet existing standards for multiple objectives (Wild and Scenic Rivers, Endangered Species Act, National Environmental Policy Act, etc.)
- Protect private property, tribal property, and natural resources
- Protect and restore watersheds

[19] Oregon Forestland-Urban Interface Fire Protection Act, *Property Evaluation and Self-Certification Guide for Deschutes County,* August 2004.

## Fire Protection Capacity

The primary goal of fire protection capacity is to improve communities' ability to prepare for and respond to wildland fire events. Much of the effort to develop the goals and actions regarding community fire protection capacity was completed by the Fire Protection Capacity Working Group. The working group developed the following goals:

Continue to:

1) Improve and expand ability to deliver water for fire suppression
2) Improve communication between all jurisdictions and agencies
3) Improve the ability of fire districts to respond to wildland and structure fires
4) Improve emergency access, ingress and egress routes
5) Improve residential and street signage
6) Encourage compliance with state and local fire codes (e.g. SB360 and Klamath County Article 69)
7) Improve interagency cooperation, training, response and equipment resources.

### Water Source Development

The development of adequate and dependable water sources is a crucial aspect of community fire preparedness. Of the 56 communities in the Walker Range plan area, only three have pressurized wet fire hydrants: Crescent, Gilchrist, and Diamond Peaks/Leisure Woods. All of the other communities rely on a variety of sources to supply water during fires, including dry hydrants (hydrants that are plumbed to a water source but require drafting), tanks, ponds, and open sources (like swimming pools).

The fire protection capacity committee developed the following goal and objectives to guide the process of improving water sources.

***Goal:*** Continue to: Improve and expand ability to deliver water to wildfire incidents.

***Objectives*:**

1) Provide readily accessible information about location and capacity of all sources to all structure and wildland fire protection organizations and update regularly.

2) Develop new water sources; dip ponds, and drafting sources (e.g. creeks, lakes, ponds, tanks) identify these sources and include in annual updates.

The working group also set the following standards for all water sources:

- All developed water sources will be accessible to all fire protection jurisdictions via a permanent easement and deeded access (contact Oregon Water Resources Department website for a water source permit[20]).
- All piped water sources will use 2½" or 4½" national standard thread (NST) attachment fittings. Adapters must be available for all agencies.

With a map of existing water sources completed, the working group was able to identify the high and medium priorities for new water source development. Table 10A contains existing and proposed water source development needs for dry hydrants, ponds, and tanks.

**Table 10**
**Existing Water Sources**

| Type | Name | Location | Capacity | FPD | Location |
|---|---|---|---|---|---|
| **Existing Sources** | | | | | |
| Draft Site | Crescent Pines | Buzzard Lane Bridge on Crescent Creek | | Walker Range | **T24, R8,S21 SWSE 43 21 03 121 32 14** |
| Draft Site | Two Rivers North | Little Deschutes River on Chinquapin Dr. 1. 60 road | | Walker Range | T26, R7,S1 SWNE 43 21 05 121 49 56 |
| Draft Site | Cliff Ranch Rd | Hackett Dr. in irrigation canal | | Walker Range | T23, R9, S24 NENE 43 34 16 121 35 12 |
| Draft Site | Wagon Trail Ranch | at Wagon Trail Clubhouse in Little Deschutes River | | Walker Range | |
| Draft Site | Cold Creek | Crescent Lake Highway @ Cold Creek | | Central Cascades | T24, R6, S1 NESW 43 31 15 121 57 20 |
| Draft Site | Shelter Cove | Odell Lake @ Shelter Cove Resort | | Central Cascades | T23, R6, S17 SWNW 43 34 52 121 02 26 |
| Draft Site | | Odell Creek Bridge near Odell Lake Resort | | Central Cascades | T23, R6,S25 NWSW 43 32 56 |

[20] Application for a Permit to Store Water in a Reservoir, http://www1.wrd.state.or.us/pdfs/storage.alt2003.pdf (accessed July 13, 2005).
Latitude and longitude Datam is WGS 84.
Water sources are generally accessible only during summer months.

| Type | Name | Location | Capacity | FPD | Location |
|---|---|---|---|---|---|
| | | | | | 121 57 46 |
| Draft Site | White Fish Creek | USFS Rd 60 Road @ White Fish Creek Bridge | | Central Cascades | T24, R6,S29 NENW 43 28 04 121 01 55 |
| Draft Site | Crescent town site | Crescent Lake Hwy Forest Rd 60 @ Crescent Creek | | Central Cascades | T24, R6,S11 SWNE 43 30 31 121 58 08 |
| Draft Site | Princess Creek CG | Odell Lake @ Princess Creek CG ramp | | Central Cascades | T23, R6,S16 NWNE 43 35 07 121 00 32 |
| Draft Site | Sunset Cove | Odell Lake @ Sunset Cove CG ramp | | Central Cascades | T23,R6,S23 NESE 43 33 45 121 57 49 |
| Draft Site | Crescent Lake CG | Crescent Lake CG ramp | | Central Cascades | T24,R6,S11 SESW 43 30 03 121 58 25 |
| Draft Site | Cres-Del Acres | Royce Mtn. Road bridge over Crescent Creek | | Central Cascades | T24,R7,S7 SWNW 43 30 31 121 56 17 |
| Draft Site | Tall Pines | Bridge on Gulick Rd. | | Walker Range | |
| Draft Site | Schoonover | Little Deschutes River by gravel pile | | Walker Range | |
| Draft Site | Masten Road | Masten Rd. @ County pullout | | Walker Range | T22,R9,S24 SWSE 43 38 44 121 35 32 |
| Draft Site | Two Rivers | Spruce Creek @ 5830 Rd | 5,000 gal | Walker Range | T25,R7,S36 NWSE 43 21 39 121 49 46 |
| Draft Site | Two Rivers | Little Deschutes @ 5835 Rd | | Walker Range | T25,R7,S36 SENE 43 21 51 121 49 33 |
| Tank | Sun Forest Estates | Antelope Meadows | 5,000 gal | Oregon Outback | T23,R10,S16 NWSE 43 34 47 121 31 51 |
| Tank | River Pine | Hackett Dr | 5,000 gal | Crescent | |
| Tank | Jackpine Village | Jackpine Subdivision | 5-10,000 g | Oregon Outback | |
| Dip Site | Gilchrist | Mill Pond | 5,000 gal | Walker Range | T24,R9,S19 SWSE 43 28 22 121 41 34 |
| Dip Site | Anderson's | Anderson's Pond | 5-10,000 gal | Walker Range | |

**Table 10A**
**Proposed Water Sources**

| Type | Name | Location | Capacity | FPD | Location |
|---|---|---|---|---|---|
| Tank | Sunforest Estates | Sunforest Estates | 2,500 gal | Oregon Outback | |
| Tank | River Pine | Hackett Dr/River Pines | 5,000 gal | Crescent | |
| Tank | Jackpine Village | Jackpine Village | 5-10,000 gal | Crescent | |

## Communication

Communication during wildland fires and other events emerged as an important issue to address in the Walker Range CWPP. The Federal Communications Commission mandates that all federal, state, and local agencies adopt narrowband frequencies for communication. Most of the rural fire protection districts in Walker Range have made the conversion to narrow band radio capability. The ability to communicate across radio frequencies is called "interoperability."

With the addition of a radio repeater site at Odell Butte, and improvements to the Walker Mountain site, radio coverage is significantly improved for regional fire districts.

***Goal:*** Continue to improve communication capability between all jurisdictions. Significant improvements have been made.

***Objectives:***

1) Maintain and improve radio interoperability between all jurisdictions
2) Improve communication during wildfire evacuations
3) Upgrade the rural fire protection districts' communication equipment to national standards.
4) Standardize radio channels/frequencies used by regional fire districts and include OSFM Mobilization Frequencies in agency radios.
5) Adopt National Incident Management System / Incident Command System (NIMS/ICS) as standard Incident Management System. Train personnel to minimum standards as soon as possible (FEMA IS-700, IS-100, IS-200, etc.).
6) Adopt "plain language" radio communications policies to reduce confusion over local use of "10 codes," which may have other meanings, or no meaning, to responding mutual aid agencies.

***Actions*****:** *Continue to;*

1) Develop Walker Range interoperability plan
2) Acquire new communication tools for rural fire protection districts
3) Improve emergency management communication
4) Enhance coordination with Klamath County Emergency Services/KC911 for service improvements, coordination, and system standardization

The long-term goal of all the jurisdictions in the Walker Range plan area is to comply with the national and state standards for interoperability. The Fire Protection Capacity Working Group selected a set of tactical radio frequencies that will be used to maintain communication during wildland fire events. These frequencies and characteristics are described below in Table 11. Include the frequencies recommended by the Oregon State Fire Marshal for responding agencies' apparatus on state conflagration mobilizations. Each agency has a frequency for receiving and transmitting and a few agencies have associated tones.
Radio frequencies will be reviewed and updated annually through the North Klamath County Operations group.

## Table 11
## Radio Frequencies for MOBILILIZED UNITS on State Mobilizations

| VHF CH | TX | Tone | RX | Tone | Type | Name | Assigned |
|---|---|---|---|---|---|---|---|
| 1 | 154.2800(W) | 156.7 | 154.2800 | | Simplex | STFIRE | Command or STR group |
| 2 | 154.2800(W) | 100.0 | 154.2800 | 100.0 | Simplex | STFIRE 100 | Command or STR group |
| 3 | 154.2800(W) | 162.2 | 154.2800(W) | 162.2 | Simplex | | Command or STR group |
| 4 | 155.7525(N) | 156.7 | 155.7525 | | Simplex | VCALL | Nat. Calling<br>Emer/safety |
| 5 | 151.1375(N) | 156.7 | 151.1375 | | Simplex | VTAC 1 | OSFM DIV A TAC |
| 6 | 154.4525(N) | | 154.4525 | | Simplex | VTAC 2 | OSFM DIV B TAC |
| 7 | 158.7375(N) | | 158.7375 | | Simplex | VTAC 3 | OSFM DIV C TAC |
| 8 | 159.4725(N) | | 159.4725 | | Simplex | VTAC 4 | OSFM DIV D TAC |
| 9 | 154.4525 (N) | 100.0 | 159.4725 | 100.0 | Duplex | VTAC 2-4 | OSFM Repeater |
| 10 | *NOTE BELOW | | | | Simplex | | |
| 11 | 151.3400(W) | | 151.3400 | | Simplex | REDNET | ODF Tactical |
| 12 | 151.3100 | | 151.3100 | | Simplex | WHITENET | ODF Air to Ground |
| 13 | 155.8050(W) | 156.7 | 155.8050 | | Simplex | SAR | Statewide SAR |
| 14 | 155.3400(W) | | 155.3400 | | Simplex | HEAR | Hospital Emergency |
| 15 | 155.4750(W) | 156.7 | 155.4750 | | Simplex | OPEN | Oregon Police Net |

**Table 11 will be updated to conform to Federal mandate for narrow banding prior to 1-1-2013.**

**(N) Set for Narrowband (W) Set for Wideband**

* Channel 10 --Locally Determined by County Fire Defense Chief --Each County Fire Defense Board Chief is asked to determine one radio frequency that can be used by their mobilized units for unit to unit communications on mobilizations. This frequency should be programmed in as channel 10 when replicating the above list as a group or bank of channels. All units responding on a mobilization should have these frequencies to allow integration to the incident communications plan as developed by the State Fire Marshal's Communications Unit Leaders.

## Fire District Capacity

The previous sections addressed water sources and communication as related to fire protection capacity. This section examines the general capacity of the fire districts and associations in the plan area and outlines goals for increasing their ability to prepare for and respond to wildland fire.

In general, the Walker Range area has strong capacity to respond to wildland fires and much more limited capacity to respond to structure fires. All of the rural fire districts in the plan area are small, under-funded, and rely heavily on volunteers. The Crescent RFPD and the LaPine RFPD are the only two districts that have career firefighter staff. The other districts depend solely on volunteers. Raising the capacity of the rural fire protection districts is a key goal of the Walker Range CWPP.

The following section describes the current inventory of the facilities, personnel training, structure equipment, apparatus, and goals of the fire protection districts and associations in the Walker Range area. For the rural fire protection districts, acquiring more trained personnel remains the highest priority. Oregon fire protection districts use guidelines from Oregon Department of Public Safety Standards and Training (DPSST) to train and certify personnel at the various levels.
Apparatus and Equipment resources are categorized by type in accordance with National Wildfire Coordinating Group (NWCG) and NIMS/ICS guidelines. (See Appendix H)

Resource Typing refers to resource capability. A Type 1 resource provides a greater overall capability due to power, size, capacity, etc., than would be found in a Type 2 resource. Resource typing provides emergency managers with additional information in selecting the best resource for the task.

Resource typing is the categorization and description of response resources that are commonly exchanged in disasters through mutual aid agreements. Resource typing definitions can give emergency responders the information they need to make sure they request and receive the appropriate resources during an emergency or disaster. Ordering resources that have been typed using these definitions makes the resource request and dispatch process more accurate and efficient. In FY 2006, State, territorial, tribal, and local jurisdictions were required to inventory response assets that conform to NIMS resource typing standards.

Resource typing is an important part of resource management, which is one of the five components of the National Incident Management System.

## Central Cascades Fire & EMS District

***Facilities:*** Central Cascades Fire & EMS Community Services Center / Fire Station
20400 Crescent Lake Highway, Crescent Lake, OR 97733-1065

***Personnel & Training:***

- EMS personnel; varied experience and training
- Firefighters (structural and wildland)
- Department of Public Safety Standards and Training (DPSST) accredited training program

***Structure & Rescue Equipment:***

- NFPA/ISO equipment complement on structure engines (ref. NFPA 1901)
- NFPA equipment complement on wildland apparatus (ref. NFPA 1906)
- 12 self contained breathing apparatus (SCBA) units with spare cylinders (4500 psi)
- Hi-Pressure (4500+ psi) SCBA re-fill compressor unit at station
- Hydraulic Rescue / Extrication Tool kits
- Air chisel kits
- Foam capability (foam injectors, educators, concentrate, etc.)
- Porta-tanks, 1000 to 3000 gal. capacity
- Hi-volume floto-pumps, 200-300 gpm
- Portable pumps, 100-250 gpm
- Snow Rescue Sled & Snow Mobile on trailer
- 110 watt Kenwood Base Radio and Repeater system with tower at station
- 110 watt Kenwood narrow band mobile radio with repeater system in each vehicle
- Kenwood narrow band portable radio assigned to each responder.
- Radio Pagers for all response personnel

***Goals:***

1) Response capable to all alarms with adequate number of trained/certified personnel
2) Recruit, train and retain a cadre of certified local resident personnel
3) Obtain, maintain, train and support; apparatus, equipment, facilities and personnel to meet applicable NFPA Standards, ISO ratings, DPSST and NWCG certification standards
4) Improve ISO rating from current ISO-8B/10.
5) Improve equipment, training and training resources region wide.

***Actions in support of goals:***

1) New 4wd, type 1, structure engine in service 1/06.
2) New 4wd, Rescue/Medic in service 2/06.
3) New structure and wildland personal protective equipment (PPE) in service 9/05.
4) New portable fire pumps 8/05.
5) Increase structure firefighter (FF) training for personnel, w/FF 1 certification.
6) Increase wildland firefighter training for personnel, w/FF 1 certification.
7) Provide volunteer recruiting and retention incentives.
8) Improve water supply and delivery capacity through training and equipment.
9) Improve citizen awareness and involvement through ongoing public information/education, training, open houses, newsletter mailings, website, neighborhood meetings, recruiting, etc.
10) New hydrants and water sources installed or identified in district.
11) Mutual and Automatic Aid agreements in place.
12) Continue Joint training with regional providers.
13) Regular regional agency meetings to identify and improve deficiencies, communications, training, response, etc.
14) Completed training classroom facilities for local and regional use.

## Crescent Rural Fire Protection District

***Facilities*:** Station #1 at Crescent (main facility) and Station #2 at Hackett Drive (north end of the district)

***Personnel Training*:**

- 2 full-time firefighters/paramedics
- 1 full-time firefighter/EMT-I
- 2 volunteer paramedics
- 2 volunteer EMT-I
- 6 EMT-Basics
- 10 Firefighters

Crescent has Oregon Department of Public Safety and Standards Training Accreditation for Fire at the following levels:

- Entry Level Firefighter
- Firefighter I
- NFPA driver,
- NFPA pumper operator
- Fire ground leader I

- S-130, S-190 wildland

Bi-monthly continuing education exists for all EMTs at all levels.

***Structural Equipment*:**

- Hydraulic & Mechanical Extrication Tools
- Stabilization air bags and bars
- 20+ self contained breathing apparatus (SCBA) units, 4500 psi, 30 min bottles
- 2 Port-a-Tank (2500 gal) for water tender shuttle
- 2 water monitors for large gallon per minute (gpm) flow
- On board deck gun E-1111
- Motorola Narrow Band/P-25 Mobile & Portable Radios

***Goals:***

1) Improve current ISO ratings for north portion of district (9 to 8b)
2) Maintain, train, and recruit more volunteers (ongoing goal)
3) Begin and maintain a sleeper program from the Fire Science Program at Central Oregon Community College (COCC)
4) Construct a new fire station within the next 4 years with a larger training room and sleeper quarters

## Chemult Rural Fire Protection District

***Facilities*:** Chemult (station 1), Beaver Marsh (station 2), Two Rivers North (station 3)

## Oregon Outback Rural Fire Protection District

***Facilities*:** 148101 Beal Road

***Personnel Training*:**

- 5 trained S130/190 wildland firefighter, 5 trained FF-1, 2 EMT-B & 5 EMT-FR

***Structural Equipment*:**

- 1 Engine

***Goals:***

1) To recruit and train more volunteers

## Walker Range Fire Protection District

***Facilities*:** 135393 Hwy 97 N, Crescent

***Personnel Training*:***

1) All mainline firefighters are Type 1 or higher qualified.
2) Single resources – Incident Command Type (ICT) 3
3) Dozer/tender operator
4) Single resource – ICT 4/Firefighter
5) Single resource – ICT 5/Firefighter
6) Staging manager
7) Firefighter II
8) Wildland Cause Investigators

* Dependent on ICS (Incident Command System) qualification under National Wildfire Coordination Group (NWCG).

***Goals:***

Walker Range FPA will maintain current level of service while continuing to look for opportunities to enhance efforts.

The district's goals are to:

1) Minimize the total cost and loss resulting from fire in terms of suppression cost and damage to timber and other forest values
2) Assist in reducing trauma associated with emergencies

Specific objectives include:

1) Decrease human-caused fires
2) Aggressively fight and safely manage wildland fires
3) Be an integral member of the community

## US Forest Service, Crescent Ranger District Fire Protection Organization

***Facilities*:** 136471 Hwy 97 N, Crescent

***Personnel Training*:***

- Initial Attack handcrew, single resource Incident Command Type (ICT) 4 or higher

* Dependent on ICS (Incident Command System) qualification under National Wildfire Coordination Group (NWCG).

## Emergency Evacuation Routes

As noted earlier, many of the communities in the plan area are rural, isolated, and surrounded by forests (federal and private). Consequently, the lack of evacuation routes is a concern for many of the communities in the plan area. The vast majority of the communities in the plan area do not have recognized, signed, and permitted evacuation routes. Many of the existing and proposed emergency evacuation routes pass through federal lands prior to reaching a major road. In some cases, federal land managers have unknowingly eliminated communities' emergency evacuation routes while decommissioning forest roads for wildlife, sedimentation, or recreation control purposes.

The goal is to provide at least two routes into and out of subdivisions for use in the event of an emergency requiring mass evacuation. These routes shall be designated as "Emergency Evacuation Routes" for the subdivision and are not intended for use on a regular, non-emergency basis by non-emergency response personnel.

The fire protection capacity committee identified the improvement of evacuation routes out of subdivisions as a high priority.

***Goals:***

1) Provide signed, permitted, and mapped emergency evacuation routes for all communities within the plan area
    a) Focus efforts on subdivisions and communities with one way in and one way out
    b) Communicate location and schedule of existing and proposed evacuation routes to appropriate federal land management agency to facilitate special use permit process
    c) Secure easements to provide access through private land
2) Sign routes and maintain signs per Manual on Uniform Traffic Control Devices.
3) Identify and improve access routes currently inaccessible by fire apparatus

Evacuation routes were classified as follows:

- Existing routes (which currently have no easements)
- Proposed routes
- Subdivisions with no existing or proposed routes

***Existing Evacuation Routes using primary roads:***

**Crescent Lake Summer Homes:**

- Crescent Lake Summer Homes: to Rd 6020 to Hwy 58 or Windigo Pass Rd

**Crescent Lake Community:**

- Brewers Ranchos: all roads feed to Hwy 58

- Crescent Lake Community: feeds to Hwy 58 or Crescent Lake Hwy 60
- Crescent Meadows: to Hwy 60 to Hwy 58 or FS Road 60
- Crescent Pines: feeds to Hwy 58
- Cres-Del Acres: to Hwy 58
- Diamond Peaks/Leisure Woods: to Hwy 58

**Oregon Outback:**

- Antelope Meadows: to Howard Rd to Beal Rd to Hwy 31
- Antelope Meadows: to Michael Road to Hwy 97
- Forest Meadows: Split Rail to Sunforest to Hwy 31
- Forest Meadows: to Split Rail to Beal Rd to 31
- Old Howard Estates: Long Prairie to Beal Rd to Hwy 31
- Split Rail: to Beal Rd to Hwy 31
- Split Rail: to Forest Meadows to Sun Forest to Hwy31
- Sun Forest Estates: to Hwy 31
- Sun Forest Estates: to Forest Meadows to Split Rail to Beal Rd to Hwy 31
- Forest Meadows: Split Rail to BLM road to Beal Rd to Hwy 31
- Sunforest: Bonneville Power Administration right-of-way to Hwy 31
- Old Howard Estates: Long Prairie Rd north to Huntington road to Hwy 97

**Schoonover and vicinity:**

- Cascade Estates: McNeal to Hwy 58
- Cascade Estates: Starlite to Hwy 58
- Schoonover: SCH-1 to railroad crossing right-of-way to Hwy 97 and ongoing
- Starlight Area: to Highway 58
- Tall Pines: Wildriver Dr to FS 6125 south to Hwy 58
- Tall Pines: Mulley Drive across Cascade Timberlands to railroad right-of-way to Hwy 58 or 97
- Two Rivers North – Little Deschutes River Woods:
- Two Rivers North: Two Rivers: to Rd 58/ 5830 to 5825 to Hwy 58
- Little Deschutes River Woods: to Rd 58/5830 to 5825 to Hwy 58

**Crescent/Gilchrist:**

- Airport Drive: south airport to County Rd 61
- Airport Drive: to Friendly Acres to County Rd 61
- Ramey Acres: to County Rd 61
- Friendly Acres: Friendly Lane to County Rd 61
- West Friendly Lane: to 100 spur to Airport Rd to County Rd 61

- East Friendly Lane: west to Friendly Lane to County Rd 61
- East Friendly Lane: to 100 spur to Airport Rd to County Rd 61
- Crescent: to Hwy 97
- Gilchrist: to Hwy 97
- Gilchrist: Albert Dr across State Forestlands to Rd 9765 north to Hwy 97 or south to 9768 to Hwy 97
- Kaehn/Riddle Roads: to Hwy 97
- Pinney Acres: to Hwy 97
- Ramey Acres: to County Rd 61
- Roberts River Acres: Kreel Lane to Hwy 97

**Wagon Trail & Vicinity:**

- Chapman Road: to Hwy 97
- Chapman Road: to Jackpine Village
- Jackpine Village: Gracie Rd to Hwy 97
- Jackpine Village: Old Cabin Rd to Hwy 97
- Little River Ranch: Collar Rd to Masten Rd to Hwy 97
- Antelope Meadows: to Howard road to Beal Rd to Hwy 31
- Jackpine Village: Old Cabin Road to Michael Rd to Hwy 97 or east to Midstate Rd to Howard to Beal Rd to Hwy 31
- Little River Ranch: Collar to MH-1 to Masten Rd to Hwy 97
- Little River Ranch: to Alleghany road to MH-1 to Masten to Hwy 97
- Mahn Acres: MH-1 to Masten to Hwy 97
- Mahn Acres: across river to Stagecoach Acres to Hackett Rd to Hwy 97
- River Pine: Rector Drive to Cliff Ranch road to Hwy 97
- River Pine: Paul Dr to BLM road to Hwy 97
- Stagecoach Acres: to BLM road to Hwy 97
- Chapman Tract: to BSR
- Chapman Tract: to GT-2-2
- River Pine Estates: to Hwy 97
- Stagecoach Acres: Paul Dr to Hackett Rd to Hwy 97
- Wagon Trail Ranch: Wagon Trail Rd to Masten Rd to Hwy 97
- Whispering Pines:
- Willis Lane: to Hwy 97
- Willis Lane: across State Forestlands to Michael Rd to Hwy 97 or east through Antelope Meadows to Hwy 31

***Proposed Routes:***

**Crescent Lake Community:**

- Crescent Pines: to Buzzard Lane to 100 spur to Hwy 429
- Cres-Del Acres: Royce Mtn way to FS 170 to FS 100 to Hwy 429 or 100 spur to 6020 to 60 to Hwy 58
- Diamond Peaks/Leisure Woods: Working on easement near new hydrant on hwy 58.

**Schoonover:**

- Cascade Estates: east to Monk Rd to USFS unnamed road to Hwy 58 at halfway house
- Cascade Estates: Monk Rd to Forest Service road to Hwy 58

**Crescent/Gilchrist:**

- Kaehn/Riddle Roads: to Klamath Northern Railroad south to Rd 9772 to Hwy 97
- Pinney Acres: east to pipeline right-of-way south to Rd 9768 to Hwy 97
- Roberts River Acres: Hauser land across Cascade Timberlands to GT-1 to Hwy 97

**Two Rivers/Little Deschutes River:**

- Two Rivers North: ongoing with WRPA/USFS

## Education

Education and outreach are primary goals for the Walker Range CWPP. The Education Committee developed several goals for these efforts.

## Goals:

- Increase homeowner responsibility
  - Increase level of compliance with SB 360 and Klamath County Article 69
  - Increase responsibility for treating vacant lots
  - Improve home addressing, evacuation route signage
  - Increase local and visitors' understanding of living with wildland fire
  - Increase and enhance existing education programs
- Improve web page as a communication tool
  - Post CWPP on the web
  - Get information to local builders/zoning officials
- Continue to work with education cooperatives to reach the public about fire safety
  - Provide education kits for local rural fire protection districts
  - Educate people about noxious weeds and how to address them
  - Recognize need for long-term maintenance
- Distribute the Defensible Space Checklist at appropriate opportunities (see Appendix D)

## Structural Vulnerability

### Goals

- Increase the likelihood of communities and structures surviving a wildland fire
- Increase the fire-safe characteristics of structures within the plan area
- Meet or exceed the standards set for Senate Bill 360 and Klamath County Article 69
  - Establish a fuel break around structures
  - Create fuel breaks along roadsides and property lines
  - Improve driveway access for fire trucks
  - Remove tree branches near chimneys and dead branches overhanging roofs
  - Move firewood away from structures or cover it
  - Remove flammables from under decks and stairways
- Implement neighborhood recognition award for property owners who comply with SB360 and Klamath County Article 69

## Social and Ecological Values to be Protected

### Goals

The Walker Range Forest Protective Association will convene both the Steering Committee and Fire Protection Capacity Committee on a semi-annual basis or as needed to accomplish the following:

- Evaluate progress toward meeting goals
- Set priorities
- Update goals and maps
- Review grant opportunities
- 
- Include in Regional Emergency Services Group Meetings. These meetings are held monthly and make a good venue to update some of this information.

## Biomass Utilization

### Goals

- Support increased local and regional manufacturing capacity to utilize and add economic value to woody biomass
- Support the implementation of the Coordinated Resource Offering Protocol (CROP) in Central Oregon
- Support the development and implementation of the Business Alliance for Sustainable Energy (BASE)

## Performance Measurers

An effective monitoring process for the CWPP is important to ensure that resources are being utilized effectively, efforts from various agencies are well coordinated and complimentary, and that duplication of effort is minimized.

### Annual Review

An annual review will occur during a North Klamath County regional operation meeting. This will record the progress on the items listed below and provide the information for future updates to the plan. Each year the Regional group and the Steering Committee will refer to the action plan in this report to verify that steps are being taken to decrease the risk associated with each activity.

### Fire-Year Review

Every fire years the Steering Committee will re-convene to assess this document and determine any overhauls and rewrites as needed to account for changing conditions, and new priorities for the next fire year period.
Recommend performance measurers for the Steering Committee are listed below. Each of these measures should be reviewed and reported on annually. The organization responsible for the information or data source is noted below.

**Understand the scope of the wildfire problem and potential within the CWPP boundary.**

- Communities and at-risk infrastructure identified and mapped(Steering Committee)
- Updates completed, documented and incorporated into the CWPP (Walker Range)
- Wildland-Urban-Interface identified, evaluated, and mapped(Protection Committee)
- Fire Atlas compiled (All Jurisdictions) and updated annually( Protection & Fuels Committees)

**Reduce Hazardous Fuels**

- Lowered risk assessment scores for communities within the plan area (All)
- Reduction in potential flame lengths. In areas where the potential flame lengths exceed four feet, reducing the fuels so that the potential flame lengths are four feet or less. This needs to be accomplished on Federal lands, States and private lands and should be measured in acres. Accomplishment reporting to be submitted at annual CWPP review meeting.
- Total number of acres treated through fuels reduction measures. Accomplishment to be reported at the annual review meeting.

**Reduce structural ignitability**

- Number or acres/local community areas where defensible space is established around individual homes or clusters of homes (All)
- Number of structures lost to wildland to wildland fire (All)
- Fire prevention education.

**Coordinate WUI treatment activities on adjoining public and private lands**

- Number or percentage of WUI areas adjacent to federal lands where complimentary treatments occurred (All)
- Number or percentage of WUI treatment areas where public and private mitigation measures were conducted simultaneously or under a unified plan (All)

**Provide for safety of public during wildfire incidents**

- Evacuation processes developed.(All)
- Number of fire response or evacuation drill exercises performed. (All)
- Number of "safe zones" that have been established within a community cluster. (All)

**Promote community involvement and awareness**

- Number of outreach or education events held. (All)
- Assessment of overall participation in neighborhood fuels treatment initiatives (All)

The ability to predict fire behavior based on treatment effects and levels could be a powerful tool in gaining community understanding, acceptance and support for engaging in fuels treatments within community clusters. This approach could be used to enhance community involvement.

## Implementation

Updating the Walker Range CWPP has been a complex undertaking. Implementing and sustaining these efforts will require a significant commitment. Building a collaborative and cooperative environment between community-based organizations, fire districts, local government, and the public land management agencies has been the first step in reducing the risk of wildland fire. Maintaining this cooperation is a long-term effort that requires the commitment of all partners.

### Goals

The Walker Range Forest Protective Association will convene both the Steering Committee and Fire Protection Capacity Committee on a annual basis or as needed to accomplish the following:

- Evaluate progress toward meeting goals
- Set priorities
- Update goals and maps
- Review grant opportunities

Include CWPP discussions in Regional Emergency Services Group Meetings. These meetings are held monthly and make a good venue to update some of this information

## Recommendations to Reduce Structural Ignitability

Every CWPP must recommend measurers that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

The Steering Committee agreed that this can be accomplished through the following practices:

1. Installing and maintaining a fire resistant roof, siding and decking;
2. Establishing and maintaining defensible space around structures;
3. Limbing trees to reduce ladder fuels;
4. Using only fire resistant vegetation next to buildings;
5. Practicing aggressive debris management, particularly on roofs, eaves and gutters, under decks, and around structures;
6. Planning for, installing, and maintaining egress/ingress to property for fire protection vehicles;
7. Developing accessory water supply system to support fire suppression, and;
8. Working with Klamath County Community Development and local fire protection districts when planning construction projects.

The Committee agrees that the County should:

1. Develop aggressive fire safety and fire prevention public education programs;
2. Provide pamphlets and other educational materials to property owners applying for building permits; and
3. Adopt regulations that require the landowners to make new structures fire resistant.

## Action Plan

The CWPP action plan is based on a 5-year timeline and was derived from the indentified priorities and the risk assessment. Each action is stated throughout the plan. The CWPP provides information about each community cluster identified within the plan, the associated Community Cluster adjective risk rating in Chapter 5, table 8.

> *Hazardous Fuels Reduction:* reduction in hazardous fuels through vegetation manipulation and disposal including biomass utilization.
>
> *Community Infrastructure:* development of water supply, access/egress improvements, evacuation routes, communication sites and EMS facilities.
>
> *Defensible Space:* proper management of vegetation surrounding homes or structures to reduce the threat of wildfire.
>
> *Fire Readiness:* EMS training, apparatus acquisition, communications and fire suppression equipment.
>
> *Prevention Education:* educating the public on the threat of wildfire and promoting fire safety mitigation practices.

Source: Jefferson County 2011 CWPP.

# Appendices

# Appendix A
# Fire Policies and Programs

Local, state, and federal agencies have enacted many policies and programs related to community wildfire protection planning and fire protection. This appendix briefly describes these policies, as well as related county, state and federal programs.

**National Fire Plan and 10-Year Comprehensive Strategy**
After the disastrous 2000 fire season, Congress directed the federal land management agencies to develop the National Fire Plan (NFP). The intent of the NFP is to actively respond to severe wildland fires and reduce their impacts to communities while assuring sufficient firefighting capacity for future suppression. The NFP aims to help protect lives, communities and natural resources, while fostering cooperation and communication among state and federal agencies, local governments, tribes and interested citizens.

The NFP focuses on 1) fire suppression and protection, 2) restoration/rehabilitation, 3) hazardous fuels reduction, 4) community assistance, and 5) accountability. Most NFP funding in Oregon goes to wildland fire preparedness and hazardous fuel treatment. The National Fire Plan calls for the development of community fire plans to aid in effectively implementing NFP goals.[21]

**Federal Emergency Management Agency Disaster Mitigation Act of 2000**
Federal Emergency Management Agency (FEMA), Title 44 CFR Part 201 of the Disaster Mitigation Act of 2000 requires that local and Indian tribal governments applying for pre-disaster mitigation (PDM) funds to have an approved local mitigation plan. Activities eligible for funding include management costs, information dissemination, planning, technical assistance, and mitigation projects for all types of natural disasters, including wildland fires.

**Healthy Forest Initiative and the Healthy Forest Restoration Act**
In 2002, President Bush announced the Healthy Forest Initiative (HFI). HFI is designed to identify and remove barriers to the implementation of projects aimed at restoring the health of the nation's forests. HFI focuses on creating more effective and efficient forest restoration projects. In addition to other provisions, HFI authorizes new categorical exclusions that allow the federal agencies to move more quickly through the required environmental analysis and streamlined consultation for National Fire Plan projects.

Congress enacted the Healthy Forest Restoration Act (HFRA) in November 2003. It provides new tools and authorities to expedite fuel reduction projects on federal land. Title I of the HFRA addresses vegetation treatments on certain types of National Forest System and Bureau of Land Management lands that are at risk of wildland fire or insect and disease epidemics. This title:

- Encourages streamlined environmental analysis of HFRA projects

[21] Western Governors Association, *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy*, August 2001, http://www.fireplan.gov/reports/7-19-en.pdf (accessed June 15, 2005).

- Encourages collaboration between federal agencies and local communities in preparing community wildland fire protection plans
- Requires using at least 50% of the funding allocated to HFRA projects to protect communities at risk of wildland fire
- Encourages courts that consider a request for an injunction on an HFRA-authorized project to balance environmental effects of undertaking the project against the effects of failing to do so

Title III of the Act also encourages communities to develop the community wildfire protection plans that identify their wildland urban interface (WUI), where HFRA projects may take place.

**The Oregon Forestland Urban Interface Fire Protection Act of 1997 (Senate Bill 360):**
The Oregon Forestland Urban Interface Fire Protection Act was designed to reduce fire risk to homes located in fire-adapted interface areas that are protected by the Oregon Department of Forestry. The law establishes a basis for reducing the ignitability of structures by:

- Establishing a hazard rating for each community protected by the Oregon Department of Forestry
- Offering treatment standards for each homesite
- Providing educational and professional fire prevention guidance for landowners
- Requiring landowners to conduct a fire prevention assessment of their land and then certify that their interface property meets or exceeds the state of Oregon standards
- Establishing a statewide data system to track community compliance
- Requiring landowners to re-certify their property every five years

The treatment standards found in the Oregon Forestland Urban Fire Protection Act of 1997 address the immediate area adjacent to a structure. These treatment standards are a result of over thirty years of research conducted by the USDA Fire Research Facility in Missoula, Montana, and directly reduce radiant heat and flame impingement, which are the leading causes of structure loss during an interface fire event

**Central Oregon Fire Management Service Fire Management Plan, updated annually**
The Central Oregon Fire Management Service (COFMS) Fire Management Plan 2004 discusses all aspects of fire and fuels management in the COFMS area. COFMS includes the Deschutes and Ochoco National Forests and the Prineville District BLM. The purpose of Fire Management Plan is to identify and integrate all wildland fire management, guidance, direction, and activities required to implement national fire policy and fire management direction.

**Article 69, Klamath County**
This articles outlines development standards designed to "promote safe and appropriate rural development in areas where wildfire represents a threat to persons and property." The standards apply to "all new development zoned Forestry and Forestry/Range, and to all new development in other zoned land located within an area identified as having a medium, high, or extreme hazard rating on the Wildland Hazard Ratings map adopted as part of the Klamath County Comprehensive Plan." Specific standards have been developed for road construction, building construction, water supply systems, power supply systems, fuel break/property development, and identification signs.

# Appendix B
# Wildfire Hazard Rating Form

Subdivision_____Date_____Rating_____

A. Subdivision Design — Points

1. Primary Road
   - Two or more primary roads 1_____
   - One road 3_____
   - One way in, one way out 5_____

2. Width of Primary Roads
   - 20 feet or more 1_____
   - 20 feet or less 3_____

3. Accessibility
   - Road Grade 5% or less 1_____
   - Road Grade 5% or more 3_____

4. Secondary Road
   - Loop roads, cul-de-sacs with Outside turning radius of 45 feet 1_____
   - Cul-De-Sac turnaround Radius is less than 45 feet 2_____
   - Dead end roads shorter than 200' 3_____
   - Dead end roads longer Than 200' 5_____

5. Average Lot Size
   - 10 acres or larger 1_____
   - Larger than 1 acre, but less Than 10 acres 3_____
   - 1 acre or less 5_____

6. Street Signs
   - Present 1_____
   - Partially 3_____
   - Not present 5_____

A 1-6 Total _____

B. Vegetation

1. Fuel Types
   - Light 1_____
   - Medium 5_____
   - Heavy 10_____

2. Defensible Space
   - 70% or more of site 1_____
   - 30% or more, but less than 70% 3_____
   - Less than 30% of site 5_____

C. Topography — Points

1. Predominant Slope
   - 8% or less 1_____
   - More than 8%, but less than 20% 4_____
   - 20% or more, but less than30% 7_____
   - 30% or more 10_____

D. Roofing Material
   - Class A Rated 1_____
   - Class B Rated 3_____
   - Class C Rated 5_____
   - Non-Rated 10_____

E. Fire Protection – Water Source
   - 500 GPM hydrant within 1000' 1_____
   - hydrant farther than 1000'or Draft site 2_____
   - Water source within 20 minutes or less, round trip 5_____
   - Water source farther than 20 and less than 45 min, round trip 7_____
   - Water source farther than 45 min, round trip 10_____

F. Existing Building Construction Materials
   - Noncombustible siding/deck 1_____
   - Noncombustible siding & combustible deck 5_____
   - Combustible deck & siding 10_____

G. Utilities
   - All underground utilities 1_____
   - 1 underground, 1 above ground 3_____
   - All above ground 5_____

Subdivision Total_____

| Rating Scale | |
|---|---|
| Moderate Hazard | 30-59 |
| High Hazard | 60-75 |
| Extreme Hazard | 76-90 |

Rated By:_____

# Appendix C
# Defensible Space Checklist[22]

☑ **YOUR DRIVEWAY:** ON A DRIVEWAY THAT IS AT LEAST 150' LONG

- ☐ Horizontal driveway clearance must be at least 12 feet
- ☐ Vertical driveway clearance must be at least 13 ½ feet
- ☐ Construct a fuel break along your driveway – 10' from each side of the driveway's centerline, creating an area that is at least 20 feet wide, including the driving surface
- ☐ Post reflective double sided, address signs at the end of the driveway, so emergency responders can find you
- ☐ Local jurisdiction recommends 14'x14' road spacing on USFS Summer Homes

☑ **YOUR HOME:**

- ☐ Replace wood shake roofs with non-flammable roofing material.
- ☐ Remove leaves & needles from gutters, roofs, & decks.
- ☐ Remove tree limbs that overhang roof.
- ☐ Maintain the area under attachments (Decks, porches etc) free of firewood, flammable building material, leaves, needles, and other flammable materials; or cover openings to the area under the attachments with noncombustible, corrosion-resistant mesh-screening materials, which has openings no greater than ¼ inch in size.
- ☐ Screen vents and areas under decks with 1/4" metal mesh.
- ☐ Dispose of debris safely.
- ☐ Locate wood piles 20 feet away from buildings during the times of year when wildfire may be a threat. Or, cover in a fully enclosed space.
- ☐ Remove dead plants & brush.
- ☐ Remove low tree branches & shrubs.
- ☐ Mow grass to 4".

**IN ADDITION TO THE ABOVE RECOMMENDATIONS, FUEL REDUCTION MEASURES FOR EACH FIRE RISK CLASSIFICATION AREAS IS OUTLINED.**

☑ **WITHIN 30' OF YOUR HOME: HIGH CLASSIFIED AREAS**

- ☐ If the home has flame-resistant roofing (Class A, B or C), then a 30-foot fuel break is required. If it is roofed with cedar shakes or other flammable material, the fuel break must by 50-feet in size.

☑ **WITHIN 50' OF YOUR HOME: EXTREME CLASSIFIED AREAS**

- ☐ If the home has flame-resistant roofing (Class A, B or C), then a 30-foot fuel break is required. If it is roofed with cedar shakes or other flammable material, the fuel break must by 100-feet in size.

☑ **WITHIN 50' OF YOUR HOME: HIGH DENSITY EXTREME CLASSIFIED AREAS**

- ☐ If the home has flame-resistant roofing (Class A, B or C), then a 30-foot fuel break is required. If it is roofed with cedar shakes or other flammable material, the fuel break must by 100-feet in size.

[22] Oregon Department of Forestry SB 360 guidelines.

# Appendix D

## Wildfire Hazard Rating Form

Table 5 in Chapter 5

Subdivision _____ Rating_____

| Weather | 0-40 Points | | Points |
|---|---|---|---|
| Zone 1 Oregon Coast | | 0 | _____ |
| Zone 2 Willamette Valley | | 20 | _____ |
| Zone 3 SW, Central & Eastern Oregon | | 40 | _____ |
| | | Total | _____ |

| Topography | 0-10 Points | | Points |
|---|---|---|---|
| Slope | 0-25% | 0 | _____ |
| | 26-40% | 2 | _____ |
| | More than 40% | 3 | _____ |
| | | Total | _____ |
| Aspect | N,NW,NE | 0 | _____ |
| | W,E | 3 | _____ |
| | S,SW,SE, Flat | 5 | _____ |
| Elevation | | | |
| | More than 5,000 feet | 0 | _____ |
| | 3,501-5,000 feet | 1 | _____ |
| | 0-3,500 feet | 2 | _____ |

| Fuels (vegetation) | 0-30 Points | | |
|---|---|---|---|
| Fuel Model | Natural vegetation fuel hazard | | |
| | 0-20 Points | | |
| | Non-forest | 0-4 | _____ |
| | Fuel Hazard Factor 1 | 5-9 | _____ |
| | Fuel Hazard Factor 2 | 10-19 | _____ |
| | Fuel Hazard Factor 3 | 20 | _____ |

| Crown Fire Potential | 0-10 Points | | |
|---|---|---|---|
| | Passive-low | 0-4 | _____ |
| | Active-moderate | 5-9 | _____ |
| | Independent-high | 10 | _____ |
| | | Total | _____ |

# Appendix E
# GIS Data Sources

## Wildland Fire Assessment Methods

| Source of Data | | | |
|---|---|---|---|
| **File Name** | **Date** | **Source** | **Treatment** |
| FNLRiskRaster2 | Fires from 1993-2003 | Areas identified by fire managers | Fire Density – State and Fed fires were combined and condensed to include only human and lightning caused. This was clipped to the Walker Range CWPP boundary and run through Spatial Analyst >Density with the following parameters: Kernel, search radius=3724ft (The radius of a 1000ac circle), 30ft cell size, Area Units=acres and reclassified to the state standard and assigned points as follows: Low or 0-.1 per 1000 acres per 10 years = 10pts; Moderate or .1-1.1 PER 1000 acres per 10 years = 20pts and High or 1.1+ per 1000 acres per 10years = 30pts. "FNLFIREDENS" is the final fire density raster. A point shapefile "Structures" was derived from Klamath County tax records using an improved value of $1000 as the minimum improvement. The points were then run through Spatial Analyst>Density with the following parameters: Kernel, 372ft(113.516m)search radius (The radius of a 10ac circle), 30ft cell size (To maintain the 10m cell size of the rest of the data), Area Units = acres. Reclassified to the Homes per 10 acres density standard with 0 -.9 = 0 pts; 1-5 = 5 pts and 5.1+ = 10 pts. "FNLSTRUCTDENS2" is the final structural density raster and comprises 10 pts of the "Risk" category's 40 pts.<br>These 2 raster's were combined to produce FNLRiskRaster2. |
| FNLWRHAZD4-28 | Obtained Nov 2004 | Fire Atlas and DEMs and Deschutes National Forest | DEMs used are 10-meter resolution downloaded from Oregon GIS data library. Each DEM was run trough Spatial Analyst for Slope and Aspect. I used Arc View's default for determining North, Northeast, etc. Slope was calculated in % and then reclassified to 0-25%=0; 26-40%=1 and >40%=2. Aspect was reclassified: N, NW, NE=0; W,E=3; and S,SW,SE=5. The DEM was reclassified into 3 classes: 0-1133.8m (3500ft.) =2; to 1514m (5000ft.) =1 and above 5000=0.These 3 grids were added together in Raster calculator to produce "FNLWRTOPORAST", a 1-10 point breakdown of Topographic Hazard. A 4th raster was created from the CWPP boundary with all cells = 40pts (Weather). A 5th raster was created by reclassifying the Crown Fire Potential raster(FNLWRCFPRAST) derived from Deschutes National Forest data.15 points maximum was assigned A 6th raster was created by reclassifying the Fuel Model raster(FNLWRFUELRAST) obtained from the Fire Atlas.15 points maximum was assigned. A 7th raster was developed based on local |

| Source of Data | | | |
|---|---|---|---|
| **File Name** | **Date** | **Source** | **Treatment** |
| | | | knowledge of fire treatments (TODDRCLASS). Cells within the 1.5 mile buffers were given values of -24, -15, and 0.<br>The last 5 raster's were mosaicked in Raster Calculator to produce "FNLWRHAZD4-28"(80PTS). |
| FNLVALPROT4-8 | Obtained Dec 2004 | Klamath County | Klamath County tax records were used to derive a point shapefile, "Structures", using an improved value of $1000 as the minimum improvement. The points were run through Spatial Analyst>Density with the following parameters: Kernel, 372ft(113.516m)search radius (The radius of a 10ac circle), 30ft cell size (To maintain the 10m cell size of the rest of the data), Area Units = acres and reclassified to the Homes per 10 acres density standard with 0-.9 =2pts;1-5 = 15pts and 5.1+ = 30pts. "VALPROTECTRAS2" is the final structural density raster and comprises 30 pts of the "Values Protected" category's 50 pts. All areas within buffers were deemed to contain "more than one" Natural Resource and Community Infrastructure. 20 points was added to each cell for "Community Infrastructure" and "Ecological and Recreational values" |
| FNLWRPROTCAP | Developed Jan 2005 | Areas identified by fire managers | All cells within the CWPP boundary were given a value based on the knowledge of the local fire managers and the criteria of the ODF state standards. |
| FNLSTRCVULN4 | Developed Jan 2005 | Areas identified by fire managers | Converted to grid and reclassified according to the Walker Range Subdivision Assessment. 8 Areas were identified and assigned 30, 60 or 90 pts depending on their "Structural Vulnerability" |
| FNLCALCTODD | Developed Jan 2005 | Developed by COIC GIS | The raster's were mosaic ked. (added together) in Spatial Analyst>Raster Calculator. Each cell now has a risk value. |
| Individual Subdivision or Area of Interest Average Value | Developed Jan 2005 | Developed by COIC GIS | Each Subdivision or Area of Interest was buffered by 3 miles and run through Spatial Analyst>Zonal Statistics to obtain average values for the area within the Subdivision or AOI and the area within the 3 mile buffer. |

# Appendix F

## Summary of Monitoring Tasks

| Objective | Monitoring Tasks | Timeline |
|---|---|---|
| Wildland Fire Assessment | Continue to use reliable and viable data that are compatible among the various partner agencies | Annually |
| | Update the assessment with new data as conditions change | Annually |
| | Continue to reflect community input from meetings in the assessment | Annually |
| Fuels Reduction | Track the number of acres changed from Fire Regime/Condition Class from 2 or 3 to 1 | Annually |
| | Track the total acres treated through fuel reduction measures | Annually |
| | Track grants; dollars awarded, to whom, and activities accomplished | Annually |
| | Document number of residents that meet the requirements of Oregon Forestland-Urban Interface Fire Protection Act (Senate Bill 360) | Every 3 years |
| | Monitor number of evacuation routes and roads treated for fire protection on county, private, state and federal roads | Annually |
| | Track education programs and document how well they integrate fuels objectives. | Annually |
| Emergency Management | Track education efforts around emergency management | Annually |
| | Track progress on water source improvements | Annually |
| | Track progress on evacuation route improvements | Annually |
| | Track progress on access/egress improvements | Annually |

## Appendix G
## Apparatus

### Central Cascades Fire & EMS Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| Engine 1211 | Type 1X Structure Engine, 4dr, 4wd, deck gun, etc. | 1000 gpm, 750 gal tank | NFPA 1901 structure equipment | 2005 | Pierce/International, 4dr, 4wd, Structure Engine |
| Brush 1241 | Type 4X Brush Engine, 2dr, 4wd, foam | 500 gpm, 1000 gal tank | NFPA 1906 wildland equipment | 1984 | Ford F700, 2dr, 4wd, Heavy Brush Engine |
| Brush 1251 | Type 5X Brush Engine, 4dr, 4wd, foam, etc. | 200 gpm, 400 gal tank | Wildland & Structure Fire & rescue equipment | 2009 | Ford F550, 4dr, 4wd, Light Brush Engine |
| Tender 1261 | Type 2x Tender | 500 gpm, 3000 gal tank | 2 porta-tanks, NFPA equipment | 2012 | International 3000 gal Water Tender 6x6, W/foam |
| Rescue 1271 | EMS Rescue/First Response Vehicle | 1-2 down pts. 4+crew | ALS/BLS EMS & Rescue equipment | 2005 | Ford F450/ Lifeline, 4wd, Rescue/EMS First Response Vehicle |

### Crescent RFPD Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| Engine 1111 | Type 1, 4 door monitor, foam | 1250 GPM 750 gal tank | NFPA 1901 Equipped | 1993 | KME International |
| Engine 1112 | Type 1, 4 pass. Monitor | 1500 GPM 1000 Gal tank | NFPA 1901 Equipped | 1976 | Seagraves |
| Brush 1152 | Type VI, 2 door | 185 GPM 300 gal tank | Extrication/Rescue | 1994 | Chevy 3500 |
| Brush 1151 | Type 1 Tactical | 750 GPM 2300 gal tank | Front, side & rear Sprayers | 1999 | Sterling |
| Tender 1161 | Type II Support | 750 GPM 3000 gal tank | NFPA 1901 Equipped Port-A-Tank | 1978 | Ford |
| Medic 1171 | Type II | N/A | ORS 682 compliant | 2003 | Ford E-350 Ambulance |
| Medic 1172 | Type II | N/A | ORS 682 compliant | 1999 | Ford Lifeline Ambulance |

## Chemult Fire & EMS Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| 1523<br>Beaver Marsh<br>Station 2 | Engine | 500 gal | Foam Injection | 1984 | 2x4 |
| 1541<br>Chemult<br>Station 1 | Brush Truck | 500 gal | Foam | Mack | 4x4 |
| 1551<br>Two Rivers North<br>Station 3 | Engine/Brush Truck | 500 gal | Foam Injection | 1990<br>Ford | 4x4 |
| 1562<br>Beaver Marsh<br>Station 2 | Tender | 4000 gal | | Peterbuilt | |
| 1564<br>Two Rivers North<br>Station 3 | Tender | 4000 gal | | 1989<br>Freightliner | |
| 1565<br>Chemult<br>Station 1 | Tender | 2300 gal | | 1999 | 2x2 |
| 1571<br>Beaver Marsh<br>Station 2 | Ambulance | | ALS/BLS EMS<br>& Rescue Equip | | 2x2 |
| 1572<br>Beaver Marsh<br>Station 2 | Ambulance | | ALS/BLS EMS<br>& Rescue Equip | | 4x4 |
| 1574<br>Chemult<br>Station 1 | No Water | | | | 2x2 |
| 1575<br>Two Rivers North<br>Station 3 | 300 gal | | | | 4x4 |

## Oregon Outback Fire Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| 1441 | T4 Wildland | 1000 gal | | | Heavy Wildland |
| 1451 | T6 Wildland | 250 gal | | | Light Wildland |
| 1461 | T2 Tender | 2800 gal | | | Water Tender |
| 1462 | T3 Tender | 1200 gal | | | Water Tender |
| 1421 | T4 Engine | 1000 gal | | | Engine |

## Walker Range Fire Patrol Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| Engine 1329 | T2 Water Tender | 3500 gal | Foam, Porta Tanks | | Tactical |
| Engine 1361 | T6 Wildland Hummer | 300 gal | Foam | | |
| Engine 1362 | T6 Wildland | 300 gal | Foam | | |
| Engine 1363 | T6 Wildland | 300 gal | Foam | | |
| Engine 1344 | T4 Wildland | 1000 gal | Foam, 6 pack | | |
| Engine 1355 | T5 Wildland | 500 gal | Foam | | |
| Engine 1357 | T5 Wildland | 500 gal | Foam | | |
| D 1-3 | Type 2 Dozer | | | | |
| T 1-3 | Tender, Tactical | 2100 gal | | | Tender portion of D 1-3 |

## US Forest Service, Crescent Ranger District FPO Apparatus

| Radio Call Sign | Type | GPM/Gal. Capacity | Additional Capabilities | Year | Comments |
|---|---|---|---|---|---|
| Engine 351 | T3 Engine | 1000 gallon | Foam | | |
| Engine 652 | T6 Engine | 300 gallon | Foam | | |
| PV-51 | T7 Prevention | 125 gallon | | | |
| Crew-501 | Hand Crew | IA Crew | | | |

**Appendix H**

# NATIONAL WILDFIRE COORDINATING GROUP

**National Interagency Fire Center 3833 S. Development Avenue Boise, Idaho 83705**

November 26, 2007

Mr. Kyle Blackman IMS Division FEMA 500 C. Street SW Washington, DC 20472

Re: Engine and Water Tender Typing

Dear Mr. Blackman:

The National Wildfire Coordinating Group (NWCG) approved the Fire Equipment Working Team's proposed National Mobilization Minimum Engine and Water Tender Typing at the October 2007 NWCG Meeting. The discussion during the review of the typing focused on the two types of engines: structural and wildland.

The NWCG recognizes their experience falls within the wildland engine program area rather than structure engines. In working through the typing process, the group identified their minimum needs for structure engines and would like to submit this to the National Incident Management System (NIMS) group for consideration when they review and establish national structure engine typing.

The NWCG would like to partner with NIMS in the establishment of the typing for engines and tenders such that the NWCG would have the lead on the wildland engine typing and NIMS would adopt these standards, and the NIMS have the lead on the structure engine typing and the NWCG will adopt what the NIMS develops and published.

If you are supportive of this approach, please let me know at your earliest convenience. can be reached at (602) 771-1403 or via email kirkrowdabaugh@azstatefire.org.

Sincerely,
Kirk Rowdabaugh
NWCG Chairman

Attachment
cc: NWCG Members

**National Mobilization Minimum Engine and Water Tender Typing October 2007**

| | **Engine Type** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Structure** | | **Wildland** | | | | |
| **Requirements** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| Tank minimum capacity (gal) | **300** | **300** | 500 | 750 | 400 | 150 | 50 |
| Pump minimum flow (gpm) | 1000 | **500** | 150 | 50 | 50 | **50** | 10 |
| @ rated pressure (psi) | 150 | 150 | 250 | 100 | 100 | 100 | 100 |
| Hose 2½" | 1200 | 1000 | - | - | - | - | - |
| 1½" | **500** | 500 | **1000** | 300 | 300 | 300 | - |
| 1" | - | - | 500 | 300 | 300 | 300 | 200 |
| Ladders **per NFPA 1901** | **Yes** | **Yes** | **-** | **-** | **-** | **-** | **-** |
| Master stream 500 gpm min. | Yes | - | - | - | - | - | - |
| **Pump and roll** | - | - | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| **Maximum GVWR (lbs)** | - | - | - | - | **26,000** | **19,500** | **14,000** |
| Personnel (min) | 4 | 3 | 3 | 2 | 2 | 2 | 2 |

| | **Water Tender Type** | | | | |
|---|---|---|---|---|---|
| | **Support** | | | **Tactical** | |
| **Requirements** | **S1** | **S2** | **S3** | **T1** | **T2** |
| Tank capacity (gal) | **4000** | 2500 | 1000 | **2000** | **1000** |
| Pump minimum flow (gpm) | 300 | 200 | 200 | **250** | **250** |
| **@ rated pressure (psi)** | **50** | **50** | **50** | **150** | **150** |
| Max. refill time (minutes) | 30 | 20 | 15 | - | - |
| Pump and roll | - | - | - | **Yes** | **Yes** |
| **Personnel (min)** | **1** | **1** | **1** | **2** | **2** |

1. **All types shall meet federal, state and agency requirements for motor vehicle safety Standards, including all gross vehicle weight ratings when fully loaded.**
2. **Type 3 engines and tactical water tenders shall be equipped with a foam proportioner system.**
3. **All water tenders and engine types 3 through 6 shall be able to prime and pump water from a 10 foot lift.**
4. **Personnel shall meet the qualification requirements of NWCG *Wildland Fire Qualification System Guide,* PMS 310-1.**

**Common Additional Needs – Request as Needed** All Wheel Drive **(includes four wheel drive)** High pressure pump **(250 psi at one half flow of Type)** Foam Proportioner Compressed Air Foam System (CAFS) 40 cfm minimum Additional Personnel.

# Appendix I

## Emergency Conflagration Act

Under circumstances when wildfires create a serious threat to life and property, the Governor may invoke the Emergency Conflagration Act. Once invoked, the Act authorizes the Governor to use the resources of any county, city, or district fire suppression organization to assist firefighting efforts anywhere in the state. The Act requires the state to reimburse the political subdivision for costs in providing such fire suppression assistance. The Governor can also declare a "state of emergency" authorizing the participation of all public agency personnel and equipment, including the Oregon National Guard, to assist in the battle against wildfires. During a Governor-declared "state of emergency," the Oregon State Police coordinates National Guard resources through the Office of Emergency Management and structural firefighting resources through the Office of the State Fire Marshal. The Oregon Military Department also provides both staff and equipment for emergency firefighting needs. Once completed, this plan also meets the requirements set forth by the Office of State Fire Marshal to allow for an invocation request of the Conflagration Act.