

**Rogue Valley Integrated
Community Wildfire Protection Plan
June 2017
Updated October 2019**



Reducing the risk of wildfire to life, property, and natural resources in the Rogue Valley by encouraging coordination among public agencies, community organizations, private landowners, and the public to increase their awareness of, and responsibility for, fire issues.


Submitted By



JACKSON COUNTY SIGNATURE PAGE

The contents of this document have been agreed upon and endorsed by the Jackson County Board of Commissioners, the Oregon Department of Forestry, and the Fire Defense Board. This plan is not legally binding as it does not create or place mandates or requirements on individual jurisdictions. It is intended to serve as a planning tool for fire and land managers, and to provide a framework for those local agencies associated with wildfire suppression and protection services to assess the risks and hazards associated with wildland urban interface areas and to identify strategies for reducing those risks. This is a working document to be reviewed by the Fire Defense Board Chief and updated as necessary.

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Colleen Roberts, Commissioner



Rick Dyer, Commissioner

Date: November 13, 2019



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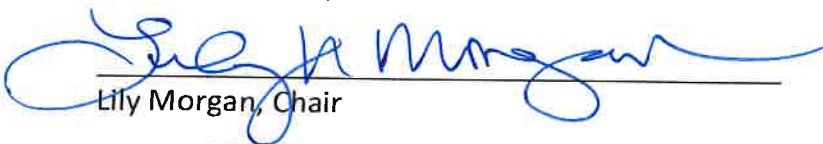

Jackson County Counsel

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JOSEPHINE COUNTY SIGNATURE PAGE

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Absent at Signing

Dan Deyoung, Commissioner



Darin Fowler, Commissioner

Date: 10-30-19



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Over the past 15 years, both Jackson and Josephine County response agencies and citizens have worked very hard on the implementation of their fire plans. Many great people worked many hours on many great committees. The fire planning structure has changed over the years, and although the final structure moving forward has not yet been finalized, this should not reduce the importance of all of the steps and changes along the way.

Thanks to Wildland Fire Associates who worked tirelessly to contribute to the Rogue Valley Integrated Community Wildfire Protection Plan, including Victoria Amato, SWCA Environmental Consultants for your dedication to the development of a plan that doesn't fit the typical mold.

We would like to express our personal gratitude to the people who spent many, many hours on the phone, in meetings and traveling around Jackson and Josephine Counties with us, in so many ways you all inspired this plan, exemplified what a strong, collaborative process means, and are helping to make this effort a long-term success.

While we can't possibly list them all by name, our greatest thanks go to the citizens who attend community meetings and trainings, create defensible space around their property, test or replace their smoke alarms annually, move wood piles away from their homes, convince friends and neighbors that preparing for fire is a good idea, and for all of the other efforts they do on a regular basis to promote fire safety.

Sara Rubrecht and Stacey Anderson Belt
Josephine and Jackson County Emergency Managers

EXECUTIVE SUMMARY

THE CURRENT WILDFIRE SITUATION

Wildfire is a significant threat to rural and urban communities across the United States. In the last few years, most western states have experienced the largest wildfires in their histories, with catastrophic destruction of homes, property, and natural resources. The combination of increasing development in or near wildlands, the accumulation of wildland fuels, dry fire seasons, and rugged terrain has resulted in significant wildfire risk to communities in or near the Wildland Urban Interface (WUI). The cost to suppress wildfires across the nation typically exceeds \$1 billion annually.

Wildfire is not a new phenomenon in southwestern Oregon; it has played a significant role in shaping ecosystems within the Rogue Valley for centuries. Prior to the 20th Century, low- to mixed-severity fires played a large role in most dry forest types of the area. In the early 1900s, federal fire policy focused on immediate suppression of wildfire. Many areas in the region have missed two to five fire cycles because of this policy of fire exclusion, coupled with other land management practices. In general, forest diversity has been reduced at both the landscape and stand scales; as a result, both young and old forests are increasingly at risk of experiencing fires of greater intensity than they have in the past. Even in old-growth stands, fire exclusion and historic and existing land management practices have led to overly dense forests. With changing climates, these degraded forest conditions become further exacerbated, resulting in potentially severe and catastrophic wildfires. These large and intense wildfires can damage watersheds and cause significant erosion and degradation of water quality. Sensitive species habitat can be damaged or destroyed, or overrun with invasive species. The economic loss from a large, severe wildfire can be enormous, as tourism and recreational values are affected, and commercial timber stands are damaged or destroyed. Additionally, wildfire smoke causes significant safety and health issues to individuals located in the WUI and in urban areas, with some individuals requiring medical treatment.

THE NEED FOR A COMMUNITY WILDFIRE PROTECTION PLAN

Southwestern Oregon has the most complex system of forestland ownership in the nation. Often referred to as a checkerboard pattern, lands of varying ownership are intermingled across the region. This ownership pattern puts the responsibility to appropriately manage the land on everyone, from private citizens to timber companies to federal agencies; no one person or agency can do it alone.

In 2003, Congress passed the federal Healthy Forests Restoration Act (HFRA), which encourages local communities to collaborate with federal land managers to develop comprehensive fuels reduction strategies. This is accomplished through the creation of a Community Wildfire Protection Plan (CWPP).

A CWPP provides a set of guiding principles for local wildfire planning. It is developed collaboratively with all parties involved in managing lands within the geographical boundaries specified in the plan, and provides a framework for landowners and managers to use during the wildfire planning process. Use of the guiding principles from the CWPP by all parties will result in forest health and wildfire risk reduction steps being applied consistently on all lands, regardless of ownership.

Although federal land managers are not bound by the results of CWPP collaboration, the federal government's ownership of a vast portion of the forests in both Jackson and Josephine counties means that any plan without their valuable input will struggle to achieve meaningful control over wildfires. The HFRA also offers federal land managers tools to streamline the federal land management process and expedite management projects.

FIRE PLANNING ORIGINS

Jackson and Josephine counties have a long history of wildfire planning with the greatest impetus following the 2002 Biscuit Fire, which burned approximately 500,000 acres over nearly three months, and cost over \$150 million to suppress. In the past 15 years, more than 170 agencies, organizations, and partners in Jackson and Josephine counties have embraced national wildfire protection practices and policies, and have invested countless hours to reduce the risk of wildfire to southwestern Oregon communities.

This Rogue Valley Integrated Community Wildfire Protection Plan (RVIFP) was developed in 2016-2017 to update the Jackson County and the Josephine County integrated fire plans, which were originally developed in 2006 and 2005, respectively. Both counties, as well as many other agencies, organizations, and residents joined together to develop the RVIFP. This larger scale planning effort increases the level of coordination and cooperation among stakeholders, which can lead to broader and more efficient wildfire risk mitigation measures.

THE POLICY FRAMEWORK

Numerous federal, state, and local rules, ordinances, laws, and policies relate to wildfire risk reduction. First and foremost, the HFRA sets forth minimum requirements for CWPPs, and is the basis for the RVIFP. Section 1.7 of the RVIFP outlines relevant wildfire policies from all levels of government affecting lands in the Rogue Valley.

The RVIFP meets the requirements of the HFRA by:

1. having been developed collaboratively by multiple agencies at state and local levels in consultation with federal agencies and other interested parties;
2. identifying a process for prioritized fuels reduction treatments, and recommending types and methods of treatments to protect at-risk communities, community values, and pertinent infrastructure;
3. suggesting multi-party mitigation, monitoring, and outreach; and
4. recommending measures and action items that residents and communities can take to reduce the ignitability of structures.

Through the HFRA, federal land managers exert enormous influence over the long- and short-term health of both local economies and forest ecosystems. Both counties seek to maximize these benefits by using HFRA's tools, and by collaborating with local entities to design projects in accordance with this RVIFP.

As was the case for the previous county fire plans, the RVIFP aligns closely with the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) and its Phase III Western Regional Action Plan (WRAP) by adhering to the nation-wide goal *"To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire."* (National Strategy, 2014; page 3).

The RVIFP is structured around the three main goals of the Cohesive Strategy: Restoring and Maintaining Landscapes, Fire-adapted Communities, and Wildfire Response.

MISSION AND GOALS OF THE CWPP

In addition to the minimum requirements set forth in HFRA, the RVIFP also includes numerous other measures that guide its mission and goals.

The mission of the RVIFP is to *“Reduce the risk of wildfire to life, property, and natural resources in the Rogue Valley by encouraging coordination among public agencies, community organizations, private landowners, and the public to increase their awareness of, and responsibility for, fire issues.”*

The following are broad goals of the RVIFP:

Goal 1: Create a flexible, living document that incorporates a multi-agency collaborative approach to planning.

Goal 2: Promote wildfire education, awareness, and prevention among citizens and public and private partners.

Goal 3: Promote forest health using proven forest management techniques that will provide for better forest resiliency to catastrophic wildfires, enhance structure survivability, and increase public safety in the Wildland Urban Interface (WUI).

Goal 4: Encourage region-wide coordinated fire protection and suppression policies and practices targeted at reducing the intensity of wildfire and related smoke (as described in Section 5.7).

Goal 5: Promote region-wide coordinated emergency management and effective communication.

Goal 6: Promote local economic opportunities while addressing forest fuels and forest health conditions and debris removal needs.

THE FOCUS OF THE CWPP

The focal point of the RVIFP is protection of high value resources and assets (HVRA) located in hazard areas in the Rogue Basin. HVRA include things such as infrastructure, cultural and natural resources, recreation, critical wildlife habitat, and scenic values. Management of forest resources in a way that minimizes wildfire impacts to the HVRA is the primary intent of a CWPP.

Under the HFRA, communities are allowed to define the WUI boundary in the CWPP as a means to further prioritize fuels work to preserve and protect HVRA. While all HVRA are important, the CWPP emphasizes people and infrastructure; therefore, steps taken to protect them are given more weight. The importance of this is reflected in forest policy at the federal level, with the HFRA requiring federal

land management agencies to spend at least fifty percent of their fuels reduction funds on projects in the WUI. CWPPs can provide significant local benefits by ensuring that fuels reduction projects developed on federal land are also within the community's WUI zone. Specifically, federal law requires federal agencies to analyze fuels reduction projects and methods within the CWPP as an alternative during the environmental analysis of proposed federal projects.

As defined by the State of Oregon Hazard Mitigation Plan, *“WUI areas are areas containing structures and other human developments where they meet or intermingle with wildland and other vegetative fuels.”*

The vast majority of Rogue Valley metropolitan areas and urban structures are located within ¼ mile or less of wildland areas. Therefore, the WUI boundary for this RVIFP was located around areas where people live or could live (based on zoning), and on strategically superior tactical ground aimed at stopping the progress of a landscape-scale fire while protecting the public and firefighters. In developing the WUI, fire behavior analysts considered the size, location, and spread direction of historic large fires, as well as strategic geographic boundaries based on watershed ridge breaks, roads, rivers, etc. Section 3.14 of the RVIFP discusses the WUI boundary and process. The RVIFP focuses on all HVRA, with a higher priority being placed on HVRA within the WUI boundary.

ADDRESSING THE WILDFIRE PROBLEM

Mitigation of wildfire risk and smoke requires thoughtful planning, conducted as a collaborative effort by the many people and organizations affected by wildfire. The community wildfire protection planning process is a means by which many individuals and organizations can come together in a structured format to do this. This CWPP provides a wealth of information for government, agency, and community planning activities. It also provides information that may be used by communities as they develop and update their own CWPPs. Without integrating community conditions into wildfire planning, risks to lives and property and the costs of wildfire prevention and response are likely to increase. Moreover, local social and economic conditions can significantly affect the resilience of a community to a wildfire event.

Although the Rogue Valley has a strong and highly coordinated team of professional wildfire responders, the large, intense fires experienced in the region are increasingly difficult and expensive to suppress, especially during periods of very dry and/or windy weather, or episodes of widespread lightning activity. Either condition can quickly overwhelm local, state, and federal firefighting resources. To help alleviate overextended suppression resources, property owners should take on some of the responsibility for

reducing fire hazards in and around their homes and business properties. Many residents already are actively implementing fire mitigation measures to protect their property; however, without more widespread reduction of fire hazards by property owners before a fire occurs, it may be impossible for firefighters to safely defend some or all of the structures when wildfire does threaten an area. A combination of awareness on the part of property owners and the community, public education, agency collaboration, and fuels treatments are necessary to significantly reduce wildfire risk.

The checkerboard nature of southwestern Oregon landownership has led to the conclusion that landscape-scale fire risk mitigation and effective implementation needs to be considered a comprehensive “all-lands” endeavor to achieve landscape-level success. This requires cooperation among federal and state land managers, commercial private industry, and the public. Central to the RVIFP is the incorporation of the Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities (RBS). Developed in 2015 by the Southern Oregon Forest Restoration Collaborative, and in partnership with The Nature Conservancy (TNC), the RBS included a strategy to accelerate forest restoration planning, implementation, and monitoring. It identified and prioritized project areas to promote resilient landscapes, diverse wildlife habitats, fire-adapted human communities, and a predictable flow of economic benefits and other ecosystem services.

Many types of treatments may be used to maintain and/or restore fire-adapted forests and woodlands and to promote resilient landscapes. Treatment can focus on promoting fire-resistant stands dominated by large, fire-tolerant tree species while retaining variability in forest density and species composition at the landscape scale. Treatments can help maintain both open and dense habitats on the landscape, sustain ecosystems, and contribute in multiple ways to human well-being, including reducing fire risk and generating material and jobs important to local economies. The RBS developed a system to identify and prioritize areas in need of fuels mitigation work or fuels treatments. This CWPP adopts the most inclusive and optimistic of the RBS strategies: the All Lands Scenario, which proposes treatment of 1.1 million acres within the Rogue Basin within the next 20 years. The All Lands Scenario addresses the importance of fuel reduction on lands on all ownerships to effectively reduce wildfire risk to communities. Priority areas identified in the All Lands Scenario are based on five priorities: local community risk, large fire community risk, landscape resilience, Northern Spotted Owl habitat, and climate resilience. Work associated with the attainment of the 1.1 million acre goal will be accompanied

by public involvement, interagency coordination, and appropriate environmental compliance procedures.

The RBS promotes and conserves critical closed-canopy, mature forest habitats in appropriate areas on the landscape; restores fire- and drought-resilient open stands in intervening areas; and encourages a fire-adapted landscape that emphasizes fuels reduction around communities in the public-private interface as well as land beyond the interface. This CWPP describes the process the RBS used to identify and prioritize treatment areas, and provides a framework upon which fuels projects, funding requests, and project schedules can be developed and implemented in a coordinated manner by all stakeholders.

Using the RBS approach, land managers would work toward coordinated fuels treatment efforts across all lands, including agency-approved fuel treatment efforts which generate revenue to support other efforts that are contingent upon funding availability.

SPECIFIC ACTIONS WITHIN THIS CWPP

This CWPP seeks to address the growing concerns of the Rogue Valley community and stakeholders by identifying priorities for wildfire mitigation activities. The CWPP aligns with the National Cohesive Strategy by incorporating the following recommendations to meet the three national and regional goals listed below:

Goal 1: Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.

The CWPP addresses this goal through recommendations to promote forest health using proven forest management techniques that will provide for better forest resiliency to catastrophic wildfires, and will increase public safety in the WUI; and by promoting local economic opportunities while addressing forest fuels and forest health conditions and debris removal needs.

These recommendations (also described in Chapter 5, Table 5.7) include:

1. convening a multi-agency committee to oversee actions to achieve greater forest resiliency, and establishing a RVIFP Coordinator to oversee project planning;
2. using the RBS All Lands Scenario to identify high-priority treatment areas to reduce wildfire risk and protect watershed values;

3. developing a mechanism to incorporate commercial treatments into the RBS prioritization process to reduce the need for external grant funding;
4. aligning agency fuels treatment planning to take advantage of available grant dollars and to increase treatment effectiveness across boundaries;
5. addressing the need for maintenance following landscape treatments on all lands;
6. encouraging roadside brushing and hazard tree removal on forest roads in accordance with federal policies;
7. encouraging federal partners to use the Good Neighbor Authority ¹when possible as a potential way to improve forest health and resiliency to wildfire;
8. applying lessons of the past to improve forest practices for the future;
9. educating residents on the importance of forest resiliency; and
10. incorporating science-based post-fire recovery and rehabilitation into the CWPP during future revisions.

Goal 2: Fire Adapted Communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.

The CWPP addresses this goal through recommendations to promote wildfire hazard mitigation, and wildfire education, awareness, and prevention among citizens and public and private partners.

These recommendations (also described in Chapter 6, Table 6.1) include:

1. identifying community-scale actions to improve wildfire preparedness;
2. promoting property owner responsibility through education and outreach to make homes and their surroundings ignition resistant;
3. targeting broad interest groups and tailoring outreach based on public perceptions of risk;
4. ensuring a process for two-way communication between agencies and the community;
5. facilitating regional collaboration on Be Ready, Be Set, Go! ²evacuation education and marketing;
6. strengthening local and regional regulations for building construction in the WUI; and
7. improving preparedness and resilience of local businesses and organizations so they are better able to survive and recover from wildfire.

¹ Good Neighbor Authority: <https://www.fs.fed.us/managing-land/farm-bill/gna>

² Be Ready, Be Set, Go: <https://www.oregon.gov/osp/SFM/Documents/Ready%2C%20Set%2C%20Go%21%20Evacuation%20Levels.pdf>

Goal 3: Wildfire Response: All jurisdictions participate in making and implementing safe, effective, and efficient risk-based wildfire management decisions.

The CWPP addresses this goal through recommendations to promote coordinated fire protection and suppression as well as region-wide coordinated emergency management and effective communication.

These recommendations (also described in Chapter 7, Table 7.1) include:

1. installing a robust fire detection system;
2. supporting the long-term sustainability of the Medford Large Air Tanker Base;
3. assessing evacuation concerns at the local level;
4. using coordination groups to increase agency capacity;
5. increasing media coverage of resource allocation to highlight limitations of responders;
6. seeking alternatives to address declining agency budgets and advocate for appropriate agency staffing and funding;
7. continuing to seek resolutions to unprotected area issues;
8. increasing training opportunities for all-hazard incidents; and
9. coordinating emergency management tasks with RVIFP Executive Committee structure.

In addition, the RVIFP meets an overarching National Cohesive Strategy goal of creating a flexible, living document that incorporates a multi-agency collaborative approach to planning. The CWPP addresses this goal through recommendations to:

1. seek funding for a third-party RVIFP coordinator to ensure sustainability of the CWPP and oversee project implementation; and
2. develop an effective model for communicating agency planning to county executives and decision makers.

MEETING THE CHALLENGES OF WILDFIRE INTO THE FUTURE

The Rogue Valley will continue to grow and change, and the nature and risk of wildfire will continue to evolve as well. This will occur not only due to local issues, such as new developments near the WUI, but also because of declining forest conditions, exacerbated by large-scale factors such as climate change. This CWPP is a critically important part of an ongoing process that will enable the residents of the Rogue Valley to meet the current and future challenges of wildfire.

A recent analysis by The Nature Conservancy to assess regional forest restoration needs concluded that nearly 2.4 million acres of the 3.7 million acres (65%) of forest that are prone to frequent fire within and adjacent to Jackson and Josephine counties are currently at increased risk of uncharacteristically large and severe fire. When compared to historic conditions, the data show an over-abundance of approximately 2.1 million acres of dense stands that need restoration treatment to create a more open, resilient, and functioning forest structure. The amount of restoration work needed on private land, in addition to that on federal land, presents stakeholders in the Rogue Valley with an opportunity to develop a variety of fuels reduction programs with economic and restoration components. Historically, much of this restoration work has been conducted using grant dollars. There is a need to place greater emphasis on projects that can be conducted without grant dollars, i.e., projects that are fiscally self-sufficient. It is equally important for land managers, agency partners and the public to recognize the importance of, and the responsibility for, conducting restoration work—regardless of available grant dollars—in order to reduce the impacts of catastrophic wildfire in the Rogue Valley.

This CWPP provides a solid framework for educating policy makers, land managers, landowners, and the public about fire and treating areas of concern, and should serve as a tool to accomplish these tasks. The CWPP is an ever-evolving document and should be updated a minimum of every five years to reflect changes, modifications, or new information. These updates are essential to the success of mitigating wildfire risk throughout the Rogue Basin and will be important to maintain the ideas and priorities of the plan and the communities in the future.

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1 OVERVIEW OF THE COMMUNITY WILDFIRE PROTECTION PLAN

1.1 INTRODUCTION

With increasing frequency, national news media report tragic stories of communities affected by the latest wave of severe wildfires. These wildfires have been increasing over the last three decades and threatening communities located in the wildland urban interface (WUI).³

To effectively mitigate fire impacts, communities in fire-prone environments need a plan to prepare for, reduce the risk of, and adapt to wildland fire events. Community Wildfire Protection Plans (CWPPs) help accomplish these goals. A CWPP provides recommendations intended to reduce, but not eliminate, the extreme severity or risk of wildland fire. In the past 15 years, over 170 agencies, organizations, and companies in Jackson and Josephine counties have embraced national wildfire protection practices and policies and invested countless hours to reduce the risk of wildfire to southwestern Oregon communities.



Figure 1.1. 2002 Biscuit Fire. Credit Associated Press.

³ Schoennagel, T. J.K. Balch, H. Brenkert Smith, P.E. Dennison, B.J. Harvey, M.A. Krawchuk, N. Mietkiewicz, P.Morgan, M.A. Moritz, R. Rasker, M.G. Turner, C. Whitlock. 2017. Adapt to more wildfire in western North American Forests as climate changes. Proceedings of the National Academy of Sciences of the United States of America. April 17, 2017, doi:10.1073/pnas.1617464114
PNAS April 17, 2017- <http://www.pnas.org/content/early/2017/04/11/1617464114.abstract>

The impetus for integrated fire planning in Jackson and Josephine counties began after the 2002 Biscuit Fire (Figure 1.1). The 500,000-acre fire mobilized community and agency concern to reduce the risk of fire to homes, communities, forests, and associated values. Outcomes of this concern helped generate the original Josephine County Integrated Fire Plan of 2005⁴ and the Jackson County Integrated Fire Plan of 2006⁵.

As a result of these efforts both counties have seen:

- Smaller and less destructive wildfires in or near populated areas where vegetation fuels reduction has taken place;
- Improved coordination and cooperation among emergency response agencies; and
- Better pre-planning for large incidents.

Updates to both plans have been underway since 2012. Since that time, fire plan partners have been aligning their counties' CWPPs with the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) and its Phase III (Western Regional Action Plan, or WRAP). Current efforts focus on these three topics: Restoring and Maintaining Landscapes, Fire-adapted Communities, and Wildfire Response.

While several communities in Jackson and Josephine counties have already developed CWPPs, and the 2005 and 2006 integrated fire plans formed a strong basis for fire planning in the region, this document represents the first effort to combine both county fire plans into a two-county plan that will serve as a CWPP for the entire Rogue Valley. The document will hereafter be referred to as the Rogue Valley Integrated Community Wildfire Protection Plan (RVIFP).

This RVIFP is the culmination of all previous fire planning efforts in both counties, and is intended to provide for strategic level planning for wildfire protection in the region. It is expected that this RVIFP will facilitate even broader involvement from stakeholders in development of strategies to mitigate common wildfire risk. These strategies can be used by other communities as they develop their own fire plans, as well as by local governments as they plan for future development through land use planning, or promulgate new codes and ordinances for greater resilience to the impact of wildfire.

4 Josephine County Integrated Fire Plan : <http://www.co.josephine.or.us/Page.asp?NavID=1838>

5 Jackson County Integrated Fire Plan: <https://jacksoncountyor.org/emergency/County-Plans/Fire-Plan>

1.2 NAVIGATION

This RVIFP is organized into nine main chapters that describe overarching Jackson and Josephine county-level wildfire risk and hazard, and recommendations for improved wildfire preparedness for both counties. This document should be considered a strategic level plan for community wildfire protection.

Chapter contents are as follows:

- **Chapter 1:** provides an overview of community fire planning, the components in the plan, and the need for the RVIFP.
- **Chapter 2:** describes the mission, goals and objectives of the plan and the history of the planning process.
- **Chapter 3:** outlines community characteristics that relate to wildfire risk and hazard, including climate and weather, vegetation, and population, as well as existing conditions in the area relating to fire history and fire regime.
- **Chapter 4:** describes development of the wildfire hazard/risk assessment for the Rogue Valley and outlines components of risk and hazard that helped guide development of recommendations.
- **Chapter 5:** describes actions necessary to meet CWS Goal 1 (Restore and Maintain Landscapes), including existing and proposed actions to mitigate hazardous fuels, treatment plans, methods, and maps. This chapter includes a table of recommended projects (Table 5.7).
- **Chapter 6:** describes actions necessary to meet CWS Goal 2 (Create and Maintain Fire Adapted Communities), including recommendations to reduce structure ignitability, and actions to improve public education and outreach regarding fire prevention and mitigation. This chapter includes a table of recommended projects (Table 6.2Table 6.1).
- **Chapter 7:** describes actions necessary to meet CWS Goal 3 (Wildfire Response), including recommendations to improve suppression capabilities and collaboration among response agencies. This chapter includes a table of recommended projects (Table 7.1).
- **Chapter 8:** outlines monitoring and evaluation strategies to ensure the sustainability and effectiveness of the RVIFP.
- **Glossary and Appendixes**

1.3 COMMUNITY WILDFIRE PROTECTION PLANNING

The year 2000 was a landmark fire season throughout the United States, and was a catalyst for development of the National Fire Plan (NFP). The NFP was intended to develop a collaborative approach among various governmental agencies to actively respond to severe wildland fires and ensure sufficient firefighting capacity for the future. The NFP addressed five key areas: Firefighting, Rehabilitation, Hazardous Fuels Reduction, Community Assistance, and Accountability.⁶ The NFP was followed by a 2001 report: *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-year Comprehensive Strategy*. This latter report was updated in 2006, with a similar focus on using a collaborative framework for restoring fire-adapted ecosystems, reducing hazardous fuels, mitigating risks to communities, providing economic benefits, and improving fire prevention and suppression strategies.

In 2003, the U.S. Congress addressed widespread declining forest health by passing the Healthy Forests Restoration Act (HFRA), and then President George W. Bush signed the act into law (Public Law 108–148, 2003). The HFRA was revised in 2009 to address changes to funding and to provide a renewed focus on wildfire mitigation (H.R. 4233: Healthy Forests Restoration Amendments Act of 2009).



The intent of the HFRA is to expedite development and implementation of hazardous fuels reduction projects on federal land through streamlining the required environmental analysis and administrative review process under NEPA.⁷ ⁸ The HFRA also emphasizes the need for federal agencies to work collaboratively with communities, with the CWPP planning process providing the forum for federal agencies and communities to jointly develop hazardous fuels reduction projects and determine treatment prioritization. A CWPP also allows communities to establish their own definition of the

⁶ Forests and Rangelands: <https://www.forestsandrangelands.gov/resources/overview/>

⁷ HFRA 2014 Amendment; page 4- Environmental Analysis Requirements for HFRA EA/EIS:: https://www.nationalforests.org/assets/pdfs/CollaborationDiscussion_Handout_Feb2015.pdf

⁸ Copy of Federal Regulations: <https://www.gpo.gov/fdsys/pkg/CFR-2013-title36-vol2/xml/CFR-2013-title36-vol2-part218.xml>

Wildland Urban Interface (WUI), which is used to delineate priority areas for treatment. In addition, priority is placed on municipal watersheds, critical wildlife habitat, and areas affected by wind throw, insects, and disease. Communities with an established CWPP are given priority for grant funding of hazardous fuels reduction projects carried out in accordance with the HFRA.

Language in the HFRA provides flexibility for communities to determine the substance and detail in their plan.⁹ While the HFRA provides guidance to assist communities with wildfire protection, it does not mandate that a community develop a CWPP. All recommended actions contained in the CWPP are suggested, not mandated.

Under the HFRA, CWPPs are composed of three minimum requirements intended to foster communication among the public, government entities, and private organizations as they work toward a common vision of wildfire risk mitigation. These requirements are:

- **Collaboration:** Local and state government representatives, in consultation with federal agencies or other interested groups, must collaboratively develop a CWPP.
- **Prioritized Fuel Reduction:** A CWPP must identify and prioritize areas for hazardous fuels reduction and treatments; furthermore, the plan must recommend the types and methods of treatment that will protect at-risk communities and their essential infrastructure.
- **Treatments of Structural Ignitability:** A CWPP must recommend measures that communities and property owners can take to reduce the ignitability of structures throughout the area addressed by the plan.

In 2014, *The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* was produced (Forests and Rangelands 2014).¹⁰ The National Strategy takes a holistic approach to the future of wildfire management, stated vision:

“To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire” (National Strategy, 2014:3).

To achieve this vision, the National Strategy goals are:

- **Restore and maintain landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.

⁹ CWPP Handbook. 2004. https://www.na.fs.fed.us/fire/cwpp/guidance/preparing_cwpp.pdf

¹⁰ National Strategy (2014): <https://www.forestsandrangelands.gov/strategy/documents/strategy/CSPhaseIIINationalStrategyApr2014.pdf>

- Fire-adapted communities: Human populations and infrastructure can withstand a wildfire without loss of life and property.
- Wildfire response: All jurisdictions participate in making and implementing safe, effective, and efficient risk-based wildfire management decisions (Forests and Rangelands 2014:3).

Similar to the 2014 National Strategy, the NFP, state fire plans, the 10-year comprehensive strategy, and the Federal Emergency Management Agency (FEMA) Disaster Mitigation Act of 2000 all mandate community-based planning efforts with full stakeholder participation, coordination, project identification, prioritization, funding review, and multi-agency cooperation. In compliance with Title 1 of the HFRA, a CWPP must be mutually agreed upon by the local government, local fire departments, and the state agency responsible for forest management. Figure 1.2 summarizes wildfire policy timeline since the release of the National Fire Plan.

1.4 WILDFIRE PLANNING IN THE ROGUE VALLEY

Collaborative wildfire planning in the Rogue Valley has been ongoing since the 2002 Biscuit Fire. This RVIFP is the result of close interagency coordination between local, county, state, and federal agencies. Josephine County started developing an Integrated Fire Plan in 2004; the plan was finalized and approved in 2005. Jackson County finalized and had their plan approved in 2006. Through the years, the two counties have worked in close collaboration in all areas including a two-county fuels mapping project in 2008, followed by use of the mapping product to develop a joint risk assessment. Jackson and Josephine counties produced combined annual updates for their integrated fire plans beginning in 2009. The unique level of collaboration between the two counties, in conjunction with their strong relationships with local, state, and federal agencies, has allowed them to leverage critical expertise and funding to achieve impressive results in wildfire protection planning, community outreach, and wildfire response activities.

HISTORY OF FIRE PLANS

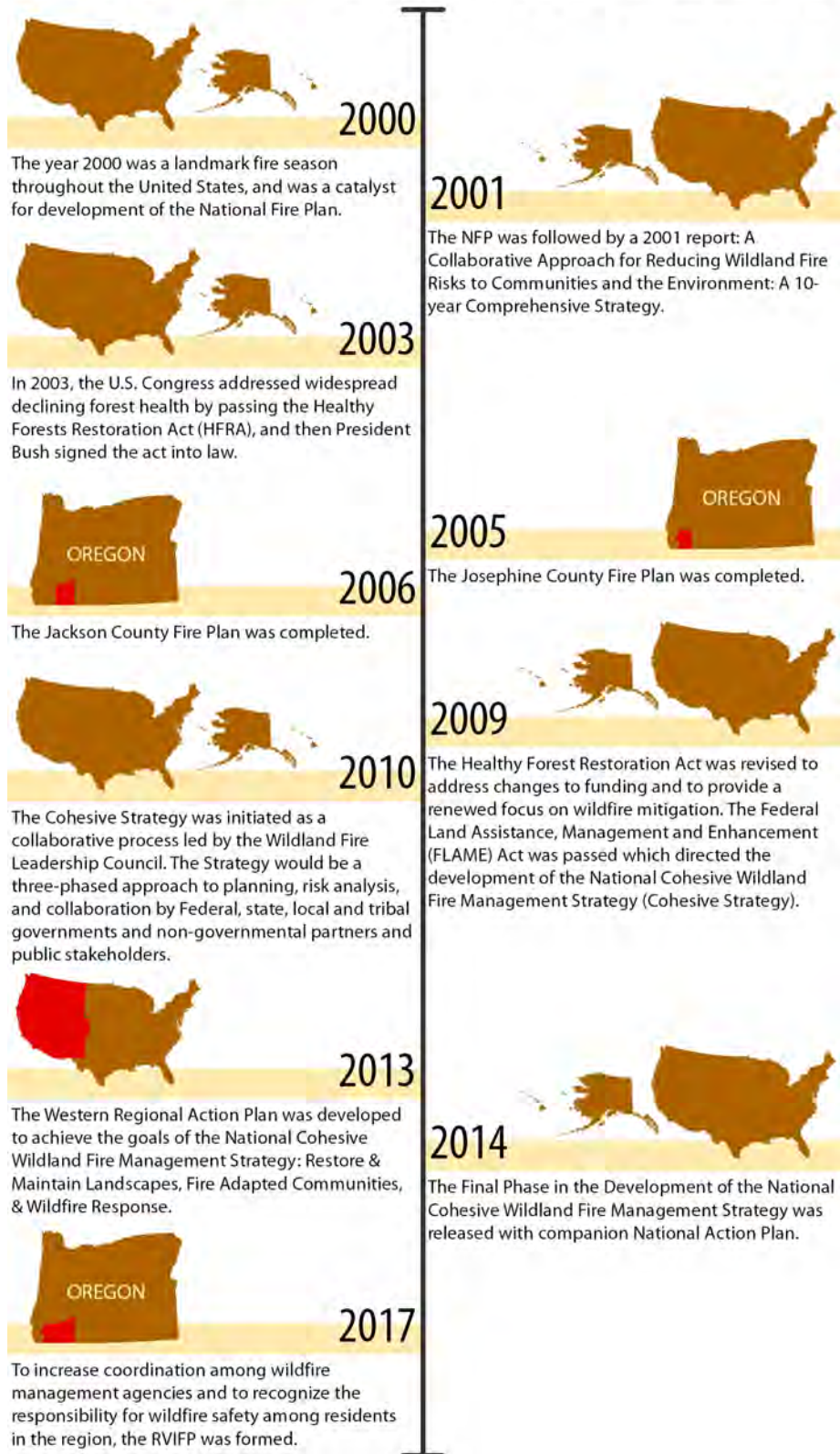


Figure 1.2. Fire Plan timeline from National Fire Plan to Rogue Valley Integrated Fire Plan.

During development of the 2004 and 2006 fire plans, both counties recognized an overwhelming need for increased coordination among wildfire management agencies and a need for greater understanding of, and responsibility for, wildfire safety among residents in the region. Every citizen of Jackson and Josephine counties shares responsibility for wildfire preparedness. Local, county, state, and federal governments carry only part of the responsibility for fire protection through planning, public education, fuels mitigation, forest management, and emergency operations. Armed with knowledge and motivation, landowners and citizens are essential partners in preventing loss of life, property, and natural and economic resources before a wildfire happens.

Since the creation of the NFP in 2000, and passage of the HFRA in 2003, communities have increased opportunities to participate in fuels management planning, to receive funding for fuels management on private lands, and to be active participants in reducing wildfire risk throughout the region. This RVIFP is intended to assist communities by creating opportunities to share efforts, pool resources, and eliminate duplication of efforts. Examples of this kind of coordination include synchronized safety campaigns, streamlined applications for fuels reduction grants, a regional wildfire risk assessment, collaborative WUI designation, and increased communication with federal land managers. A summary of accomplishments from the previous fire plans can be found in Appendix A.

Communities that may not have the opportunity to engage in fire planning at the community level are represented in the RVIFP and will have opportunities to assist their residents in reducing fire risk, engaging in county-wide or regional fire protection activities, and competing for grants.

Due to the long history of fire planning in Jackson and Josephine counties, this RVIFP is more comprehensive than many CWPPs. In addition to the minimum requirements set forth in the HFRA, the RVIFP also includes numerous other measures. These include:

- Incorporating strategies to increase fire resilient landscapes, including proactive ecologically-sound thinning, the use of prescribed burning (Figure 1.3) and the use of biomass and other measures to increase the economic efficiency of fuels reduction work, as well as to promote economic opportunities;
- Identifying and paying attention to the needs of citizens in Jackson and Josephine counties who may require special attention in disasters, including wildfire;

- Supporting extensive outreach and education efforts, including state-of-the-art online content and social media, to provide multiple avenues to encourage citizen behavior conducive to reducing risk to life and property;
- Encouraging and supporting fire education programs such as Firewise and Fire-adapted Communities to mobilize grassroots citizen involvement; and
- Creating and supporting multiple venues for collaboration among the many agencies with direct and indirect responsibility for dealing with fire risk at various scales including state/local interaction, regional cooperation between Jackson and Josephine counties, and among local fire districts, organizations, communities and citizens.



Figure 1.3. *Prescribed burning has been used throughout the Rogue Valley to help reduce fuel accumulation and improve forest resiliency to more intense wildfire. Credit: Chris Chambers.*

CWPPs also can provide local benefits by ensuring that proposals developed by federal agencies for fuels reduction projects on federal land that is also within the community's WUI zone use the “general location or method of treatments” information identified in the applicable CWPP. Federal law requires federal agencies to analyze fuels reduction projects and methods contained in the CWPP as an alternative during the environmental review analysis of the proposed federal project.

1.5 NEED FOR COMMUNITY WILDFIRE PROTECTION PLAN

Fire has been a component of Oregon’s natural history for hundreds of years, with fires caused by lightning and humans common in most parts of the state (see Section 3.4)^{11, 12, 13, 14, 15}. The influence and effects of fire have changed as attempts were made to suppress it, and with the consequent accumulation of more continuous, dense wildland fuels, historic burn mosaics were lost. Uninterrupted (continuous) fuels have led to larger, more intense wildfires, which are increasingly difficult and expensive to suppress, especially during periods of very dry and/or windy weather, or episodes of widespread lightning activity (Figure 1.4). These conditions can quickly overwhelm local, state, and federal firefighting resources. The combination of increasing development in or near wildlands, the accumulation of wildland fuels, dry fire seasons, and rugged terrain has resulted in significant wildfire risk to communities in or near the WUI (Figure 1.5).



Figure 1.4. Photograph showing intense crown fire activity that can occur in Rogue Valley forests.

¹¹ Metlen, K. L., D. Borgias, and C. Skinner. 2016. Historical fire frequency in the Rogue Basin. Page Appendix in D. Thorpe, editor. *Boot Prints: A centennial summary of activities and events of Oregon’s Department of Forestry in Jackson and Josephine Counties*. Oregon Department of Forestry Southwest Oregon District, Central Point, OR.

¹² Sensenig, T., J. D. Bailey, and J. C. Tappeiner. 2013. Stand development, fire and growth of old-growth and young forests in southwestern Oregon, USA. *Forest Ecology and Management* **291**:96-109.

¹³ Taylor, A. H., and C. N. Skinner. 2003. Spatial patterns and controls on historical fire regimes and forest structure in the Klamath Mountains. *Ecological Applications* **13**:704-719.

¹⁴ Briles, C. E., C. Whitlock, and P. J. Bartlein. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA. *Quaternary Research* **64**:44-56.

¹⁵ Colombaroli, D., and D. G. Gavin. 2010. Highly episodic fire and erosion regime over the past 2,000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences* **107**:18909–18914.



Figure 1.5. Numerous homes in the Rogue Valley are surrounded by wildland fuels.

Wildfires, intensive logging, and road building also can damage watersheds and cause significant erosion and degradation of water quality.¹⁶ Sensitive species habitat and vegetation communities can be damaged or destroyed, or overrun with invasive species. The economic loss can be enormous as industry, tourism, and recreational values are affected (Figure 1.6). Additionally, people's sense of personal well-being is affected if they are worried about fires in or close to their neighborhood. Smoke can cause significant safety and health issues to individuals located in both the WUI and urban areas, with many individuals requiring medical treatment following exposure.¹⁷

Management of the forest resource in a way that minimizes negative wildfire impacts and increases fire management options is the primary intent of a CWPP. According to a 2011 social assessment of Illinois Valley residents, the majority are well in-tune with their forest environment. Many residents have worked in the forest industry or have family who have, or they are attached to the land in other ways, for example through recreation, scenery or appreciation of the natural environment. Most people want to see forest lands in the Rogue Valley managed in a balanced manner, with some active forest management to improve forest resiliency and support the local timber-based economy, while at the same time considering the environment, especially sensitive wildlife species, protection of old growth forests, and maintenance of ecological integrity. According to Josephine County election statistics,

¹⁶ Colombaroli, D., and D. G. Gavin. 2010. Highly episodic fire and erosion regime over the past 2,000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences* 107:18909–18914.

¹⁷ Moeltner, K., M.K. Kim, E.Zhu and W.Yang. Wildfire smoke and health impacts: A closer look at fire attributes and their marginal effects *Journal of Environmental Economics and Management*, Volume 66, Issue 3, Pages 476-496

Josephine County voters responded to a ballot advisory question in May of 2014, that they were in favor of federal agencies maximizing post-fire salvage harvests and replanting areas damaged by wildfire, and residents of the Rogue Valley have an understanding of forest management principles and the need to care for our lands after a wildfire. Fire-risk reduction is well supported by the community. Balancing these viewpoints in the management of forests for wildfire protection purposes is a goal of this RVIFP.



Figure 1.6. *Wildfires have created disruption and impacts to the local recreation-based economy, for example wildfire smoke can deter tourists and cause temporary closures of rafting and other activities on the Rogue River. Credit: ODF.*

It has become increasingly apparent that mitigation of wildfire risk requires much more than simple reliance on suppression response. Thoughtful planning, conducted as a collaborative effort by the many people and organizations affected by wildfire, is required to develop and implement short- and long-term solutions and strategies. The community wildfire protection planning process is a means by which many individuals and organizations can come together in a structured format to do this.

1.6 MISSION AND GOALS

1.6.1 Mission

The mission of the Rogue Valley Integrated Fire Plan (RVIFP) is to reduce the risk of wildfire to life, property, and natural resources in the Rogue Valley by encouraging coordination among public agencies,

community organizations, private landowners, and the public to increase their awareness of, and responsibility for, fire issues.

1.6.2 Goals

The following are broad goals of the RVIFP:

- *Goal 1:* Create a flexible, living document that incorporates a multi-agency collaborative approach to planning.
- *Goal 2:* Promote wildfire education, awareness, and prevention among citizens and public and private partners.
- *Goal 3:* Promote forest health using proven forest management techniques that will provide for better forest resiliency to catastrophic wildfires, enhance structure survivability, and increase public safety in the WUI.
- *Goal 4:* Encourage region-wide coordinated fire protection and suppression policies and practices targeted at reducing the intensity of wildfire and related smoke (as described in Section 5.7).
- *Goal 5:* Promote region-wide coordinated emergency management and effective communication.
- *Goal 6:* Promote local economic opportunities while addressing forest fuel and forest health conditions and debris removal needs.

This RVIFP uses a National Cohesive Wildland Fire Management Strategy framework to reflect work that is already underway, as well as to inform and maximize future planning and implementation success in both counties. This integrated update includes recommended projects to address the goals for wildfire management. The following section describes the policy nexus under which this document and the associated goals have been developed.

1.7 POLICIES, LAWS, ORDINANCES, CODES, PLANS, AND PROGRAMS IN PLACE

The complex nature of wildfire management, and the mitigation of risk associated with it, is reflected in the many policies, plans, and laws that have been developed at federal, state, and local (city and county) levels (Figure 1.7).

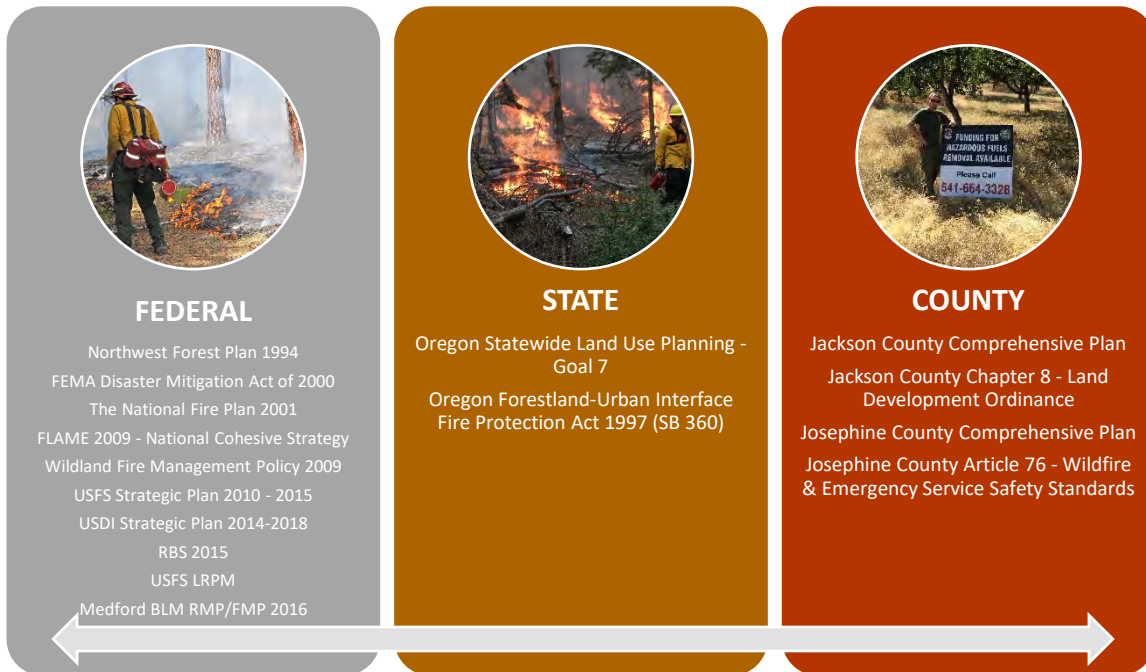


Figure 1.7. Federal, state and county policies that contribute to wildfire planning in the Rogue Valley.

1.7.1 Land Use Planning

Land use planning addresses one component of wildfire protection in the WUI through the use of codes. The effectiveness of codes, however, depends on residents’ compliance with, and the ability of managers to enforce, said codes. New communities can be designed to be resilient to the effects of wildland fire when fire-safe community components are factored into design. These may include construction and maintenance of fuel breaks between the community and wildland fuels; multiple evacuation routes with signage, to allow safe passage of residents out of a community and safe access into the community for fire responders; strategic placement of water sources for fire suppression; and use of fire resilient construction materials, roofing and non-combustible landscaping materials. Input from fire agencies’ and other stakeholders into land use planning processes can establish a strong blueprint for a fire-resilient community.¹⁸

The term “land use planning” refers to the formal process of designing population centers, including transportation networks, and the orderly development of settlements.¹⁹ Integrating wildfire risk reduction into land use planning helps ensure greater protection of communities in a cost-effective manner. Land use planning efforts that can be integrated with wildfire risk reduction include County

¹⁸ FireSafe Community Design Standards (Public Resources Code 4290).

¹⁹ Fire Adapted Community Guidebook: <https://fireadaptednetwork.org/guide-fire-adapted-communities/>

Comprehensive Plans, which dictate long-term community policy for transportation, utilities, land use, recreation, and housing, as well as local natural hazard mitigation planning. These existing planning mechanisms provide the opportunity to manage wildfire risk through policy-driven approaches and regular review.

Regulatory approaches to wildfire risk reduction are another option for local communities. Regulations are a mechanism for including land use and development policies in a Comprehensive Plan, and could include building characteristics, development design and development review requirements, vegetation management ordinances, and building codes and standards.

County

Both counties have wildfire safety measures in place through their land development ordinances (LDO). The codes specify fuel break distances and access standards for emergency vehicles; and address signs, bridges, roof coverings, and fire protection.

Jackson County Planning

Comprehensive Plan

The Jackson County Comprehensive Plan was adopted in 1972 and amended in 1994. The Comprehensive Plan is the guiding policy document for county land-use planning designations and decisions.²⁰ The Natural Hazards Element of the Comprehensive Plan (as amended in 2004) addresses various natural hazards that warrant concern in Jackson County, including wildfire.²¹ The wildfire section describes the high fire risk in the county as well as the potential for significant impacts to forest and agricultural lands and home sites. Of particular concern is the lack of fire protection for residents living outside of rural fire districts where structural fire protection is not provided. Limited access to structures is also cited as a concern, where road width, road grade, and poor road surface may prevent access by emergency responders. The document includes a list of implementation strategies to reduce wildfire risk.

²⁰ Jackson County Comprehensive Plan-
https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37681&language=en-US&PortalId=16&TabId=1460

²¹ Natural Hazards Element of the Jackson County Comprehensive Plan:
https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37681&language=en-US&PortalId=16&TabId=1460. Amended in 2004: PR #20, 21, DLCD Order No. 001610 dated 2-19-04)

Jackson County Land Development Ordinance

Chapter eight of the Jackson County Land Development Ordinance provides detailed fire safety requirements for all new and existing structures not exempted through Section 8.7.2 that are located in areas subject to wildfire hazard as identified on the Hazardous Wildfire Area Map (Chapter 8, Section 8.7, Wildfire Safety).²² Compliance with the Wildfire Safety Standards is coordinated through Jackson County Development Services, and occurs prior to issuance of building permits. The local fire district or Oregon Department of Forestry carries out inspections. Areas within the county subject to these standards generally have slopes and/or vegetation types conducive to wildfire. All structures that require building permits within the mapped area are required to develop a minimum 100-foot-wide fuel break; and have non-flammable roofing material, rural fire protection (from a rural fire protection district or contract fire protection), on-site water storage, signage, and adequate driveway access that will accommodate large fire-fighting apparatus.

Josephine County Planning

Comprehensive Plan

The Josephine County Comprehensive Plan provides goals and policies for land use planning. Because of the importance of forestlands and forest uses to Josephine County, the Comprehensive Plan includes a specific goal (Goal 2) to conserve and develop the forestlands of Josephine County. Recognizing past occurrence of catastrophic fires and other natural and man-made disasters, Goal 6 of the Comprehensive Plan provides policies to prevent loss of life and property due to natural and man-made hazards. These include controls and restrictions on development in some areas, provision of services, and efforts to reduce hazards. These policies can be viewed on Page 9 of the Comprehensive Plan.²³

Wildfire and Emergency Service Safety Standards, Article 76 (Josephine County)

In October, 2005 Josephine County amended the Josephine County Rural Land Development Code by passing Article 76: Wildfire and Emergency Service Safety Standards,²⁴ which established minimum wildfire safety mitigation standards for development, replacement, substantial improvement, or relocation of structures. The local fire districts played a significant role in developing these safety standards. Many meetings were held with planners, fire personnel, contractors, and the public to

²² Chapter 8. Wildlife Safety Standards, Jackson County Land Development Ordinance: https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37637&language=en-US&PortalId=16&TabId=1460

²³ Josephine County Comprehensive Plan- <http://www.co.josephine.or.us/files/GOAL%20&POL%202005.pdf>

²⁴ Article 76 Wildfire and Emergency Service Safety Standards- http://www.co.josephine.or.us/files/art_76_final_version.pdf

discuss its implementation. Article 76 includes site development and construction standards, access requirements, signage requirements, requirements for fire protection, on-site water requirements and vegetation mitigation standards, including a minimum 100-foot-wide safety zone (defensible space). No county inspections are carried out to uphold the safety standards; however self-inspections are required to meet Article 76 requirements.

1.7.2 Federal Measures to Facilitate Wildfire Planning and Emergency Preparedness

Wildfire planning has been occurring at federal, state, and local scales for many years.

Federal Emergency Management Agency (FEMA) Disaster Mitigation Act of 2000²⁵

Federal Emergency Management Agency Title 44 CFR Part 201 of the Disaster Mitigation Act of 2000 specifies criteria for state and local hazard mitigation planning. The act requires the following entities to have an approved local mitigation plan in order to apply for Hazard Mitigation Grant Program funds:

- local and Indian tribal governments (including county, municipality, city, town, township, public authority, school district, special district, intrastate district, or council of governments [regardless of whether the council of government is incorporated as a nonprofit under state law]), regional or interstate government entity, or agency or instrumentality of a local government;
- any Indian tribe or authorized tribal organizations, or Alaska Native village or organization; and
- any rural community, unincorporated town or village, or other public entity.

Appropriate plans may include countywide or multi-jurisdictional plans as long as all jurisdictions adopt the plan. Activities eligible for funding include management costs, information dissemination, planning, technical assistance, and mitigation projects.

The National Fire Plan (2001)²⁶

The National Fire Plan (NFP) established the collaborative approach to be used at all levels to develop wildfire risk reduction solutions. It was followed by *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy*, with updates in 2002

²⁵ Federal Emergency Management Agency Disaster Mitigation Act of 2000: <https://www.fema.gov/media-library/assets/documents/4596>

²⁶ The National Fire Plan: <https://www.forestsandrangelands.gov/resources/reports/documents/2001/8-20-en.pdf>

and 2006. In 2003, the Healthy Forests Restoration Act (HFRA; see below) was passed into law, which emphasized development of CWPPs and implementation of hazardous fuels reduction projects.

Northwest Forest Plan (1994)²⁷

The Northwest Forest Plan (NWFP) is a series of federal policies and guidelines governing land use of federal lands in the Pacific Northwest. It covers areas from Northern California to western Washington.

The plan has five major goals:

- Never forget human and economic dimensions of the issues.
- Protect the long-term health of forests, wildlife, and waterways.
- Focus on scientifically sound, ecologically credible, and legally responsible strategies and implementation.
- Produce a predictable and sustainable level of timber sales and non-timber resources.
- Ensure that federal agencies work together.

The Healthy Forests Initiative (2002)²⁸ and Healthy Forests Restoration Act (2003)²⁹

The Healthy Forests Initiative (HFI) was launched in 2002 to reduce the severe risks posed by wildfire to people, communities, and the environment. The Healthy Forests Restoration Act (HFRA) of 2003 was passed as the central legislative component of the HFI.

The HFRA encourages local communities to collaborate with federal land managers and develop a comprehensive fuels-reduction strategy—part of a CWPP. HFRA also offers federal land managers tools to streamline the federal land management process and expedite management projects. While not a silver bullet for effective management, these tools can help mitigate the complexity of administering lands in a complicated regulatory field.

One important effect of the HFRA is a streamlined National Environmental Policy Act (NEPA) process. The HFRA specifically states that the Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the planning process and recommendations concerning community wildfire protection plans (16 U.S.C. § 6513(b)(2)).³⁰ Thus, US Forest Service (USFS) and Bureau of Land Management (BLM) may work with counties, towns, and cities without opening up the process to litigation. Federal land managers may

²⁷ Northwest Forest Plan: <https://re0.gov/general/aboutNWFP.htm>

²⁸ Healthy Forest Initiative: <https://georgewbush-whitehouse.archives.gov/infocus/healthyforests/toc.html>

²⁹ Healthy Forest Restoration Act: <https://www.fs.fed.us/emc/applit/includes/hfr2003.pdf>

³⁰ 16 U.S.C. § 6513(b)(2): <https://www.law.cornell.edu/uscode/text/16/6513>

cooperate candidly and openly to develop the best possible plan in light of the increasing intensity and frequency of fire. Although federal land managers are not bound by the results of this collaboration, the federal government's ownership of a vast portion of the forests in both Jackson and Josephine counties means that any plan without their valuable input will struggle to achieve meaningful control over wildfires.

The HFRA also reduces the burden of NEPA in the federal fuel-reduction project selection process. It does this by reducing the required number of alternatives an agency must consider in an environmental assessment (EA) or environmental impact statement (EIS) for proposed federal projects within the WUI (16 U.S.C. § 6514). Specifically, the EA or EIS must consider only the proposed action and one alternative (as long as it is in the WUI). If a project is located within 1.5 miles of an at-risk community, the agency is not required to analyze any alternative to the proposed action (6 U.S.C. § 6514(b)(2)).

It should be noted that the NEPA streamlining benefit has the potential to have a larger impact in the Rogue Valley than elsewhere in Oregon. This is because of the checkerboard nature of the Oregon & California (O&C) lands, where a large number of communities are adjacent to federal lands and more land is within the WUI.³¹

By taking advantage of these benefits, county and federal land managers will reduce overall costs and work load, and simultaneously achieve the goals of the HFRA and this RVIFP. Through the HFRA, federal land managers exert enormous influence over the long- and short-term health of both the local economy and forest ecosystems. Both counties seek to maximize these benefits by utilizing the HFRA's tools, and by collaborating with local entities to design projects in accordance with this RVIFP.

The HFRA also expedites judicial review of applicable hazardous fuels reduction projects. The HFRA requires that if hazardous fuels reduction projects are challenged, this will occur in the local district court (16 United States Code Annotated (U.S.C.A) 6516(a)). Furthermore, the HFRA encourages the reviewing court to "expedite, to the maximum extent practicable," any challenges to projects (16 U.S.C.A. 6516(b)).

The HFRA also limits the length of preliminary injunctions to 60 days, with limited options of renewal upon expiration (16 U.S.C.A. 6516(c)(1)). These restrictions on courts expedite the planning process, but are unlikely to decrease the chances and cost of litigation. Ultimately, the HFRA's restrictions reduce the

31 O&C Lands Act of 1937- <https://www.blm.gov/or/plans/wopr/files/OCAct.pdf>

burden of hazardous fuels reduction projects on federal agencies in an attempt to encourage them to take a leading role in driving wildfire mitigation.

Federal Land Assistance, Management and Enhancement (FLAME) Act of 2009³²

The FLAME Act of 2009 directed the development of the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy). In 2014, the final stage of a National Strategy for wildfire was issued, titled *'The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy'*.

Cohesive Strategy

The Cohesive Strategy was initiated in 2010 as a collaborative process led by the Wildland Fire Leadership Council (WFLC), an intergovernmental committee of federal, state, tribal, county, and municipal government officials as well as the public, to seek national, all-lands solutions to wildland fire management issues. The Cohesive Strategy was rolled out over three phases with Phase III culminating in 2014 with the release of the National Strategy.³³

The WFLC adopted the following vision for the next century:

“To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.” (National Strategy, 2014; page 3)

The Cohesive Strategy is addressing the nation's wildfire problems by focusing on three key areas: Restore and Maintain Landscapes, Fire-adapted Communities, and Wildfire Response (Figure 1.8).

³² Federal Land Assistance, Management and Enhancement Act (2009): https://www.forestsandrangelands.gov/strategy/documents/reports/2_ReportToCongress03172011.pdf

³³ National Strategy (2014): <https://www.forestsandrangelands.gov/strategy/documents/strategy/CSPHaseIIINationalStrategyApr2014.pdf>



Figure 1.8. The National Cohesive Strategy- Challenges, National Goals and Vision. Source: Adapted from National Cohesive Strategy (2014).

The intent of the Cohesive Strategy is to provide “clear guidance on roles and responsibilities for all wildland fire management entities, and emphasize how effective public-private partnerships and the sharing of responsibility among stakeholders are essential to achieving the identified three national goals.”

The Cohesive Strategy and the Western Regional Action Plan (WRAP) have been used as an organizing framework for fire planning in Jackson and Josephine counties since their inception, and as such, they will continue to be a guiding framework in this document (Table 1.1).

Table 1.1. CWS/WRAP Goals

GOALS	BASIC PREMISE
Restore and Maintain Landscapes	Landscapes across all jurisdictions are resilient to fire- related disturbances in accordance with management objectives.
Fire-adapted communities	Human populations and infrastructure can withstand a wildfire without loss of life and property.
Wildfire Response	All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Western Regional Action Plan (WRAP)

Following the Cohesive Strategy, three regional strategy committees were formed: northeast, southeast and west. These regional strategy committees were tasked with developing Action Plans to build on the recommendations outlined in the National Strategy. The 2013 *Western Regional Action Plan (WRAP)*

provides “a science-based roadmap to direct a truly western approach to wildland fire that holistically addresses the needs of the landscape, the communities, and the brave men and women who respond when fire occurs.”³⁴ The WRAP notes that steep terrain, invasive species, access limitations, climate change, heavy fuel loads, and an expanding WUI underlie four broad areas of risk: risk to firefighters and civilian safety, ecological risks, social risks, and economic risks. The solution requires a collaborative effort with many stakeholders to improve landscape resiliency and community adaptation to wildfire.

Rogue Basin Comprehensive Forest Restoration Strategy (RBS)

In August of 2015 the Southern Oregon Forest Restoration Collaborative (SOFRC) and stakeholders developed a Rogue Basin Cohesive Forest Restoration Strategy (RBS) that integrates wildfire risk mitigation with ecological restoration of uncharacteristically dense forests.³⁵ This strategy incorporates the goals and components of the federal Cohesive Strategy. The RBS is designed to inform and support the federal land management agencies, the State of Oregon, and private landowners in planning integrative and cohesive active management to promote resilient landscapes, diverse habitats, fire-adapted human communities, and a predictable flow of ecosystem services and economic benefits.³⁸ The RBS is discussed in detail in Chapters 4 and 5.

Guidance for the Implementation of Federal Wildland Fire Management Policy (2009)

The 2009 interagency publication titled ‘Guidance for the Implementation of Federal Wildland Fire Management Policy’³⁶ states:

1. Wildland fire management agencies will use common standards for all aspects of their fire management programs to facilitate effective collaboration among cooperating agencies.
2. Agencies and bureaus will review, update, and develop agreements that clarify the jurisdictional inter-relationships and define the roles and responsibilities among local, state, tribal, and federal fire protection entities.
3. Responses to wildland fire will be coordinated across levels of government regardless of the jurisdiction at the ignition source.

³⁴ Western Regional Action Plan (2013): http://www.forestsandrangelands.gov/strategy/documents/rsc/west/WestRAP_Final20130416.pdf

³⁵ Metlen, K. L., D. Borgias, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, C. Zanger, M. Bennett, B. Moody, and E. Reilly. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR. Available online at: <https://tnc.box.com/s/k8kel1cww1i3oo4ru55lc1dv7xpyxuob>.

³⁶ Guidance for Implementation of Federal Wildland Fire Management Policy: https://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf

4. Fire Management Plans will be intergovernmental in scope and developed on a landscape scale.

5. Wildland fire is a general term describing any non-structure fire that occurs in the wildland.

Wildland fires are categorized into two distinct types:

a. Wildfires – Unplanned ignitions or prescribed fires that are declared wildfires.

b. Prescribed Fires – Planned ignitions.

6. A wildland fire may be concurrently managed for one or more objectives, and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels; weather; topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives.

7. Management response to a wildland fire on federal land is based on objectives established in the applicable Land/Resource Management Plan, and/or the Fire Management Plan.

8. Initial action on human-caused wildfire will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety.

9. Managers will use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.³⁷

The *Interagency Standards for Fire and Fire Aviation Operations* (Red Book) states, references or supplements policy for BLM, USFS, U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), and Bureau of Indian Affairs (BIA) fire and fire aviation program management.³⁸ The standards are intended to comply with the Guidance for Implementation of Federal Wildland Fire Management Policy (2009) and other existing federal policy.

US Department of Agriculture, Forest Service (USFS)- Strategic Plan

The USFS Strategic Plan (2010-2015) outlines the following strategic goals and objectives relevant to wildfire planning: *Sustain our Nations Forests and Grasslands through A) Fostering resilient, adaptive*

³⁷ *Guidance for Implementation of Federal Wildland Fire Management Policy* (February 13, 2009), page 7.

³⁸ Interagency Standards for Fire and Fire Aviation Operations (Red Book): <https://www.nifc.gov/PUBLICATIONS/redbook/2017/RedBookAll.pdf>

*ecosystems to mitigate climate change, B) Mitigating wildfire risk and C) Conserving open space.*³⁹ The plan includes strategies to restore ecosystems that are naturally adapted to wildland fire, and repair ecosystems that have been damaged by severe wildfire. The plan also calls for use of information from climate change vulnerability assessments to inform adaptive management strategies.

The *Forest Service Climate Change Strategy of 2011* provided a road map to help guide the USFS as it works to ensure that national forests and private working lands are conserved, restored, and made more resilient to climate change.⁴⁰ The goal was to create a balanced approach to climate change that includes managing forests and grasslands to adapt to changing conditions, mitigating climate change, building partnerships across boundaries, and preparing USFS employees to understand and apply emerging science.

US Department of Interior (DOI)- Strategic Plan

The DOI Strategic Plan for fiscal years 2014-2018 outlines the following strategic goals and objectives relevant to wildfire planning: *Manage wildfire for landscape resiliency, strengthen the ability of communities to protect against fire, and provide for public and firefighter safety in wildfire response.*⁴¹ In addition, the DOI states its commitment to adaptively manage resources to mitigate the impacts of climate change, calling for fire managers to implement a comprehensive strategy that aligns federal, state, tribal, and local efforts in preparedness, suppression, hazardous fuels reduction, and habitat restoration programs that consider the impacts of climate change.

US Department of Interior Bureau of Land Management (BLM)- Good Neighbor Authority (PL 113-79)

The Good Neighbor Authority allows the BLM to implement forest health and restoration treatments across ownership boundaries more efficiently. The law provides a tool for federal forest managers to help them accomplish their forest management plans, and allows for work to be conducted on non-federal lands directly adjacent to federal lands.

³⁹ USDA Forest Service: Strategic Plan (2015-2020)-
https://www.fs.fed.us/sites/default/files/legacy_files/media/types/publication/field_pdf/strategic-plan%5B2%5D-6_17_15_revised.pdf

⁴⁰ *USDA National Roadmap for Responding to Climate Change (2011)*: <https://www.fs.fed.us/climatechange/pdf/Roadmapfinal.pdf>

⁴¹ USDOI Strategic Plan for Fiscal Years 2014-2018: <https://www.doi.gov/sites/doi.gov/files/migrated/pmb/ppp/upload/DOI-Strategic-Plan-for-FY-2014-2018-POSTED-ON-WEBSITE-4.pdf>

1.7.3 State Measures to Facilitate Wildfire Planning and Preparation

Oregon Statewide Land Use Planning Goal 7 ⁴²

The intent of Oregon Statewide Land Use Planning Goal 7 is to protect people and property from natural hazards. Goal 7 directs local governments to adopt comprehensive plans (inventories, policies, and implementing measures) to reduce risk to people and property from natural hazards including wildfire. Goal 7 also indicates that new hazard inventory information provided by federal and state agencies shall be reviewed by the Oregon Department of Land Conservation and Development (DLCD) in consultation with affected state and local government representatives. After such consultation, the DLCD shall notify local governments if the new hazard information requires a local response. Local governments shall respond to new inventory information on natural hazards within 36 months after being notified by the DLCD, unless extended by the DLCD.

The Oregon Forestland-Urban Interface Fire Protection Act of 1997 (SB 360) ⁴³

The Oregon Forestland-Urban Interface Fire Protection Act of 1997 (SB 360) applies to lands classified as “forestland-urban interface” by a local county classification committee. The bill enlists the aid of property owners to turn fire-vulnerable urban and suburban properties into less volatile zones where firefighters may more safely and effectively defend their homes from wildfire. The bill is intended to facilitate development of an effective WUI protection system in Oregon by:

- Establishing policies regarding WUI protection;
- Defining the WUI in Oregon and establishing a process and system for classifying the interface;
- Establishing fuel-reduction standards for WUI property owners so they can manage or minimize fire hazards and risks; and
- Providing the means for establishing adequate, integrated fire protections systems in WUI areas, including education and prevention efforts.

SB 360 is enforced through a self-certification program. Residents are provided with a certification form from the Oregon Department of Forestry (ODF) and are required to self-certify that they have met the necessary standards. Returning the self-certification relieves a property owner from the act’s fire cost-recovery liability. Without the self-certification, the state of Oregon may seek to recover certain fire

⁴² Oregon Statewide Land Use Planning Goal 7: <http://www.lcd.state.or.us/goalpdfs/goal07.pdf>

⁴³ Oregon Forestland-Urban Interface Fire Protection Act: https://www.oregonlegislature.gov/bills_laws/ors/ors477.html and <http://www.oregon.gov/ODF/Documents/Fire/6StepsWildfireProtection.pdf>

suppression costs from property owners if a fire originates on the owners property. Areas classified as falling within forestland-urban interface are reviewed every five years.

The Oregon Forest Practices Act

The Oregon Forest Practices Act (FPA) sets standards for all commercial activities involving the establishment, management, and harvesting of trees on Oregon’s forestlands.

Oregon law gives the Board of Forestry primary responsibility to interpret the FPA and set rules for forest practices. ODF is responsible for enforcing those requirements by:

- Reviewing pre-operations plans
- Overseeing operations
- Ensuring reforestation
- Investigating complaints
- Enforcing corrective actions when violations occur

ODF works with landowners and operators to help them comply with the requirements of the FPA.

1.8 CROSSWALK TO THE CWS/WRAP

Fire planning in the Rogue Valley has been a collaborative venture from the outset. Long before the National Cohesive Wildfire Strategy in 2009, fire plan partners had been operating with an “all hands, all lands” approach to achieve the plan’s goals. With this update of the plan, fire plan partners felt strongly that the plan’s goals should be evaluated for alignment with the national Cohesive Wildfire Strategy and the Western Regional Action Plan (Table 1.2). The goals and recommendations outlined in Table 1.2 below link to the recommendation tables in Chapter 5 (Table 5.7), Chapter 6 (Table 6.2) and Chapter 7 (Table 7.1).

Table 1.2. Alignment of RVIFP goals and recommendations, with the National Cohesive Strategy and Western Regional Action Plan

RVI-CWPP GOAL	CWS/WRAP GOAL	RECOMMENDATIONS
Create a flexible, living document that incorporates a multi-agency collaborative approach to planning.	Overarching goal – meets all three CWS goals	<ul style="list-style-type: none"> Seek funding for a third-party RVIFP coordinator to ensure sustainability of the CWPP and oversee project implementation. (see Chapter 8) Develop effective model for communicating agency planning to county executives and decision makers. (See Chapter 5)
Promote forest health using proven forest management techniques that will provide for better forest resiliency to catastrophic wildfires, enhance structure survivability, and increase public safety in the WUI.	CWS goal 1: forest health	<ul style="list-style-type: none"> Reconvene fuels committee to form a Forest Resiliency Group. (See Chapter 5) Work with RBS partners to fully implement the Strategy with an “All Lands” approach (see Chapter 5) Develop priority fuels reduction projects, based on the RBS that can be ready to implement upon receipt of funding. (See Chapter 5) Determine how to reconcile time lag between various agencies’ fuels treatment processes and alignment with RBS priorities. (See Chapter 5)
Promote coordinated fire protection and suppression.	CWS goal 3: wildfire response	<ul style="list-style-type: none"> Install a robust fire detection system across all jurisdictions. (See Chapter 7) Support long-term sustainability of the Medford Large Airtanker Base. (See Chapter 7) Assess evacuation throughout the Rogue Valley to identify WUI communities at risk of entrapment. (See Chapter 7) Use Multi-Agency Coordinating (MAC) Groups at sub-geographic (mini MAC) levels. (See Chapter 7) Increase media coverage of fire resource allocation prior to and during fire season. (See Chapter 7) Seek alternatives to address depleting agency budgets and resources. (See Chapter 7) Continue to pursue solutions to resolve inadequate suppression capabilities and support fire mitigation measures in unprotected areas. (See Chapter 7).
Promote region-wide coordinated emergency management and effective communication.	CWS goal 3: wildfire response	<ul style="list-style-type: none"> Utilize the RVIFP Executive Committee structure to coordinate Emergency Management Tasks related to the RVIFP. (See Chapter 7). Strengthen the participation of RV IMT in all-hazard incidents to increase training opportunities in ICS. (See Chapter 7). Incorporate post fire recovery and rehabilitation plans into RVIFP 5 year update.
Promote wildfire education, awareness, and prevention among citizens and public and private partners.	CWS goal 2: Fire-adapted communities	<ul style="list-style-type: none"> Identify community-scale actions to improve wildfire preparedness. (See Chapter 6) Promote homeowner responsibility for wildfire preparedness through outreach and education. (See Chapter 6) Continue to promote forest resiliency as a key element for wildfire preparedness in the WUI. (See Chapter 6) Build on existing efforts that promote wildfire awareness in the public domain; maximize outreach by targeting broad interest groups. (See Chapter 6) Ensure a process for two-way communication between agencies and community. (See Chapter 6) Strengthen local and regional regulations for building construction in the WUI (Chapter 6) Improve preparedness and resilience of local businesses and organizations so that they are better able to survive wildfire and its aftermath (Chapter 6)
Promote local economic opportunities while addressing forest fuel and forest health conditions and debris removal needs.	CWS goal 1: forest health	<ul style="list-style-type: none"> Develop priority fuels reduction projects that can be ready to implement upon receipt of funding. (See Chapter 5) Develop fuels projects which are independently economically viable without outside funding (See Chapter 5) Use lessons of the past to build a more sustainable forest stewardship program for the future. (See Chapter 5)

1.9 PLANNING AREA BOUNDARIES

This RVIFP encompasses both Jackson and Josephine counties (Figure 1.9).

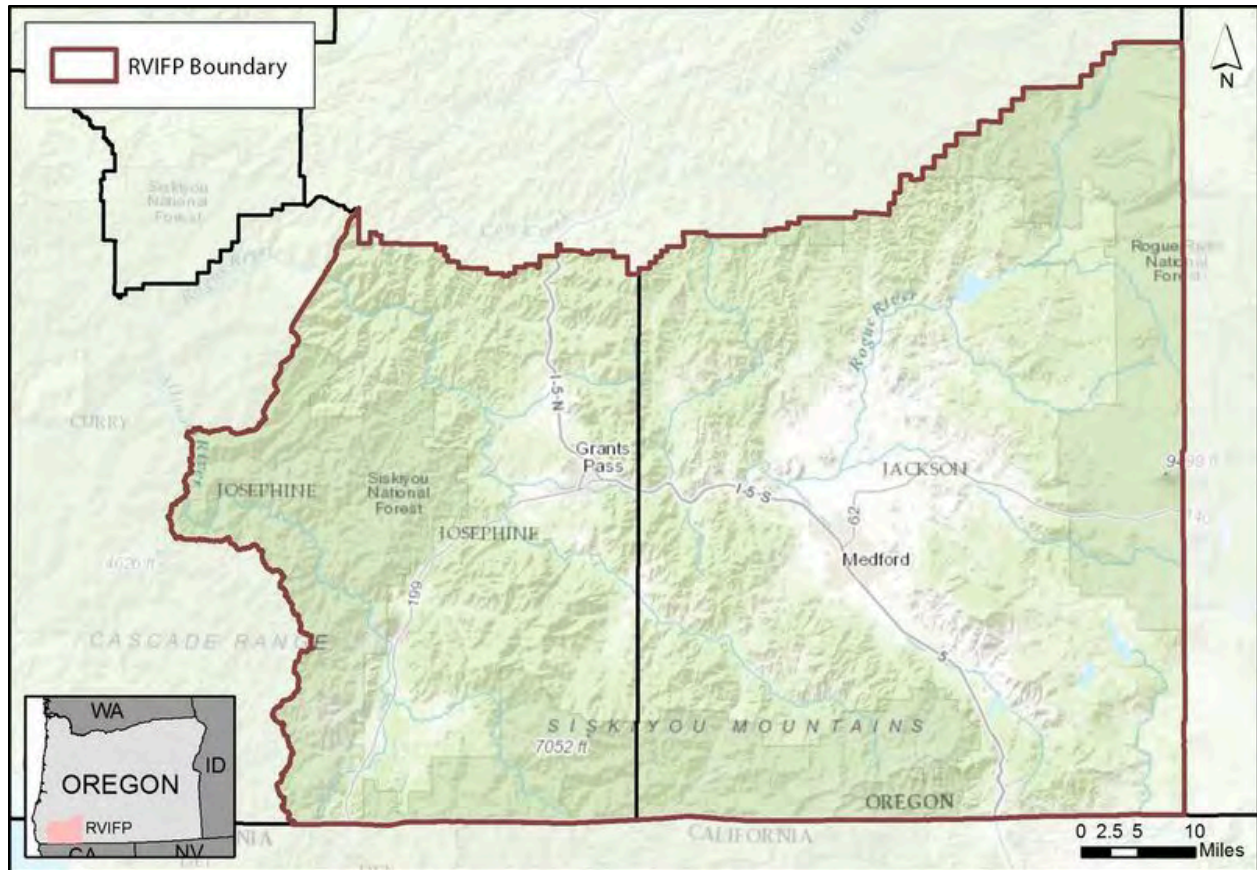


Figure 1.9. Project Location

1.10 CURRENT PLANNING EFFORTS

1.10.1 County Natural Hazard Mitigation Plan

Each county has a Natural Hazard Mitigation Plan (NHMP) that has been accepted by FEMA and approved by the county commissioners. These plans include information that will assist county residents, public and private sector organizations, and other interested people in participating in natural hazard mitigation activities. The plans also provide access to funding through FEMA’s Hazard Mitigation Grant Program for both pre- and post-disaster activities.

1.10.2 Creating Fire-Adapted Communities

The Fire-adapted Communities Coalition is a group of national partners “committed to helping people and communities in the wildland urban interface adapt to living with wildfire and reduce their risk for damage, without compromising firefighter or civilian safety.”⁴⁴

Recognition has grown among communities in the arid West that resources will never be adequate to eliminate fire risk. Residents and homeowners must actively participate in reducing fire risk, and Fire-adapted Communities (FAC) offers a framework for facilitating that participation.

A FAC takes responsibility for its wildfire risk.¹⁹ Actions proposed through the FAC program address resident safety, homes, neighborhoods, businesses and infrastructure, forests, parks, open spaces, and other community assets. Becoming a FAC is a process, not a recognition program. Ultimately, a fire-adapted community:

- is in or near a fire adapted ecosystem;
- has adequate local fire suppression capacity to meet most community protection needs;
- has structures and landscaping that are designed, constructed, retrofitted, and maintained in a manner that is ignition resistant;
- has local codes (building, planning, zoning, and fire prevention) that require ignition-resistant home design and building materials;
- has fuels on land near and inside the community that are treated and maintained for safety.
- has and follows a CWPP; and
- has built other safety features, such as buffers, between fuels and the community; safe designated evacuation routes; and safe zones in the community when evacuation is not advisable.⁴⁵

In 2013, the Southern Oregon Forest Restoration Collaborative (SOFRC) was selected as one of eight organizations in the nation to serve as a pilot “hub” of the Fire-Adapted Communities Learning Network (FACnet). The purpose of this network was to share learning, innovation, and integration across the three goals of the National Cohesive Wildland Fire Strategy (restore and maintain landscapes, fire-adapted communities, and wildfire response) by working with partners to facilitate regional adoption,

⁴⁴ Fire Adapted Communities Coalition: (<http://www.fireadapted.org/resources/meet-the-coalition.aspx>)

⁴⁵ Fire Adapted Communities: (<http://www.fireadapted.org/resources/what-is-a-fire-adapted-community.aspx>).

innovation, and diffusion of best practices associated with FAC programs. The network also provides a feedback loop to federal leaders to more efficiently and effectively support fire-adapted communities.

Jackson and Josephine county FAC professionals are very active with the FACnet, and attend an annual workshop to create learning agendas for local, regional, and national efforts. A series of learning exchanges were held in 2016 with partners from central Washington, central Oregon and southern Oregon.

1.10.3 Firewise USA Programs

In addition to the tireless work conducted by various organizations and agencies in Jackson and Josephine counties, the Firewise Communities USA Program operates in numerous neighborhoods and communities throughout the Rogue Valley. Firewise Communities is a national interagency program that plays a critical role in areas outside the jurisdiction of government entities, i.e., private land in the WUI.

⁴⁶ The program focuses on personal responsibility by encouraging communities to adopt a long-term, proactive approach to protection of homes from wildfire. It provides a flexible template for residents of neighborhoods and home owners' associations to improve their wildfire readiness, and works as an organizing mechanism for initiating wildfire mitigation actions (Figure 1.10).⁴⁷



Figure 1.10. Ashland meeting to discuss wildfire smoke and mitigation measures. Credit: Ashland Fire Department.

⁴⁶ Firewise Communities- A Model of Local Initiative and Cooperation: www.firewise.org

⁴⁷ Firewise Recognition Program: <http://firewise.org/usa-recognition-program.aspx?sso=0>

The first Firewise Community in the Rogue Valley, Oak Knoll Meadows, was approved in 2011. By 2017, 55 communities have become recognized as Firewise Communities, with 45 in Jackson County and 11 in Josephine County.

Becoming a Firewise Community can provide the following benefits:

- Access to funding and assistance
- Citizen pride
- Community-building
- Framework for action
- Wildfire education

Once established, many Firewise Communities are self-sustaining and grow organically as Firewise personnel provide direction and residents begin to observe the benefits of becoming Firewise from their neighbors. A good model for perpetuating success in the Rogue Valley has been completed actions on the ground which encourage future work (Figure 1.11).⁴⁸ However, maintaining a high level of engagement from landowners over the long term has challenges.



Figure 1.11. Firewise activities can include yard waste clean-up and removal of slash and debris.
Credit: Ashland Firewise

⁴⁸ personnel communication, Herb Johnson- ODF, February 2017

Some Fire Departments in the Rogue Valley have personnel who dedicate at least a portion of their time to Firewise, which helps with community organizing and required home ignition zone inspections. Outside of those districts, additional funding may be needed to help the long-term sustainability of the program in the Rogue Valley. The ODF provides personnel for inspections, but resources become limited during fire season and as budgets are cut. Without grant dollars from programs like Secure Rural Schools Title III and the Western States Fire Managers, the long-term survival of the Firewise program may be threatened. Ultimately, private landowners need to accept the responsibility of living in the WUI and take measures to keep structures and property ready for wildfire.

1.10.4 Local Community Wildfire Protection Plans

The extensive history of fire planning in the Rogue Valley includes many local planning efforts. One of the original goals of the countywide fire plans was to augment the efforts of communities that have existing wildfire planning efforts and provide support for those that do not. Some of these local community plans have since been absorbed into the RVIFP planning effort, including the Colestin and Hilt CWPP (2005), the Applegate CWPP (2002), and the 7 Basins CWPP (2011). The remaining stand-alone CWPPs that fall within the RVIFP boundary are the Ashland CWPP (2004), the Illinois Valley CWPP (Update 2011), and the Wolf Creek CWPP (2014).

The existence of the RVIFP does not preclude any community from writing their own CWPP. Grass root-led efforts are encouraged as part of the HFRA, and projects that are more specific are more easily identified and implemented when championed by the local community in local planning efforts.

Stand-alone Community Level CWPPs

Ashland Community Wildfire Protection Plan, Jackson County

The Ashland Community Wildfire Protection Plan is currently being updated with a December 2017 completion date. The Ashland CWPP is the only local community plan that remains stand-alone in Jackson County. The Ashland CWPP was developed in 2004,⁴⁹ and was adopted by the City Council. Portions of the Ashland CWPP are currently being implemented as the Ashland Forest Resiliency Stewardship Project (AFR). AFR is a ten-year stewardship project designed to reduce the risk of severe wildfire in the watershed and to protect water quality, older forests, wildlife, people, property, and

⁴⁹ Ashland CWPP: <http://www.ashland.or.us/Page.asp?NavID=13513>

quality of life.⁵⁰ Community engagement, supported through a Community Engagement Plan developed in 2009, forms an important part of AFR. Due to the widespread success of the Ashland CWPP and AFR, stewardship projects throughout the Rogue Valley are often based on the Ashland model.

Illinois Valley Community Wildfire Protection Plan, Josephine County

The Illinois Valley CWPP was developed in 2005 and updated in 2011.⁵¹ The 2005 IV-CWPP was developed to augment the 2005 Josephine County Integrated Fire Plan, in an attempt to provide residents of the Illinois Valley with more detailed information for wildfire preparedness. IV-CWPP partners participated in plan updates to the county plan to ensure that the IV-CWPP update was in agreement with county plan. The IV-CWPP encourages the engagement of community members with all viewpoints on issues of fire safety and fuel reduction, and provides educational information to residents and agencies to reduce wildfire risk.

Wolf Creek Community Wildfire Protection Plan, Josephine County

The Wolf Creek CWPP was developed in 2014 through a collaborative process with the Wolf Creek Rural Fire Department, the Josephine Integrated Fire Plan Partners, the Oregon Department of Forestry and local citizens within the Wolf Creek Fire District.⁵² The plan encompasses the community of Wolf Creek, which is located approximately 20 miles north of Grants Pass along Interstate Route 5. The main focus of the CWPP is identifying necessary fuels reduction projects, and education of local residents to empower them to better prepare for wildfire.

Community CWPPs to be superseded by the RVIFP

Below is a summary of the unique elements of the community-level CWPPs that will now be absorbed into this RVIFP.

Applegate Fire Plan

The collaboratively-developed Applegate Fire Plan (a CWPP) was written in 2001-2002.⁵³ The Applegate Fire Plan (AFP) was watershed-based, covering all lands within parts of three counties and two states. The AFP was the first community-driven CWPP when the NFP proposed them in 2001, and much has been accomplished in the Applegate Valley since that time.

⁵⁰ Ashland Forest Resiliency Stewardship Project.:

http://www.ashland.or.us/SectionIndex.asp?SectionID=503&utm_source=watershed&utm_medium=web&utm_campaign=watershed

⁵¹ Illinois Valley CWPP (2011): <https://www.oregon.gov/ODF/Documents/Fire/CWPP/IllinoisValley.pdf>

⁵² Wolf Creek CWPP (2014) <https://www.oregon.gov/ODF/Documents/Fire/CWPP/WolfCreek.pdf>

⁵³ Applegate Fire Plan: <https://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/3029/Applegate%20CWPP.pdf?sequence=1>



Many of the achievements of the AFP can be attributed to the Applegate Partnership and Watershed Council (www.applegatepartnership.org), a non-profit community-based partnership that works with private landowners and federal, state, and local land managers toward healthier and more resilient forests and waterways. The AFP led to multiple outcomes that have benefitted the Applegate community in regard to wildfire preparedness.

Raising community awareness of land stewardship was a fundamental principle of the AFP due to the diverse and rare natural resources within the watershed, as well as the checkerboard land ownership pattern. By targeting the AFP at the local community level by translating technical writing into readable information, there was a significant increase in wildfire awareness and in the understanding and application of defensible space practices by Applegate residents. Additionally, a greater understanding of wildfire risk in the community helped lower the incidence of human-caused wildfires.

A major part of the original AFP was to identify priority fuel hazard reduction projects or strategies on all lands across the Applegate watershed. It is estimated that over 50,000 acres have been treated in the Applegate as a result of the AFP.

Another outcome of the AFP has been an improvement in emergency communications as a result of public pressure for more daily fire information meetings when wildfires are occurring. In addition, several wide-spread watershed e-mail lists and telephone trees were developed and new informational kiosks were established across the Applegate Valley Fire District, to provide timely fire information, advice, and tips.

Finally, a key goal of the AFP was to address fire-adapted species and fire resilient forests in the Applegate Valley. Forest resiliency has been a part of every land management decision made by the BLM and the USFS since the AFP was written. Continuous public education on the role of fire on the landscapes by all partners and the AFP Coordinator has helped raise residents' awareness of the need to include fire as a management tool. More than half of Applegate residents questioned in a 2011 public opinion survey indicated that smoke from prescribed fire was not "a serious issue in their area." As a result of this work, the BLM has approximately 12,000 acres in the Applegate Valley that are now in maintenance mode using prescribed fire.

Another outcome of the AFP has been the establishment of watershed pilot projects, like the Middle Applegate Watershed Pilot initiated in 2011.⁵⁴ The pilot project was initiated as a result of a landscape assessment carried out through The Nature Conservancy (TNC) Fire Learning Network. The pilot project is a restoration forestry project to demonstrate landscape restoration of dry Douglas-fir forests.

As determined by the Applegate Partnership, the original goals of the AFP are compatible with those of the RVIFP. The following over-riding priorities of the AFP can therefore continue to frame hazardous fuels work in the Applegate Valley:

1. Maintain all fuels reduction efforts completed on all lands.
2. Continue to design and implement fuels projects on all lands with forest resiliency and the twelve priority values from the TNC Applegate Fire Learning Network as guides.
3. Continue working toward more riparian restoration projects on all lands in the Applegate watershed.
4. Continue to work collaboratively.

The Colestin and Hilt CWPP

The Colestin and Hilt CWPP was developed in 2005 to increase fire preparedness and enhance emergency response in the Colestin Valley in areas under the jurisdiction of the Colestin and Hilt Rural Fire Districts. The Colestin Valley is a remote area, where travel into and out of the area is often difficult or impossible. This has required residents to become self-reliant. Although the community lies mostly in Jackson County, there is a significant portion that extends into Siskiyou County, California which creates jurisdictional complications for emergency responders. Residents in the community were highly engaged, and, as a result, the CWPP was compiled by residents in combination with agency land managers.

The Colestin and Hilt CWPP identified a number of actions to move the community towards fire preparedness. Many of these activities seek to build collaboration from the grass roots level, such as creative matchmaking finding local markets for use of small diameter materials, convening work parties to carry out general community fuels reduction projects on private lands, and developing incentives to encourage community participation. The CWPP also identified mediation tools for encouraging residents

⁵⁴ Middle Applegate Watershed Pilot Project: <https://www.blm.gov/or/districts/medford/forestrypilot/>

who are not complying with proposed community preparedness activities, such as development of defensible space.

The CWPP focused on actions aimed at protection of life and property, such as identifying the need for fuels reduction treatments throughout the Colestin Valley community, including fuels reduction along roadways that serve as access routes. The maintenance of access routes to these communities is critical for public health and safety in these rural areas. Fuel treatments have been carried out since the development of the CWPP by Lomakatsi, and developing contiguous fuel mitigation zones that tie into existing treatments has been a focus of land managers.

Many of the access roads are unpaved and poorly maintained, which hampers access for emergency responders and evacuation by residents. The CWPP focused actions on access, and on road and driveway improvements, including conducting yearly assessments of roads and driveways prior to fire season.

Emergency preparedness was a key component of the CWPP due to the rural, remote nature of the community. The CWPP sought funding sources to properly equip the local Colestin Rural Fire District and Hilt Volunteer Fire Company with fire-fighting equipment. Because the community had become accustomed to self-reliance, a key goal of the CWPP was to develop Neighborhood Emergency Response Teams (NERTs) who operate in clusters throughout the community, and develop a neighborhood watch program where neighbors would be educated to identify possible “fire watch out” situations.

The Sevens Basins CWPP

The Seven Basins CWPP was a community level plan for a 250,000 acre watershed in northwestern Jackson County.⁵⁵ The area encompassed the communities of Rogue River and Gold Hill. The original CWPP developed in 2006 was updated in 2011 to focus on development of a risk assessment to inform future fuels reduction planning in the area. The CWPP was developed collaboratively under the auspices of the Seven Basins Neighborhood Fire Planning Project. Project partners were represented in the development of the 2006 Jackson County Fire Plan; thus, the county plan provided an umbrella to the Seven Basins CWPP.

⁵⁵ The Seven Basins Community Wildfire Protection Plan (2006):
<http://extension.oregonstate.edu/sorec/sites/default/files/documents/CHAPTER1FIRE.pdf>

The 2011 update focused on development of strategic fuel treatments to 1) minimize the number of acres burned in high severity wildfire, 2) prevent the spread of fire across watershed boundaries, 3) facilitate wildfire suppression, and 4) provide additional protection to homes and businesses by reducing large scale, high-intensity wildfire. The 2011 update explicitly identifies locations where values of concern are at the highest risk of loss due to wildfire, and makes clear the tradeoffs among differing values, including private property, homes, and habitat. A series of maps were presented displaying the risk of loss to each value.⁵⁶

The Sevens Basins CWPP approach is similar to the risk assessment developed as part of the Rogue Basin Comprehensive Forest Restoration Strategy (RBS) where hazard and risk are entwined with threats to key values to inform and provide prioritization for effective fuel treatment. Like the RVIFP, the Seven Basins CWPP approach is to encourage small-scale tactical fuel treatment around residences and infrastructure, while developing plans for large-scale strategic treatments to address watershed health and forest resiliency.

⁵⁶ Seven Basins CWPP Update: http://extension.oregonstate.edu/sorec/sites/default/files/cwpp_update.pdf

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2 CWPP PLANNING PROCESS

2.1 CWPP EXECUTIVE COMMITTEE STRUCTURE AND ROLE

The CWPP Executive Committee (EC) was formed to provide direction and guidance throughout the planning process, including developing the plan’s mission, goals, and objectives. For the purpose of this consolidated plan update, the EC was comprised only of the HFRA-required signatories of the CWPP. The EC includes representatives of the applicable local government (Jackson and Josephine counties), the Fire Defense Board Chief from each county, and the state entity responsible for forest management (Oregon Department of Forestry). After approval of the RVIFP by the HFRA required signatories, the EC will be expanded to again include additional executives from federal agencies who are key decision-makers for project implementation on public lands. The EC is responsible for oversight of plan development through to the approval of the plan, as well as approval of the five-year RVIFP updates.

2.2 CORE TEAM

The Core Team is an interagency team of subject matter experts recruited and convened to assist in the creation of this RVIFP, including integration of the two existing county CWPPs. Members of the Core Team were recruited from a wide range of stakeholders who would bring a variety of perspectives to the table. The Core Team convened twice during the CWPP planning process, and members contributed to the content of the plan. See Acknowledgements page for representatives who contributed to plan development.

2.3 FUELS REDUCTION COMMITTEE

During previous fire planning efforts, fuels management was coordinated by Fuels Reduction Committees in each county, with membership from municipal, county, state, and federal partners involved in fuels management. The Fuels Reduction Committees prioritized fuels reduction treatments across private and federal land in both counties, coordinated National Fire Plan (NFP) fuels reduction grant applications, developed fuels reduction monitoring and tracking strategies, and listed noxious weed control as a priority during fuels management.

The Fuels Reduction Committees are less active now; however, many similar committees and subcommittees do convene regularly to discuss fuels management in the region. The CWPP Core Team recognized the value of reconvening a Fuels Reduction Committee to provide a more unified group of

stakeholders to address fuels management across all jurisdictions, and to reduce the number of existing committees and subcommittees that may have overlapping missions, goals and objectives. See Section 5.3 of Chapter 5 (Fuels Management) for more information.

2.4 ROGUE VALLEY FIRE PREVENTION COOPERATIVE

The Rogue Valley Fire Prevention Cooperative (RVFPC) was formed in 1976 as an interagency, non-profit organization designed to bring agencies together to promote and exchange ideas, programs, and resources concerning fire prevention and public education.⁵⁷ The RVFPC serves as a clearinghouse for exchange of professional information among members, and strives to reduce the number of preventable wildfires within the jurisdiction of the RVFPC. Jackson County and Josephine County Emergency Management are active partners with the RVFPC, as are other local, state, and federal RVIFP planning partners.

From 2004 through 2014, a regional Outreach and Education (O&E) Committee was formed to develop and provide educational materials and deliver outreach to the community that specifically focused on wildfire safety and fire planning efforts. Many of the members of the O&E Committee were also members of the RVFPC. A tremendous amount of work was completed by this committee, which is highlighted in Appendix A. Outreach and education efforts related to wildfire safety including the Firewise and Fire-Adapted Communities programs have been folded in to the RVFPC.



2.5 OTHER EXISTING EFFORTS THAT SUPPORT THE CWPP

The RVIFP is in a unique position to be able to benefit from a large amount of original research and numerous planning efforts, including the West Wide Risk Assessment, the Southern Oregon Forest Restoration Collaborative, the Rogue Basin Cohesive Forest Restoration Strategy, and the Rogue Basin Climate Action Plan for Resilient Forests and Watersheds in a Changing Climate. In addition to specific on-going efforts, fire planning in the Rogue Valley has received broad support and helpful contributions by more than 170 agencies over the past decade.

⁵⁷ Rogue Valley Fire Prevention Cooperative: <https://rvfpc.blogspot.com/>

2.6 UPDATE PROCESS

The update process began by documenting project successes from the original Jackson and Josephine integrated fire plans, and reviewing the plan elements to determine what has been, and what has not been successful. Through a review of the information and conversations with partners, the Core Team and Executive Committee were able to focus priorities for future action. Early in the update process, both counties decided to fully and formally integrate the Jackson and Josephine county integrated fire plans into one plan, the RVIFP. Additionally, this update will create and maintain a plan that is sustainable, given shifting budget priorities and potential staffing changes. Finally, the plan must be realistic and practical, building on success and focusing on priorities.

The update of the RVIFP includes the following steps:

1. Integrate the original Jackson and Josephine plans and subsequent plan updates into this RVIFP.
2. Examine collaborative relationships and their contributions to the fire plan, including existing and new partners and needs.
3. Incorporate the tenets of the federal Cohesive Strategy.
4. Identify recommended mitigation measures to address hazardous fuels and impacts of wildfire on life and property in the Rogue Valley.
5. Revise priorities for fuels treatments from collaborative forest planning efforts.
6. Evaluate resources necessary for implementation and sustainability of the plan.
7. Inform the County Natural Hazards Mitigation Plans.
8. Assemble an updated fire plan, with appropriate review of a draft report by partners, and issuance of a final plan.

2.7 COLLABORATIVE PLANNING

The nature of wildfires and the significant number of fire agencies in the Rogue Basin require a collaborative approach to planning. Wildfires burn across lands owned or managed by numerous entities, including different neighborhoods, communities, fire districts, commercial timber stands, and government agency lands.

Collaboration is an essential component of public processes at multiple levels of government. Federal policies such as the HFRA have mandated collaboration as a process to bring in diverse interests, make decisions, and implement projects on the ground to decrease litigation and foster community

cooperation. Original fire plan partners have stated that collaboration has been the single most effective means to ensure successful outcomes. Those previous efforts employed significant outreach to the local communities and gathering of input on the fire planning process. The open and transparent dialogue used by stakeholders throughout the Rogue Valley has built support from the community. Collaboration is especially important because the cooperation of citizens is necessary to successfully reduce risk to life and property. Without the willingness of individual residents to create defensible space around their homes, reduce fuel loads on their property, and cooperate with neighbors and responsible agencies, strategies will not be successful.

The Applegate Partnership in Jackson and Josephine counties initiated one of the first efforts aimed at multi-stakeholder, collaborative management of a large landscape. Widely viewed as successful, the Applegate Partnership pioneered the way for collaborative efforts related to community fire protection and forest restoration.

In 2013, partners began an informal review of both county fire plans, and the fire planning process in general. Twenty-six interviews were conducted and the general input of fifty-six additional fire plan partners was gathered. Collaboration was confirmed as a hallmark of fire planning in southwestern Oregon. One official summarized the regional process well:

“Over the course of the past five years, the two adjacent counties [Jackson & Josephine] have begun to work more closely together in a number of areas, including wildfire risk assessment, outreach and education, and in coordinating emergency management needs for vulnerable populations. The counties recognize that strong collaboration will leverage limited resources and more effectively reduce wildfire risk in the region.” (Paul Galloway, USFS Partnership Coordinator, Retired).

3 COMMUNITY CHARACTERISTICS AND DEMOGRAPHICS

3.1 LOCATION AND GEOGRAPHY

Jackson and Josephine counties are located in southwestern Oregon within the Klamath Mountain ecoregion of the Rogue Basin (Figure 3.1). Oregon Department of Forestry (ODF) considers southwestern Oregon a hot-spot for wildfire. This region has recorded more incidences of wildfire, more money spent, and greater resources used to reduce wildfire’s impacts than anywhere else in the state.

Building and sustaining strong relationships among public land managers, fire districts, political jurisdictions, and citizens of Jackson and Josephine counties is essential to reducing wildfire risk. Wildfire can cause loss of resources and post-fire recovery costs that have longer-term economic impacts on the communities, local government, businesses, and citizens. Additionally, Josephine County has a high rate of poverty among its population. People living in poverty may be more challenged in preparing for, responding to, and recovering from the impacts of catastrophic wildfire.

The physical and ecological characteristics, combined with the demographic, social, and economic character of the counties provides an understanding of the people, facilities, property, and environment at risk to wildfires now and in the future.



Figure 3.1. The Rogue Basin: Credit: BLM.

3.1.1 Jackson County

Jackson County was formed from the southwest side of Lane County in 1852 and was named after President Andrew Jackson. The borders of Jackson County originally ran south to California, west to the Pacific Ocean, east to Lane County, and north to Douglas and Umpqua counties. The borders have changed over the years, which led to the creation of Coos, Curry, Josephine, Klamath, Lake, and Wasco counties.⁵⁸ Jackson County now covers 2,182 square miles, or 1,802,880 acres.

Approximately 70% of the population of Jackson County lives in incorporated communities. The remaining population lives in the unincorporated areas where there is increased wildfire risk. As with Josephine County, building and sustaining strong relationships between public land managers, fire districts, political jurisdictions, and citizens is essential to reducing wildfire risk.

Jackson County has diverse land uses, including forested lands, agricultural production, open space development, rural and suburban development and industrial uses. The forested land is primarily held in public ownership, as well as for commercial forestry and recreation.⁵⁹ As well as being of critical environmental, economic, and social importance to the county, the forested mountain landscapes contribute to the scenic value of the county.⁶⁰ Agricultural production in the county includes orchards, row crops, field crops and livestock production, and, though a smaller sector than forest resources, the sector remains an important component of the local economy.⁶¹

Jackson County population growth is forecasted to peak in 2025, due largely to net migration.⁶² In response to increased population growth, particularly around the larger urban centers of Medford and Central Point, city governments can review their Urban Growth Boundaries to accommodate population forecasts and expansion of the urban area into surrounding rural lands.⁶³

⁵⁸ Oregon State Archives, Oregon Historical County Records Guide. Online:

<http://arcweb.sos.state.or.us/county/cpjacksonhome.html>

⁵⁹ Jackson County Comprehensive Plan, Existing Land Use:

https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37669&language=en-US&PortalId=16&TabId=1460

⁶⁰ Jackson County Comprehensive Plan, Forest Lands:

https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37679&language=en-US&PortalId=16&TabId=1460

⁶¹ Jackson County Comprehensive Plan, Agricultural Lands:

https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=37673&language=en-US&PortalId=16&TabId=1460

⁶² Coordinated Population Forecast, 2015-2065: <http://digital.osl.state.or.us/islandora/object/osl%3A23720/datastream/OBJ/view>

⁶³ Coordinated population forecast for Jackson County, its Urban Growth Boundaries (UGB), and area outside UGBs, 2015-2065.

<http://digital.osl.state.or.us/islandora/object/osl%3A23720>

3.1.2 Josephine County

Josephine County was created by the Territorial Legislature on January 22, 1856 from the western half of Jackson County. The county borders California to the south, Douglas County to the north, Curry County at the Coast Range summit on the west, and Jackson County on the east. Josephine County is predominantly mountainous, but has two major valleys cut by the Rogue, Illinois, and Applegate rivers.⁶⁴ Elevation ranges from 750 feet to over 7,000 feet. Josephine County is located in the Klamath Mountain ecoregion, and is renowned for unique geology and presence of rare and endemic plants. Josephine County currently covers 1,642 square miles.

Josephine County is a region of vast forest resources. The forests enrich the lives of county residents by providing fresh water supplies, abundant wildlife habitat, scenic beauty, and recreation opportunities.⁶⁵ The population, geography, and fire history all contribute to the level of wildfire risk that people in Josephine County face. Agricultural production in the county is fairly limited in scope, but diverse in nature, including hay and pasturelands, and croplands producing grapes and herbs (NRCS 2012).⁶⁶ Currently, the county is undergoing significant urban growth, being ranked 6th in the state for population growth, which results in high rates of change of land use from agriculture/forestry to more developed uses. The pressure of urbanization is concentrated near the urban area of Grants Pass, but extends into adjacent forest and agricultural land.⁶⁷

3.2 LAND OWNERSHIP

3.2.1 Jackson County

Forested lands cover approximately 84% of Jackson County, of which USFS and BLM manage two-thirds, with the remaining forest lands in industrial and non-industrial ownership.⁶⁸ A prominent feature is the “checkerboard” land ownership in the rural parts of Jackson County, which were created by railroad lands that were revested by the Federal Government to the BLM. The checkerboard results in increased public and private land interface (Figure 3.2 and Figure 3.3). Wildfire and fuels management are challenging because of the diversity of private owners surrounding public lands. USFS lands tend to be in

⁶⁴ Oregon Historical County Records Guide, <http://arcweb.sos.state.or.us/county/cpjosephinehome.html>

⁶⁵ Josephine County Comprehensive Plan Update, 2002.

⁶⁶ Strategic Private Lands Conservation in Josephine County, NRCS 2012-2017, July 31, 2012.

⁶⁷ Ibid.

⁶⁸ Bennett, M., G. Perrotti, et al. 2005. Community Wildfire Protection Plan for the Seven Basins Watershed. Seven Basins Neighborhood Fire Planning Project. Central Point, OR. 90p.

the foothills and more mountainous regions of the county, away from the population centers. The smaller community of Prospect shares boundaries with USFS lands, as does the city of Ashland. The USFS also manages two major municipal watersheds, Big Butte Springs (Medford Water Commission) and the Ashland watershed, which serve many tens of thousands of Jackson County residents. Medford and Ashland municipalities both own small pieces of their watersheds and manage the lands for forest health and high-quality drinking water.

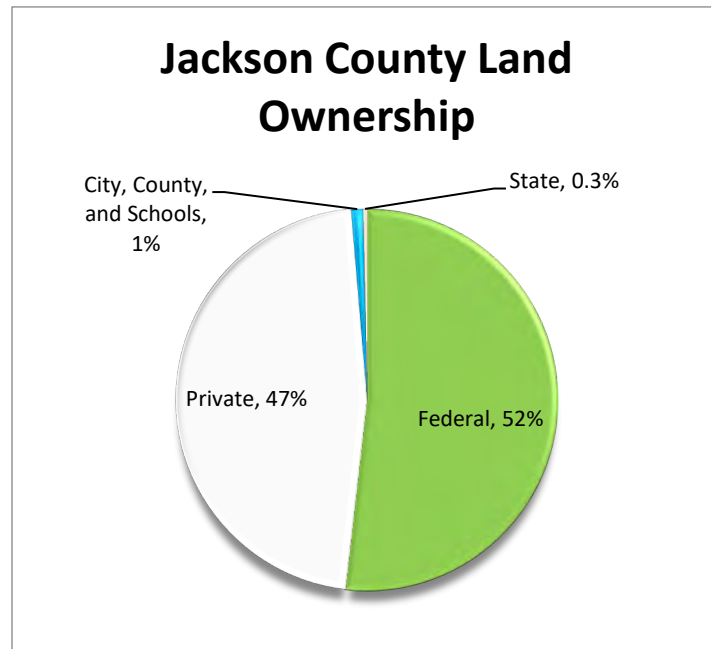


Figure 3.2. *Percentage private and public lands, Jackson County.*

3.2.2 Josephine County

Publicly-owned lands, managed primarily by the USFS and BLM, comprise 68% of Josephine County and are often heavily forested. The total area of Josephine County is approximately 1,050,880 acres, of which about 290,095 acres is privately owned and about 705,732 acres is publicly managed. Of the federal land, the USFS manages 421,745 acres and the BLM manages 282,674 acres. Approximately 8,929 acres is owned by the state of Oregon. Figure 3.3 below illustrates the breakdown of land ownership in Josephine County. Figure 3.4 illustrates the checkerboard pattern of ownership across the county.

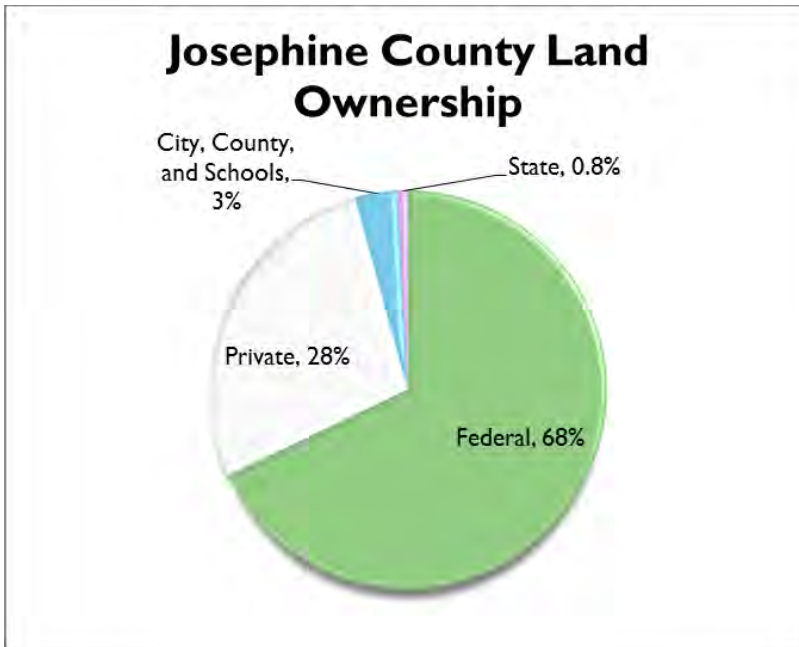


Figure 3.3. Percentage of private and public lands, Josephine County.

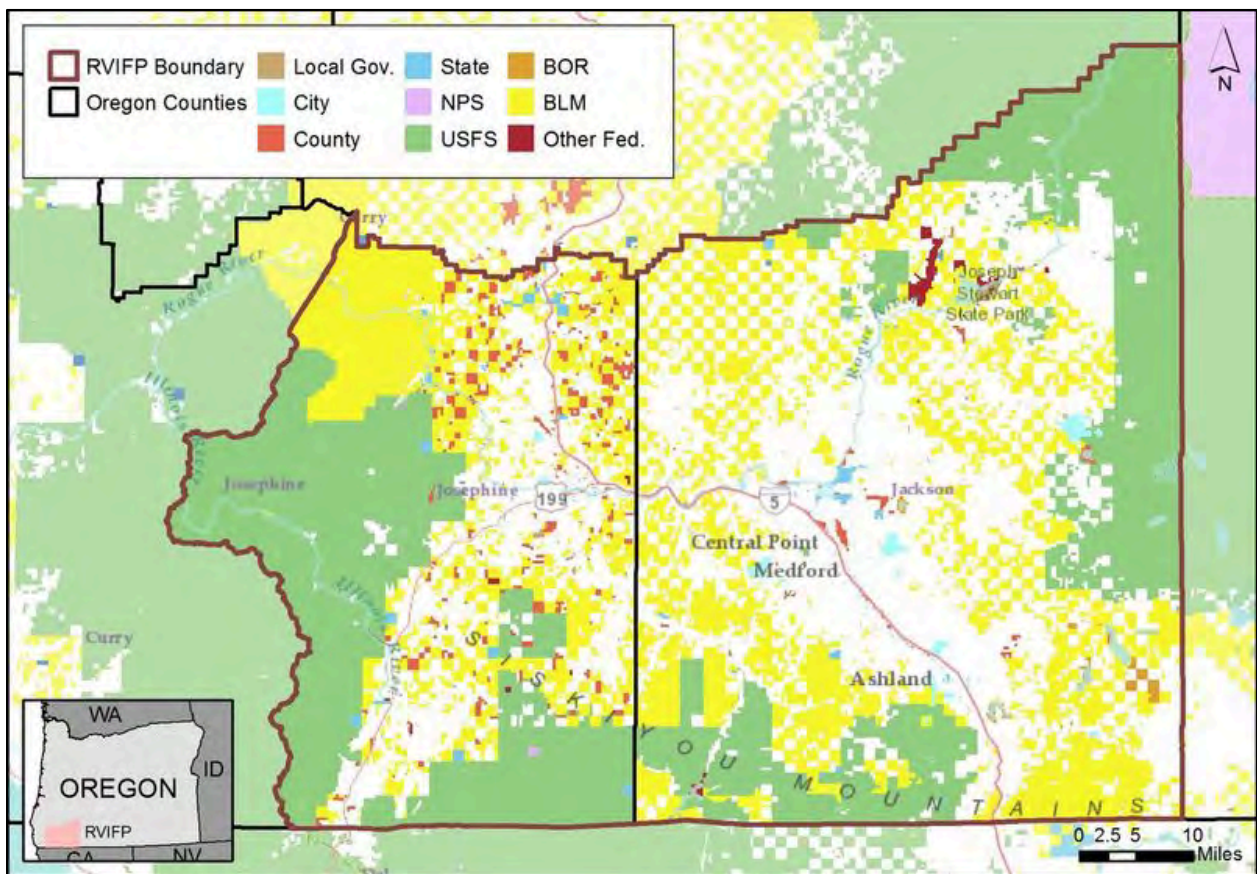


Figure 3.4. Land ownership in Jackson and Josephine counties. Data sources: Jackson County, Josephine County, Oregon Department of Forestry, and CalAtlas.

3.3 CLIMATE AND WEATHER PATTERNS

Jackson and Josephine counties have a wide range of weather conditions that affect the frequency, severity, and behavior of wildfires. Variations in elevation, aspect, and mountain range orientation greatly affect weather patterns between places relatively close together on the landscape (Figure 3.5- Figure 3.10). For example, the City of Ashland receives an average of 18.87 inches of rainfall per year, while Mt. Ashland, just 8 miles south and 5,500 higher, receives 60 inches of precipitation. Grants Pass receives an average of 32 inches of precipitation annually, primarily from October through the spring.⁶⁹ Additionally, Cave Junction has similar amounts of summer rainfall to both Grants Pass and Ashland, but more rainfall in the winter than lower elevations. The temperature averages are similar to Grants Pass, and slightly warmer than Ashland. The differences in climate result in variations in fire history and fire behavior across the landscape.

Both counties experience long, hot, dry summers and wet winters, creating conditions where moist winters support the growth of vegetation that will mature and dry out during the summer and be susceptible to wildfire. Lightning, which occurs from May through October, is a prominent cause of wildfires. Recently, multiple ignition events have on occasion overwhelmed suppression resources and have been a significant factor in the development of large wildfires within the southern portion of the planning area (notable recent years include 1987, 2002, 2013, and 2014).

Some landscapes are affected by autumn east winds that occur when stable air pushes across a mountain range and then descends on the leeward side. The air becomes warmer and drier as it descends and can lead to increased, sometimes extreme fire behavior in lower lee side locations.⁷⁰

⁶⁹ Oregon Bluebook, 2016 <http://bluebook.state.or.us/local/counties/counties17.htm>

⁷⁰ Southwestern Oregon Interagency Fire Management Plan (2014)

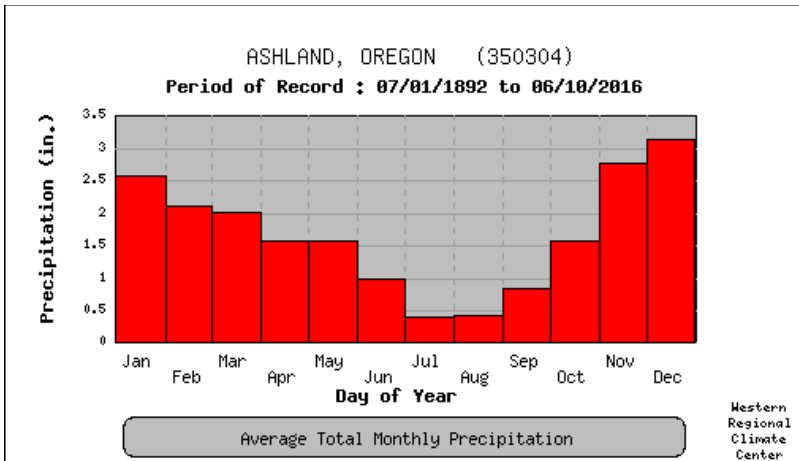


Figure 3.5. Ashland monthly average total precipitation (Source: Western Regional Climate Center).

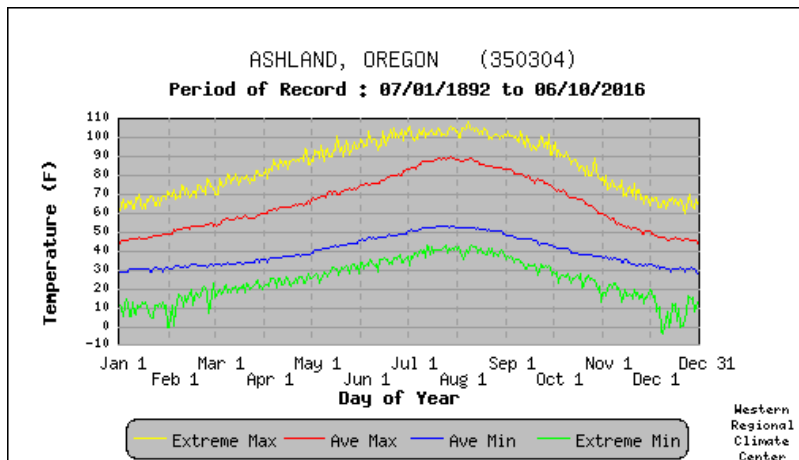


Figure 3.6. Ashland daily temperature averages and extremes (Source: Western Regional Climate Center).

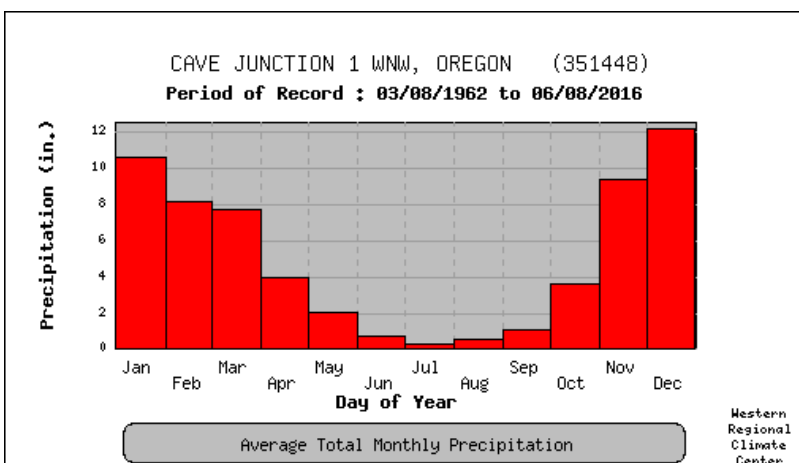


Figure 3.7. Cave Junction average total monthly precipitation (Source: Western Regional Climate Center).

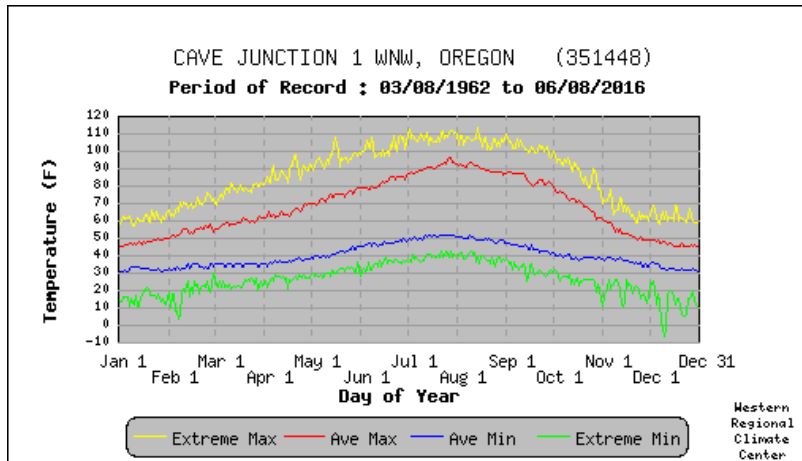


Figure 3.8. Cave Junction daily temperature averages and extremes (Source: Western Regional Climate Center).

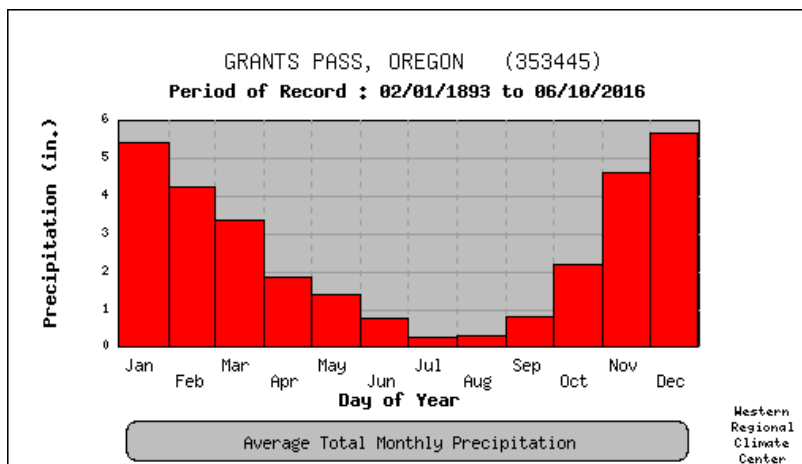


Figure 3.9. Grants Pass monthly average total precipitation (Source: Western Regional Climate Center).

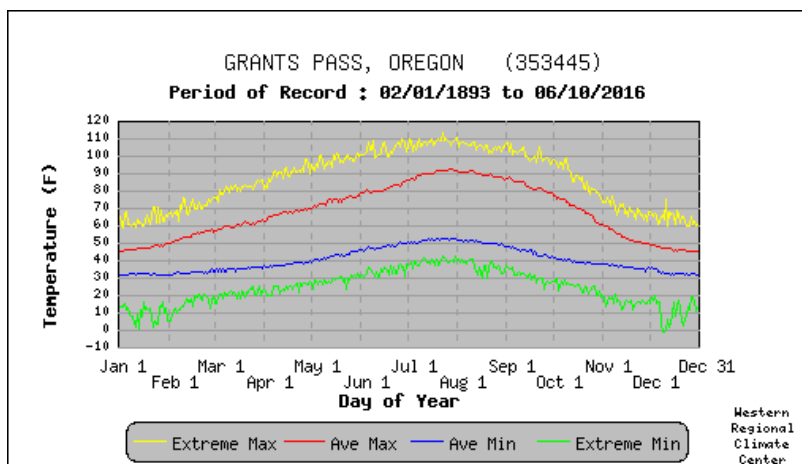


Figure 3.10. Grants Pass daily temperature averages and extremes (Source: Western Regional Climate Center).

3.4 VEGETATION AND LAND COVER

Steep, rugged mountains and narrow river valleys, low foothills, and valley terraces characterize the Rogue Basin. The principal mountain ranges include the Coast Range to the west and the Siskiyou and Klamath mountains to the east. Elevations range from 750 feet above sea level on the flood plains to more than 7,500 feet on the higher peaks. The mountains are made up of volcanic and sedimentary rock.^{71 72}

The bottomlands contain the richest agricultural soils, supporting many orchards, vineyards, ranches and farmlands. Low foothills and valley terraces lie along the bottomland rims and in pockets along river corridors. Generally below 2000 feet in elevation, the low foothills and valley terraces support less productive agricultural soils, with precipitation averaging 20 inches or less.

The region has the most diverse vegetation in western Oregon and is one of the most biodiverse areas in the United States due to its complex climate and geomorphology (Figure 3.11).



Figure 3.11. Varied vegetation pattern of southwestern Oregon landscape. Credit- Ed Reilly

Moist sites support natural vegetation composed of oak/pine savannah, grasslands, chaparral shrubs, madrone, and Douglas-fir. The Klamath and Siskiyou mountains include all the upland areas, and are

⁷¹ Josephine County Comprehensive Plan, 1995: <http://www.co.josephine.or.us/Page.asp?NavID=148>

⁷² Franklin, J. F., and C. T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis, OR.

characterized by steeply dissected slopes covered by coniferous forests. The Siskiyou Mountains are well-known for their plant diversity. In the younger Cascade Mountains along the eastern boundary of the Rogue Basin precipitation varies widely, from 20 inches at lower elevations to over 70 inches at the highest elevations.⁷³

The Soda Mountain Wilderness along Jackson County's southern border is an ecological mosaic of desert and Douglas-fir forests. The biodiversity of the area includes Douglas-fir forests, sunlit oak groves, meadows filled with wildflowers, and steep canyons. The area is home to a variety of rare species of plants and animals including Roosevelt elk, cougars, black bears, golden and bald eagles, goshawks and falcons. The wilderness area is managed by the BLM.⁷⁴

Fire has played a major role in shaping vegetation patterns and structures across southwestern Oregon landscapes for millennia.⁷⁵ ⁷⁶ Prior to the 20th Century, low- to mixed-severity fires played a substantial role in most dry forest ecosystems in the area.⁷⁷ ⁷⁸ ⁷⁹ Historically, these natural fires, along with fires ignited by Native Americans, prompted vegetation in southwestern Oregon to evolve with frequent fire, cultivating ecosystems that were adapted to fire. Land use changes throughout the 20th Century, including increased urbanization, logging, grazing, and wildfire suppression have led to complex current conditions that are not readily adapted to fire.

3.5 FOREST

Jackson and Josephine counties are heavily forested on 80-89% of the land area. There are 28 different conifer species found in the area, 20 of which are used commercially (Figure 3.12).

⁷³ Jacksonville website. Online: www.jacksonvilleoregon.org

⁷⁴ Wilderness.net: <http://www.wilderness.net/>

⁷⁵ Briles, C. E., C. Whitlock, and P. J. Bartlein. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA. *Quaternary Research* 64:44-56.

⁷⁶ Fire history along an elevational gradient in the Siskiyou Mountains, Oregon. *Northwest Science* 65: 188-199.

⁷⁷ Briles 2005, op.cit.

⁷⁸ Leiberg, J. B. San Gabriel, San Bernardino, and San Jacinto Forest Reserves. 1900. In Nineteenth Annual Report of the U.S. Geological Survey to the Secretary of Agriculture, Part 5, Forest Reserves. (H. Gannett, editor). pp. 359-370. Government Printing Office, Washington, D. C.

⁷⁹ Colombaroli, D. and D. G. Gavin. Highly episodic fire and erosion regime over the past 2,000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences of the United States of America*, vol. 107 no. 44, 18909–18914, doi: 10.1073/pnas.1007692107



Figure 3.12. Actively managed forest landscape. Credit: Victoria Amato

The region is broken into several vegetation zones, with all but the Alpine Zone containing substantial forested components. The zones are described in *Ecoregions of the United States*⁸⁰ as follows:

- The Interior Valley Zone includes the Oak Woodland zone which occurs up to 800 m in elevation. Common forest species include white oak (*Quercus garryana*), black oak (*Q. kelloggii*), pacific madrone (*Arbutus menziesii*) and scattered but important pockets of forest dominated by Douglas-fir (*Pseudotsuga menziesii*), Jeffery pine (*Pinus jeffreyi*), or ponderosa pine (*Pinus ponderosa*) with associated sugar pine (*Pinus lambertiana*), and incense-cedar (*Calocedrus decurrens*).
- The Mixed-evergreen Zone tends to be more prevalent on the Siskiyou side of the Rogue Basin and is dominated by Douglas-fir and tan-oak (*Notholithocarpus densiflorus*; particularly in the west), but includes substantial components of canyon live oak (*Quercus chrysolepis*), sugar pine, ponderosa pine, incense-cedar, and pacific madrone.
- The Mixed Conifer Zone is more abundant in the Cascade Range and at higher elevations where conifers in general, particularly white fir (*Abies concolor*) and Douglas-fir become even more dominant (Figure 3.13).

⁸⁰ Bailey, R.G. 1980. Ecoregions of the United States. Misc. Publ. 1391. Washington, DC: U.S. Department of Agriculture, Forest Service.



Figure 3.13. Fire burning in dry-site mixed-conifer. Credit BLM.

- The *Abies concolor* (white fir) zone occurs in stands generally between 1,400 and 1,600 meters in the Cascade Range and between 1,650 and 1,800 meters in the Siskiyou Mountains.^{81 82} While white fir is the dominant tree species, it commonly associates with Douglas-fir, sugar pine, ponderosa pine, and western white pine (*Pinus monticola*) and, on moister sites, incense-cedar.
- Shasta red fir (*Abies magnifica shastensis*) becomes increasingly common with elevation, becoming dominant in the *Abies magnifica shastensis* Zone with associates of white fir, western white pine, lodgepole, and mountain hemlock.
- The *Tsuga mertensiana* Zone is dominated by mountain hemlock (*Tsuga mertensiana*), Shasta red fir, or lodgepole pine (*Pinus contorta*; primarily in the Cascades), but white fir and Douglas-fir can act as seral species and there is a minor component of western white pine and Engelmann spruce (*Picea engelmannii*).⁸³

Jackson and Josephine county forests are classified as being within the Klamath Mountain ecological units. Forested land is commonly referred to as:

⁸¹ Waring, R. H. Forest plants of the eastern Siskiyou: their environmental and vegetational distribution. 1969. Northwest Science 43:1-17.

⁸² Whittaker, R. H. Vegetation of the Siskiyou Mountains, Oregon and California. 1960. Ecological Monographs, Vol. 30, No. 3. pp. 279-338.

⁸³ Franklin, J. F., and C. T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis, OR.

Forest land: all land that is at least 10% covered by trees of any size, is greater than 1 acre, and is at least 120 feet wide.

Timberland: a portion of forest land that produces (or is capable of producing) more than 20 cubic feet per acre of industrial wood products each year under natural conditions, is not withdrawn from timber use, and is not developed for non-forest uses.⁸⁴

Areas that are included in forest land, but excluded from timberland, include national and state parks, nature preserves, wilderness areas, and urban forests (such as cemeteries and city parks). Also, because of agency policies such as the Northwest Forest Plan and riparian reserves, all federal lands meeting the above definition of timberland may not be equally available for timber production.⁸⁵



Figure 3.14. Dry Forest Pine Site. Credit: Ed Reilly

⁸⁴ Sally Campbell, Dave Azuma, Dale Weyermann. Forests of Western Oregon: An Overview. USDA Forest Service. PNW-GTR-525. Revised 2004.

⁸⁵ Ibid.

3.6 GRASSLANDS, SHRUBLANDS, AND WOODLANDS

The Rogue Valley is home to a level of biodiversity that exceeds that of most North American temperate forests.^{86 87} Oak woodlands, chaparral shrublands, and grasslands make up the non-forested areas of the Rogue Valley and all exhibit distinct fire characteristics.

The BLM, in the Programmatic Integrated Vegetation Management Project (2012), describes the oak savannahs and woodlands (Figure 3.15) as being comprised of Oregon white oak and California black oak with occasional hardwoods and conifers present.



Figure 3.15. Oak savannah on Roxy Ann. Credit: BLM.

Additionally:

“Oak savannahs and oak woodlands have been impacted by human intervention through both European settlement and Native American burning.⁸⁸ Since the 1800s, fire suppression, grazing and logging have transformed these plant communities often in ways that are sometimes difficult to discern.⁸⁹ For example, Hosten reports that early descriptions (1846 to 1855) of

⁸⁶ Briles, C. E., C. Whitlock, and P. J. Bartlein. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA. *Quaternary Research* 64:44-56.

⁸⁷ Franklin, J. F., and C. T. Dyrness. 1988. *Natural vegetation of Oregon and Washington*. Oregon State University Press, Corvallis, OR.

⁸⁸ Agee, J.K. 1993. *Fire ecology of Pacific Northwest forests*. Island Press. Washington, D.C. 493 pp.

⁸⁹ Hosten, 2007.

vegetation note that oak communities on the valley floor and in the foothills often had a robust shrub layer in the understory. This is a characteristic that distinguishes southwestern Oregon oak woodlands from oak woodlands further north. Southwestern Oregon white oak woodlands reflect a transition between the more mesic woodlands to the north and the dryer woodlands in California.⁹⁰

One typical pattern of Oregon white oak woodlands in southwestern Oregon are the stands of slow growing oaks with little encroachment found on shallow soils underlain by fractured bedrock or on vertisol clay-dominated soils (soils that retain water in the winter and are very droughty in the summer). Oak stands on more productive sites are in dynamic change from shrub to hardwood to conifer, or some combination of these stages depending on the fire frequency.⁹¹ With effective fire suppression Oregon white oak and California black oak would soon be overtopped by conifers on these sites.

Oak diameter growth and survival is strongly associated with stand density, tree position (e.g., dominant, midstory or overtopped), tree size, and site productivity. A minimum level of diameter growth is necessary in oaks because water transport only occurs in the outer one or two rings of the sapwood of their ring-porous wood structure (Huber and Schmidt 1937, as cited in Rogers and Hinckley 1979). Oak stands with high density and high basal area will have little diameter growth and are at risk of mortality from moisture stress and from high-intensity fire. Oaks competing for light from above are more at risk than trees with moisture competition from adjacent or understory vegetation.⁹² In a study of conifer removal and thinning in Washington State, the diameter of open grown trees grew four times more than those with moderate or high competition.⁹³⁹⁴

Southwestern Oregon, including the Rogue Valley, is considered the northernmost extension of chaparral (Figure 3.16).⁹⁵

⁹⁰ Riegel, G.M., B.G. Smith and J.F. Franklin 1992. Foothill oak woodlands of the interior valleys of southwestern Oregon. Northwest Science 66:66-76.

⁹¹ Ibid

⁹² Gould, P.J., C.A. Harrington, and W.D. Devine 2011. Growth of Oregon white oak (*Quercus garryana*). Northwest Science 85(2):159-171.

⁹³ Ibid

⁹⁴ Environmental Assessment for the Programmatic Integrated Vegetation Management Project, U.S. Department of the Interior, Bureau of Land Management, Medford District. August 2012. p.38.

⁹⁵ Franklin and Dyrness, 1988.



Figure 3.16. Stand of chaparral. Credit: BLM.

BLM describes the areas as:

*“The predominant species are whiteleaf manzanita (*Actostaphylos viscida*) and buckbrush *ceanothus* (*Ceanothus cuneatus*) with associated species, which include mountain mahogany (*Cercocarpus betuloides*), bearbrush (*Garrya fremontii*), Klamath plum (*Prunus subcordata*), and Pacific poison oak (*Toxicodendron diversilobum*). Grasslands can be found adjacent to stands of chaparral on the harshest sites; and on more mesic sites scattered among patches of trees including Oregon white oak (*Quercus garryana*), California black oak (*Quercus kelloggii*) madrone (*Arbutus menziesii*), ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*).*

Chaparral tends to burn at high severity; however, the fire return interval is variable, about 20 to 50 years with a range of 10 to more than 100 years.^{96, 97}

The more permanent chaparral stands can be found on harsh sites where tree growth is inhibited and where severe fires have occurred. There is evidence from northern California that mixed

⁹⁶ Duren, O.C., and P.S. Muir. 2010. Does fuels management accomplish restoration in southwest Oregon, USA, chaparral. Insights from age structure. *Fire Ecology* 6(2):76-96.

⁹⁷ Taylor, A.H., Skinner, C.N., 1998. Fire history and landscape dynamics in a late successional reserve, Klamath Mountains, California, USA. *Forest Ecology and Management* 111, 285–301.

conifer forest patches that burned at high severity on upper slope positions maintained both chaparral and adjacent even-aged conifer stands on upper slopes in a positive feedback loop (i.e., recreating the conditions for a high severity burn.⁹⁸

According to Nagel and Taylor (2005), the mean Fire Return Interval for chaparral was twice as long as that for nearby mixed conifer stands.⁹⁹ Because of the structure, abundance and high live fuel moisture in chaparral shrubs, low intensity fires burning in mixed conifer forests under average weather conditions have also been observed to stop spreading when they reach chaparral.¹⁰⁰

The oldest chaparral in the Applegate is close to 120 years.¹⁰¹ These are stands that have persisted on the landscape like the ones described in the paragraphs above. In other areas where fire suppression is successful and conditions are favorable for tree growth within chaparral stands, encroachment by conifers and hardwoods results in a transition of chaparral shrublands to woodland or forest within as little as 30 to 60 years.^{102,103} There is no estimate of the acres of chaparral and oak woodlands that have transitioned into forest on the Medford District.”¹⁰⁴

Grasslands are dominated by grasses and forbs, including forest openings created and maintained by fire (Figure 3.17 and Figure 3.18).¹⁰⁵

⁹⁸ Nagel, T.A., and A.H. Taylor. 2005. Fire and persistence of montane chaparral in mixed conifer forest landscapes in the northern Sierra Nevada, Lake Tahoe Basin, California, USA 1. *The Journal of the Torrey Botanical Society* 132(3):442-457

⁹⁹Ibid

¹⁰⁰ Weatherspoon, C.P. and C.N. Skinner. 1995. An assessment of factors associated with damage to tree crowns from the 1987 wildfires in northern California. *Forest Science* 41:430-451.

¹⁰¹ Duren and Muir 2010. Ibid.

¹⁰² Nagel, 2005. Ibid

¹⁰³ Skinner, C.N. 1995. Change in spatial characteristics of forest openings in the Klamath Mountains of northwestern California, USA. *Landscape ecology* 10(4):219-228.

¹⁰⁴ Environmental Assessment for the Programmatic Integrated Vegetation Management Project, U.S. Department of the Interior, Bureau of Land Management, Medford District. August 2012. p.39.

¹⁰⁵ Franklin, J. F. and C. T. Dyrness. *Natural Vegetation of Oregon and Washington*. 1988. Oregon State University Press. pp. 114-115.



Figure 3.17. Grassland areas, interfacing with vineyards and BLM forested lands. Credit: Victoria Amato.



Figure 3.18. Fire in Rogue Valley grassland. Credit: Melissa Cana.

Grasslands are also present where woody plant growth is limited by soil type, soil depth, water table levels, and aspect.¹⁰⁶ Species found in the grasslands include:

Lemmon's needle grass (*Stipa lemmonii*), big squirreltail grass (*Sitanion jubatum*), Geyer's oniongrass (*Melica geyeri*), blue wildrye (*Elymus glaucus*), sheep fescue (*Festuca ovina*), spreading dogbane (*Apocynum pumilum*), pink honeysuckle (*Lonicera hispidula* var. *vacillans*), deltoid balsamroot (*Balsamorhiza deltoidea*), sticky whiteleaf manzanita (*Arctostaphylos viscida*), California fescue (*Festuca californica*), silver lupine (*Lupinus albifrons*), California groundcone (*Boschniakia strobilacea*), Indian paintbrush (*Castilleja* spp.), bluehead gilia (*Gilia capitata*), and Longhorn plectritis (*Plectritis macrocera*)¹⁰⁷.



Figure 3.19. Days Gulch Fen. Credit: BLM.

¹⁰⁶ Ibid. p. 18.

¹⁰⁷ Franklin, J. F. and C. T. Dyrness. *Natural Vegetation of Oregon and Washington*. 1988. Oregon State University Press. pp. 114-115.

3.7 FIRE HISTORY

The fire history in southwestern Oregon, including Jackson and Josephine counties, has been extensively researched.^{108,109,110,111,112} There are no areas in the state that were not, and are not, affected by fire; the vast majority of southwestern Oregon old-growth forests were shaped by low to mixed severity fire regimes. Historically, fire was used by Native Americans, settlers, ranchers, and loggers for a variety of purposes. However, recent fire history shows that aggressive fire suppression efforts have resulted in reduced forest heterogeneity at both the landscape and stand levels.

3.7.1 Fire Regime

Fire Regime Classifications

Methods have been developed to stratify a landscape based on physiographic and ecological characteristics to classify, prioritize, and plan for fuels treatments across a fire management region.

A natural, or historical, fire regime is a general classification describing the role fire would play throughout a landscape in the absence of modern human intervention, but includes the influence of past burning by Native Americans.^{113 114}

Fire regime (FR) classes are based on the average number of years between fires (also known as fire frequency or fire return interval) combined with the severity (i.e., the amount of vegetation replacement) of the fire and its effect on the dominant overstory vegetation.⁸⁷

¹⁰⁸ Metlen, K. L., D. Borgias, and C. Skinner. 2016. Historical fire frequency in the Rogue Basin. Page Appendix in D. Thorpe, editor. *Boot Prints: A centennial summary of activities and events of Oregon's Department of Forestry in Jackson and Josephine Counties*. Oregon Department of Forestry Southwest Oregon District, Central Point, OR.

¹⁰⁹ Sensenig, T., J. D. Bailey, and J. C. Tappeiner. 2013. Stand development, fire and growth of old-growth and young forests in southwestern Oregon, USA. *Forest Ecology and Management* 291:96-109.

¹¹⁰ Taylor, A. H., and C. N. Skinner. 2003. Spatial patterns and controls on historical fire regimes and forest structure in the Klamath Mountains. *Ecological Applications* 13:704-719.

¹¹¹ Briles, C. E., C. Whitlock, and P. J. Bartlein. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA. *Quaternary Research* 64:44-56.

¹¹² Colombaroli, D., and D. G. Gavin. 2010. Highly episodic fire and erosion regime over the past 2,000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences* 107:18909–18914.

¹¹³ Agee, J.K. 1993. *Fire Ecology of Pacific Northwest Forests*. Washington, D.C.: Island Press.

¹¹⁴ Hann, W., A. Shlisky, D. Havlina, K. Schon, S. Barrett, T. DeMeo, K. Pohl, J. Menakis, D. Hamilton, J. Jones, M. Levesque, and C. Frame. 2004. *Interagency Fire Regime Condition Class Guidebook*. Version 1.2.0 Homepage of the Interagency and the Nature Conservancy fire regime condition class website, U.S. Department of Agriculture Forest Service, U.S. Department of the Interior, the Nature Conservancy, and Systems for Environmental Management.

Table 3.1. Fire regime groups and descriptions used in current LANDFIRE Fire Regime Condition Class Guidebook Version 3. ¹¹⁵

FIRE REGIME GROUP	FREQUENCY	SEVERITY	SEVERITY DESCRIPTION
I	0–35 years	Low/Mixed	Generally low severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed severity fires that replace up to 75% of the overstory
II	0–35 years	Replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation
III	35–200 years	Mixed/Low	Generally mixed-severity; can also include low severity fires
IV	35–200 years	Replacement	High-severity fires
V	200+ years	Replacement/ Any Severity	Generally replacement severity; can include any severity type in this frequency range

Frequent fire regimes (Fire Regime Groups I and II) with low-mixed severity effects historically shaped the dry forests and woodlands of the northern Klamath, Siskiyou, and southern slopes of the Cascade Mountains.¹¹⁶ Historically, wildfires were influenced by steep topographic gradients, a strong mediterranean climate with abundant lightning, and Native American presence.^{117 118 119 120} Research in the Rogue Valley area has revealed pre-settlement fire return intervals in drier areas of 8 to 20 years; and 35 to 120 years in more moist areas of the dry forest.^{121 122} In some vegetation types, frequent fires resulted in a mosaic of burned areas of various ages, with more recently burned areas tending to impede the spread of new fires.¹²³ Additionally, many native plant species have adapted to periodic fires.

¹¹⁵ Barrett, S., Havlina, D., Jones, J., Hann, W.J., Frame, C., Hamilton, D., Schon, K., DeMeo, T., Hutter, L., Menakis, J., 2010. Interagency Fire Regime Condition Class (FRCC) Guidebook, version 3.0. In: USDA Forest Service, US Department of the Interior, and The Nature Conservancy.

¹¹⁶ Haugo, R., C. Zanger, T. DeMeo, C. Ringo, A. Shlisky, K. Blankenship, M. Simpson, K. Mellen-McClean, J. Kertis, and M. Stern. 2015. A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. *Forest Ecology and Management* **335**:37-50.

¹¹⁷ Ibid

¹¹⁸ Taylor, A. H., and C. N. Skinner. 1998. Fire history and landscape dynamics in a late-successional reserve, Klamath Mountains, California, USA. *Forest Ecology and Management* **111**:285-301.

¹¹⁹ Halofsky, J. E., D. C. Donato, D. E. Hibbs, J. L. Cambell, M. Donaghy, J. B. Fontaine, J. R. Thompson, R. G. Anthony, B. T. Bormann, L. J. Kayes, B. E. Law, D. L. Peterson, T. A. Spies, and 7. 2011. Mixed-severity fire regimes: lessons and hypotheses from the Klamath-Siskiyou Ecoregion. *Ecosphere* **2**:1-14.

¹²⁰ Perry, D. A., P. F. Hessburg, C. N. Skinner, T. A. Spies, S. L. Stephens, A. H. Taylor, J. F. Franklin, B. McComb, and G. Riegel. 2011. The ecology of mixed severity fire regimes in Washington, Oregon, and Northern California. *Forest Ecology and Management* **262**:703-717.

¹²¹ Sensenig, T., J.D. Bailey and J.C. Tappeiner. *Stand development, fire and growth of old-growth and young forests in southwest Oregon, USA*. *Forest Ecology and Management*, Vol. 291, 1 March 2013, pp. 96-109.

¹²² Agee 1991, op.cit.

¹²³ Halofsky, J. E., D. C. Donato, D. E. Hibbs, J. L. Cambell, M. Donaghy, J. B. Fontaine, J. R. Thompson, R. G. Anthony, B. T. Bormann, L. J. Kayes, B. E. Law, D. L. Peterson, T. A. Spies, and 7. 2011. Mixed-severity fire regimes: lessons and hypotheses from the Klamath-Siskiyou Ecoregion. *Ecosphere* **2**:1-14.

Fire regimes have been significantly disrupted for the last 100 years across the mediterranean forests and woodlands of the Rogue Basin, including lowland and mixed conifer riparian forests.^{124 125 126 127 128} Globally, mediterranean forests and woodlands are of high conservation importance due to high degrees of habitat conversion and lack of protection.¹²⁹

Natural fire regime disruption, including suppression, past forest management, land use decisions, and other forest stressors, have generated dense, overcrowded stands, leading to tree stress and low vigor, and placing the oldest and most structurally-valuable trees at risk of uncharacteristic wildfire. Younger stands also have been affected by density and by competition for moisture; at their current stocking levels, few will be able to develop into mature stands dominated by large trees with large limbs.¹³⁰ In addition, in the absence of frequent fire, organic material has been accumulating on the forest floor at unprecedented levels, creating the potential for fires of greater and uncharacteristic intensity. High-intensity fires are much more likely to reduce seed bank propagules, diminish soil structure, and cause extensive tree mortality and loss of habitat, especially for threatened or endangered species.

In the absence of frequent fire, ponderosa pine trees that thrived in fire-prone environments become out-competed by more shade tolerant species, most commonly Douglas-fir at lower elevations and white fir above about 4,000 feet (Figure 3.20). As a result, early seral tree species such as ponderosa pine, oak, and sugar pine, which are ecologically important for their contribution to the region's biological diversity and habitats, are rapidly declining in abundance throughout southwestern Oregon, creating landscapes of more homogenous and fire susceptible Douglas-fir.

Furthermore, in recent years forests throughout southwestern Oregon have been under extreme environmental stress, due, in part, to unnaturally high tree densities. Although forests of all ages are exhibiting symptoms of stress, mortality has been most prevalent among large trees in older forests.

¹²⁴ Taylor, A. H., and C. N. Skinner. 2003. Spatial patterns and controls on historical fire regimes and forest structure in the Klamath Mountains. *Ecological Applications* 13:704-719.

¹²⁵ Perry, D. A., P. F. Hessburg, C. N. Skinner, T. A. Spies, S. L. Stephens, A. H. Taylor, J. F. Franklin, B. McComb, and G. Riegel. 2011. The ecology of mixed severity fire regimes in Washington, Oregon, and Northern California. *Forest Ecology and Management* 262:703-717.

¹²⁶ McNeil, R.C. and D.B. Zobel. 1980. Vegetation and fire history of a ponderosa pine and white fir forest in Crater Lake National Park. *Northwest Science*, 54: 30-46

¹²⁷ Colombaroli D, Gavin DG. 2010. Highly episodic fire and erosion regime over the past 2000 y in the Siskiyou Mountains, Oregon. *Proceedings of the National Academy of Sciences, USA* 107: 18909–18914.

¹²⁸ Messier, M.S., J.P.A. Shatford, D.E. Hibbs. 2012. Fire exclusion effects on riparian forest dynamics in southwestern Oregon. *Forest Ecology and Management*, 264. 60-71.

¹²⁹ Hoekstra, J.M., Boucher, T.M., Ricketts, T.H. & Roberts, C. (2005) Confronting a biome crisis: global disparities of habitat loss and protection. *Ecology Letters*, 8, 23–29

¹³⁰ Sensenig, T. J.D. Bailey and J.C. Tappeiner. 2013. Stand development, fire and old growth and young forests in southwestern Oregon, USA. *Forest Ecology and Management*, 291. 96-109.



Figure 3.20. Overcrowded mature ponderosa pine. Credit: Ed Reilly

Exacerbated by extended periods of low precipitation, many forests have lost and are continuing to lose a relatively high proportion of their older trees to density-induced mortality. This is cause for concern given that, in part, the BLM and USFS goals and missions include restoring and promoting healthy forest ecosystems and habitats that include large trees. This RVIFP promotes continued collaboration between state and federal agencies to draft a plan to address the large-scale tree mortality rate throughout the Rouge Valley.

Forest restoration is believed to be necessary on approximately 51% of all coniferous forests in southwestern Oregon, in order to restore forest structure approximating the natural range of variability.¹³¹ Managers are moving toward a goal of managing for heterogenous landscapes, with variably sized patches of different age classes of trees and open and closed canopy areas. Meeting this restoration goal requires coordination between multiple landowners, agencies, and governments and a substantial increase in the pace and scale of treatments, including using a variety of techniques, from mechanical thinning to prescribed burning and managed wildfire.¹³² The HFRA has provisions for

¹³¹ Haugo, R., C. Zanger, T. DeMeo, C. Ringo, A. Shlisky, K. Blankenship, M. Simpson, K. Mellen-McLean, J. Kertis, and M. Stern. 2015. A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. *Forest Ecology and Management* **335**:37-50.

¹³² Hessburg, P. F., T. A. Spies, D. A. Perry, C. N. Skinner, A. H. Taylor, P. M. Brown, S. L. Stephens, A. J. Larson, D. J. Churchill, and N. A. Povak. 2016. Tamm Review: Management of mixed-severity fire regime forests in Oregon, Washington, and Northern California. *Forest Ecology and Management* **366**:221-250.

facilitating such work in watersheds located in Fire Regime Groups I, II, and III and in condition classes two and three.

3.8 DEVELOPED LANDS

Developed lands in the Rogue Valley have been expanding into forested areas placing a higher density of structures and lives into areas of wildfire risk. These structures (including homes, outbuildings, fences, landscaping materials, and other possessions located around a person's property) contribute to the wildland fuel complex, as many are constructed of combustible materials and are readily available to burn (Figure 3.21).



Figure 3.21. Small inholdings within forested lands are common throughout the RVIFP area.

Although cities and the counties have wildfire safety codes within their jurisdiction, and often-requiring fuel breaks at the time of construction, they do not require owners to maintain the fuel breaks. Over time vegetation grows closer to structures bringing wildland fuels into closer proximity to homes. Maintenance of fuel breaks is essential to reducing wildfire risk.

3.9 WATER RESOURCES

The Rogue Basin has five major drainages: Lower, Middle, and Upper Rogue, Illinois, and Applegate. The Rogue River headwaters are located in the Cascades Mountains Ecoregion, while the Illinois and Applegate rivers originate in the drier Klamath Mountains Ecoregion (Oregon Watershed Enhancement

Board 2016).¹³³ Jackson and Josephine counties are located almost entirely in the Rogue Basin. The river valleys of the Rogue Basin are the location of most of the municipal areas for both counties. The Rogue and Illinois rivers are nationally recognized with a Wild and Scenic River designation, and are important resources for recreation and fishing.

Numerous small streams also contribute to stream flow. Several of these streams dry up in the summer. The river systems throughout both counties are important cultural and economic resources, drawing thousands of visitors each year for fishing and rafting. There are also a number of lakes in the area. Hyatt Reservoir, Howard Prairie Lake, Lost Creek Lake and Emigrant Lake are located in Jackson County. Most lakes in Josephine County are small, with the largest being Lake Selmac (man-made) east of Selma.

Municipal and public water supplies are mostly based on surface water sources, which are treated for human consumption. Most individual rural households are served by wells, with a high degree of variability in groundwater availability due to complex geology.

Water quality and quantity are critical issues in the region and affect all beneficial water uses (NRCS 2012). Forestry and agricultural practices can affect water quality. Best management practices that reduce soil disturbance and improve forest health, as well as actions that reduce catastrophic wildfires, all benefit water quality.

3.10 WILDLIFE

3.10.1 Threatened and Endangered Species

Of the approximately 400 sensitive plant taxa in the region, about 100 are found in the Siskiyou Mountains. Additionally, part of the Kalmiopsis Wilderness area lies within Josephine County boundaries. This 180,000-acre wilderness area covers over 40,000 acres in western Josephine County, with the remaining area in Curry County. The area is well known for rare and endangered plants and wildlife (Table 3.2). Fuel treatment planning considers potential impacts to threatened and endangered species during the NEPA process. It should be noted that the BLM no longer has the Categorical Exclusion authority that was designated under the HFRA in 2003.

¹³³ Oregon Watershed Enhancement Board Biennial Report: http://www.oregon.gov/OWEB/Pages/biennialreport1315/Rogue_Basin.aspx

Table 3.2. State and Federal Threatened (T), Endangered (E) and Candidate species with potential to occur in Jackson and Josephine County

COMMON NAME	SCIENTIFIC NAME	STATE STATUS	FEDERAL STATUS
Oregon Coast coho salmon	<i>Oncorhynchus kisutch</i>	E	T
Southern Oregon coho salmon	<i>Oncorhynchus kisutch</i>	E	T
Oregon spotted frog	<i>Rana pretiosa</i>	E	T
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	T	T
Fisher	<i>Pekania Pennanti</i>	E	
Gray wolf	<i>Canis lupus</i>	E	E
Cook's lomatium	<i>Lomatium cookii</i>	E	E
Large-flowered woolly meadowfoam	<i>Limnanthes pumila</i> spp. <i>Grandiflora</i>	E	E
Gentner's fritillary	<i>Fritallaria gentneri</i>	E	E
Macdonald's rockcress	<i>Arabis macdonaldiana</i>	E	E
Vernal pool fairy shrimp	<i>Branchinecta</i>		T
Marbled Murrelet	<i>Brachyramphus marmoratus</i>		T

3.11 INSECTS AND DISEASE

Tree mortality as a result of insect and disease is a significant concern in both counties. Large-scale epidemics of insect outbreaks or disease can severely affect a forest. A useful case study can be found in the Applegate River watershed. Aerial detection survey data collected from 2005 through 2016 shows large increases in 2015 and 2016 in acres of conifer mortality and actual number of trees that have died. Heightened tree stress and lower tree defense caused by the severe 2013 drought and reduced snowpack in 2014 and 2015 attributed to the increase. Ninety percent of the mortality in Douglas-fir mapped in 2016 has been attributed to the flatheaded fir borer (*Phaenops drummondi*), which is consistent with findings from previous years. In addition, pine mortality is also elevated, and caused by western pine beetle (*Dendroctonus brevicomis*). The western pine beetle is responsible for mortality of large- and medium-sized ponderosa pine, along with an estimated 150 sugar pine trees.

Forest pests and diseases affect forest fuels and wildfire by killing trees and other vegetation and making them more susceptible to ignition and severe wildfire. Insect infestations and disease can set the stage for mixed-severity or stand-replacing fires, where an entire stand of trees burns. Appendix B lists insects and diseases that pose increasing threats to forest health in the region.

3.12 CLIMATE CHANGE

According to records from the last several decades, the frequency of large forest fires in the western United States has continued to increase, with each decade since the 1970s showing an increase in fire frequency compared to previous decades.¹³⁴ Within the last ten years, a record number of acres have burned and numbers are continually increasing larger. In 2015, 10,125,149 acres were burned across the country, the highest total acres burned in 56 years of record-keeping.¹³⁵ Projections from current modeling predict that acres burned by wildfire in the western U.S. will increase by two to three times by mid-21st century, with a potential for fire intensity and severity to increase in areas where higher temperatures aggravate low moisture content in fine fuels.¹³⁶ The Rogue Valley's forest and woodland ecosystems will be further stressed by an increase in summer temperatures and shifts in seasonal precipitation patterns, compounding the effects of wildfire.¹³⁷

Large wildfire frequency has been significantly correlated with spring and summer temperature, in that the largest fires occur during those years with the warmest spring and summer temperatures and early spring snowmelt.⁷⁰ Observed warming climate trends are predicted to exacerbate the likelihood of fire ignition, high fire severity, and suppression difficulty across western North America, especially in forests that already exhibit poor forest health.^{138 139 140 141}

In the Mediterranean forests and woodlands of the Rogue Basin, climate change is expected to increase the amount of fire and shift the conversation from whether or not fires will burn to how they will burn. Impacts include increasing threat to communities in the Rogue Valley that are already considered to be some of the most at-risk WUI communities in the western U.S., as well as threatening an economy

¹³⁴ Westerling ALR. 2016. Increasing western US forest wildfire activity: sensitivity to changes in the timing of spring. *Phil. Trans. R. Soc. B* 371: 20150178.

¹³⁵ National Interagency Fire Center: https://www.nifc.gov/fireInfo/fireInfo_statistics.html

¹³⁶ Halofsky, Jessica E. and David L. Peterson. Climate Change Vulnerabilities and Adaptation Options for Forest Vegetation Management in the Northwestern USA. *Atmosphere* 2016, 7(3), 46; doi:10.3390/atmos7030046

¹³⁷ Halofsky, J. E., D. L. Peterson, K. L. Metlen, M. G. Myer, and V. A. Sample. 2016. Developing and implementing climate change adaptation options in forest ecosystems: A case study in southwestern Oregon, USA. *Forests* 7:1-18.

¹³⁸ Westerling, A.L., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam. 2006. Warming and earlier spring increase in western U.S. forest wildfire activity. *Science* 313(5789):940–943.

¹³⁹ Neilson, R., J. Lenihan, R. Drapek, and D. Bachelet. 2004. Forests Fire Risk and Climate Change. Pacific Northwest Research Station-Science Update. Issue 6. January 2004.

¹⁴⁰ Brown, T.J., B.L. Hall, and A.L. Westerling. 2004. The impact of twenty-first century climate change on wildland fire danger in the western United States: an applications perspective. *Climatic Change* 62:365–388.

¹⁴¹ Van Mantgem, P., J. Nesmith, M.B. Keifer, E. Knapp, A. L. Flint, and L.E. Flint. 2013. Can Climate Change increase fire severity independent of fire intensity? USDI and USGS Research Article: https://www.fs.fed.us/psw/cirmount/meetings/agu/pdf2013/vanMantgem_talkAGU2013.pdf

historically based on timber production, agriculture, and other resource extraction, that is shifting to tourism, recreation, and attracting business.

Likely climate impacts and climate adaptation strategies for the Rogue Basin are detailed in Halofsky et al., 2016.¹⁴² The authors describe methods that may be used to mitigate undesirable forest loss driven by climate change, such as managing for resiliency through the expanded use of thinning and prescribed fire. Examples include reducing the likelihood of severe fire and increasing fire management options to allow fires to burn under a range of conditions. Through the use of education, tools, and a facilitated process to develop adaptation options for specific projects, local solutions can be developed to implement “climate-informed practices.” Sustained monitoring of results can demonstrate the effectiveness of such practices on regeneration, growth, and mortality, indicating an increased resilience to climate change is occurring.

3.13 URBAN ENCROACHMENT

3.13.1 Vacant Lands

Jackson County has 11,765 existing private lots, and 2,453 existing unimproved private lots (Table 3.3). Most of the available private lots already have improvements, with only 20% unimproved.

Table 3.3. Jackson County Lot data

ZONE	TOTAL ACRES	TOTAL EXISTING PRIVATE LOTS	EXISTING UNIMPROVED PRIVATE LOTS*
RR-2.5	5,859	3,195	495
RR-5	27,385	7,677	1,705
RR-10	865	106	41
RR-00	5,107	787	212
TOTAL RR	39,216	11,765	2,453

Josephine County has 17,211 existing private lots and 1,894 improved private lots (Table 3.4). As seen in Jackson County, Josephine County has a significant number of improved private lots, with only 11% unimproved.

¹⁴² Halofsky, J. E., D. L. Peterson, K. L. Metlen, M. G. Myer, and V. A. Sample. 2016. Developing and implementing climate change adaptation options in forest ecosystems: A case study in southwestern Oregon, USA. *Forests* 7:1-18.

Table 3.4. Josephine County lot data

ZONE	TOTAL ACRES	TOTAL EXISTING PRIVATE LOTS	EXISTING UNIMPROVED PRIVATE LOTS*
RR1	2,208	1,428	116
RR2.5	7,265	2,461	247
RR5	54,378	13,322	1,531
TOTAL RR	63,851	17,211	1,894

3.13.2 Urban Growth Boundaries

Oregon’s land use planning system supports development through an urban-centered growth program. Statewide planning Goal 14 (Urbanization) encourages urban-centered growth by requiring urban growth boundaries (UGB) around existing urban areas. UGBs allow urbanization within the boundaries and are designed to limit the spread of urban development into rural areas.

State law requires cities to provide for a 20-year supply of developable land within the UGB. An expansion of an UGB may only be implemented after analyses of growth rates and inventories of vacant land have been completed. A public review process must also be carried out at both the city and county levels prior to adopting an amendment to a UGB.

When a city expands their UGB, the new area within the UGB is typically annexed into the city. Once annexed, the properties are under the control of the new jurisdiction, and associated land use and building codes apply. Land outside city limits remains under the control and management of the county. Consequently, each city is responsible for adopting and implementing wildfire safety standards within their jurisdiction.

3.13.3 Urbanization and Forest Land

Oregon’s Statewide Planning Goals & Guidelines, Goal 14 (Urbanization) is also intended to guide cities and counties through an orderly process by which rural land is transitioned for urban use in an orderly and efficient manner.¹⁴³ With some forethought, cities can mitigate the impact of urban development encroaching into wildfire hazard areas. Adoption of strict codes and standards, education, fuels reduction grant programs, and sound land use planning can all play a part in the solution.

¹⁴³ Oregon’s Statewide Planning Goals & Guidelines. Department of Land Conservation & Development, March 2010.

3.14 WILDLAND URBAN INTERFACE (WUI)

Throughout Jackson and Josephine counties, many cities and other densely populated areas are located within regional WUI boundaries. As defined by the State of Oregon Hazard Mitigation Plan, WUI areas are areas containing structures and other human developments where they meet or intermingle with wildland and other vegetative fuels.¹⁴⁴ Though many non-vegetated expanses do exist within metropolitan areas (shopping malls, roads, parking lots, downtown sections, municipal and urban buildings, etc.) the vast majority of Rogue Valley metropolitan areas and urban structures are located within ¼ mile or less of wildland areas. Wildfires create airborne burning embers that can travel ½ mile or more from the fire. Structures, particularly those closely-spaced, as found in urban settings, are extremely vulnerable to ignitions from burning embers, and the spot fires created by burning embers.

Other factors that support combining Rogue Valley metropolitan areas into the WUI include the checker-boarded ownership of the public and privately-owned wildland areas close to population centers. These wildland areas can be subject to heavy recreational and other human uses, providing greater opportunities for human-caused wildfires.

To provide sufficient fire protection for the population centers, it is essential for wildfire planning efforts to include metropolitan areas within the WUI boundaries, to ensure adequate suppression resources are available.

3.14.1 Communities at Risk

A key component in the development of the WUI is the identification of communities at risk. This RVIFP defines a *Community at Risk* (CAR) as a geographic area within and surrounding permanent dwellings (at least 1 home per 40 acres) with basic infrastructure and services, under a common fire protection jurisdiction, government, or tribal trust or allotment, for which there is a significant threat due to wildfire.¹⁴⁵ The CAR designation used in the RVIFP is based on the RBS which follows the results of a statewide task force that established a uniform CAR framework for Oregon.¹⁴⁶ This base CAR was augmented with data on where people live generated by the Westwide Wildfire Risk Assessment

¹⁴⁴ State of Oregon Natural Hazards Mitigation Plan, 2015

¹⁴⁵ Healthy Forests Restoration Act, 2003.

¹⁴⁶ ODF, 2006.

(WWRA) using 2009 LandScan data, and people per housing unit from 2010 census data. All additional data was integrated with the original CAR footprint using a rigorous methodology (Figure 3.22).¹⁴⁷

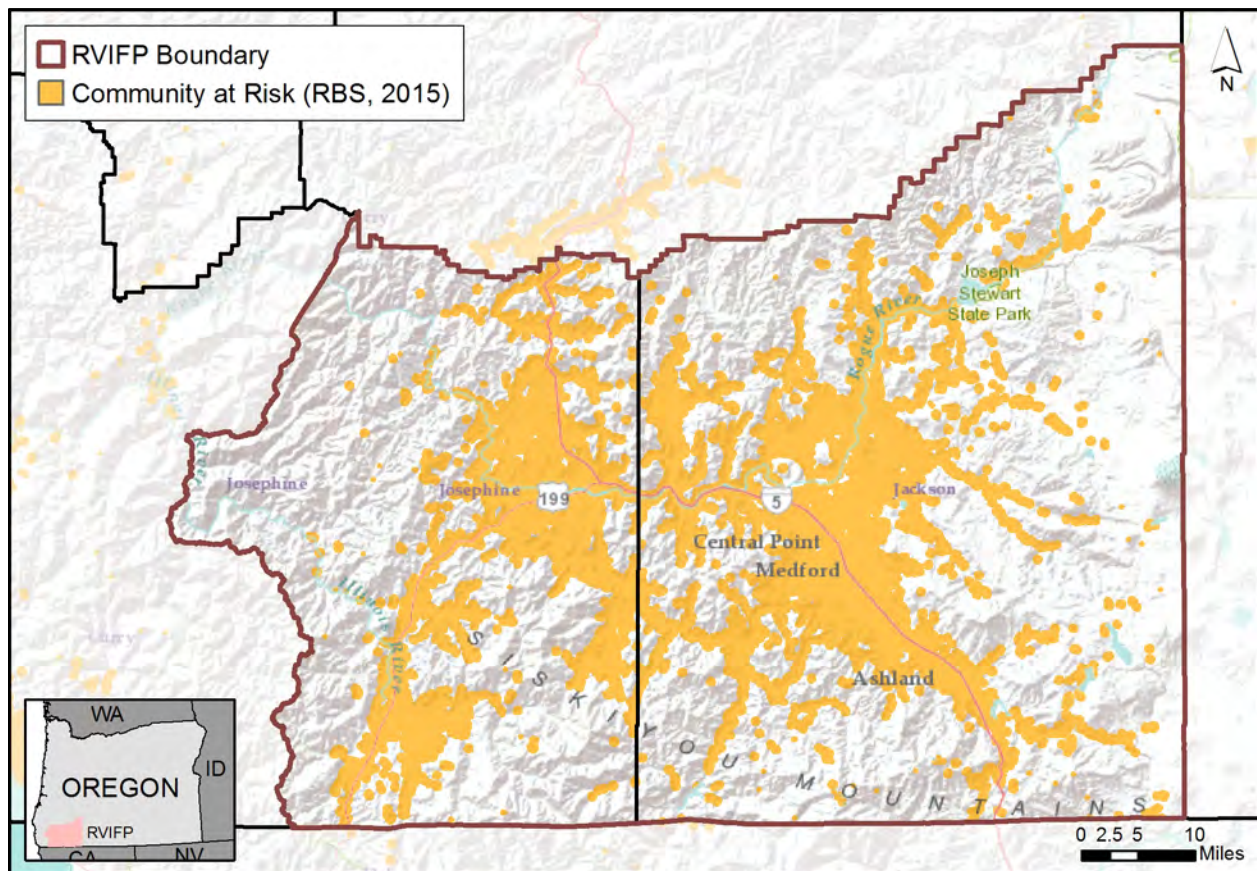


Figure 3.22. Map of Communities at Risk (CARs) – based on the Rogue Basin Cohesive Forest Restoration Strategy.

3.14.2 Designation of the WUI

Fuels management of public and private land in the WUI is the key to the defense of homes during a wildfire event. The importance of this is reflected in forest policy at the federal level, with the HFRA requiring that federal land management agencies spend at least fifty percent of their fuels reduction funds on projects in the WUI. This is notable since federal fuels funding is being cut significantly. As noted in the risk assessment summarized in Chapter 4, the checkerboard nature of southwestern Oregon, leads to the conclusion that landscape-scale fire risk mitigation and effective implementation needs to be considered an “all-lands” endeavor to achieve landscape-scale success.

¹⁴⁷ ODF, et al., 2013.

For the original county fire plans' WUI designations, the State of Oregon's designated CAR Assessment was considered as one starting point, but was abandoned by the committee. The state's boundary is useful at a state-wide scale, but it did not necessarily represent strategically defensible positions for wildfire suppression at the county level. To address fire management objectives, the committee used the 2004 Southwest Oregon Interagency Fire Management Plan (SWOFMP) as a starting point for defining the county WUI boundaries.

The WUI boundary was located around areas where people live or could live (based upon zoning) and on strategically superior tactical ground aimed at stopping the progress of a landscape-scale fire while protecting public and firefighter safety. The risk committee, with the assistance of fire behavior analysts, considered the size, location, and spread direction of historic large fires, as well as strategic geographic boundaries based on watershed ridge breaks, roads, rivers, etc. They found that the arbitrary boundaries of ½ and 1½ miles used in the CAR designations do not offer adequate fuel treatment opportunities to protect communities from large fires.

For the development of this RVIFP, a Wildland Urban Interface Committee was formed and the following WUI was delineated (Figure 3.23).

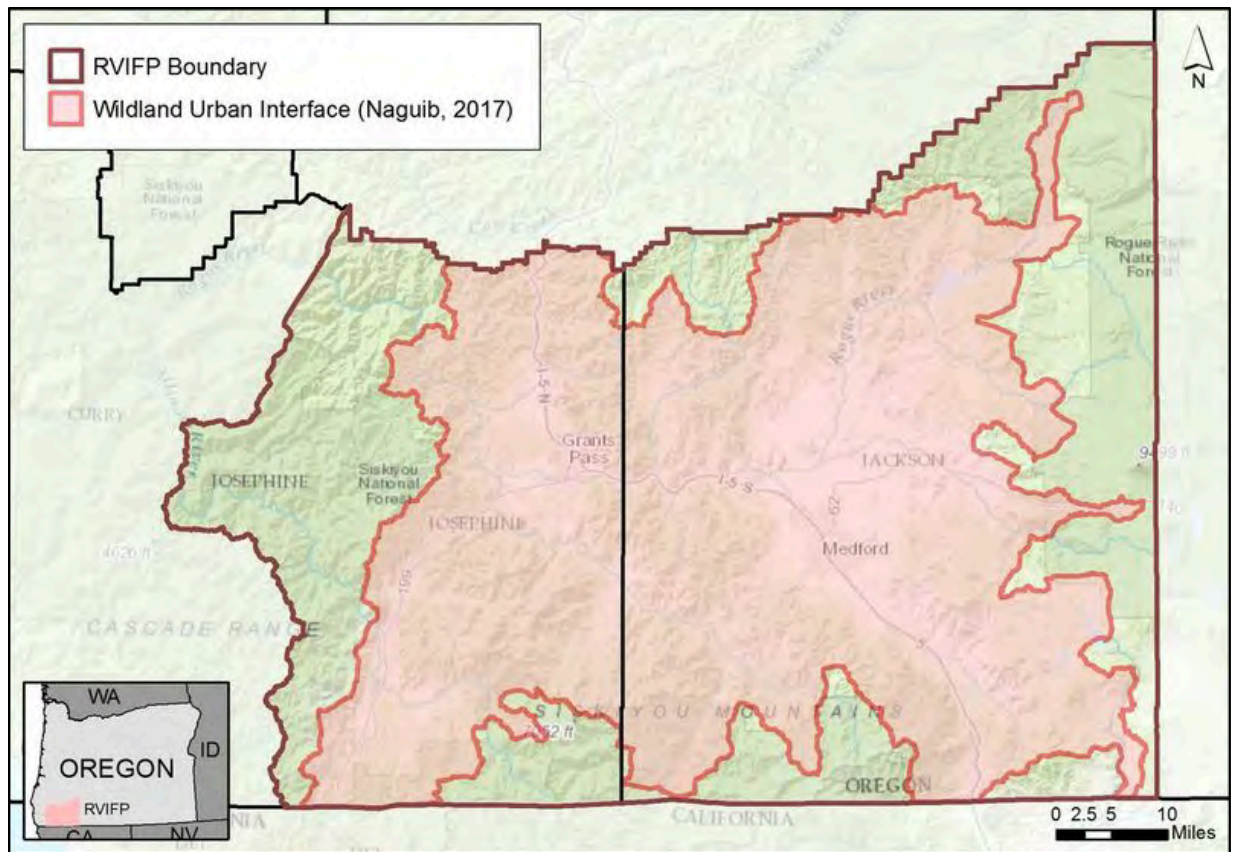


Figure 3.23. RVIFP Wildland Urban Interface

As mentioned above, many cities and other densely populated areas are located within regional WUI boundaries, because while non-vegetated expanses do exist within metropolitan areas (shopping malls, roads, parking lots, downtown sections, municipal and urban buildings, etc.) the vast majority of Rogue Valley metropolitan areas and urban structures are located within ¼ mile or less of wildland areas.

Figure 3.24 provides more detail on the interior of the regional WUI.

3.14.3 Local WUI Boundaries and Countywide WUI Boundaries

Jackson and Josephine county fire planning to date has embraced the intent to honor decisions regarding boundaries made by communities in locally-adopted CWPPs. County-level decisions do not encompass the same issues (political, social, or ecological) or the same scale of reference as local plans; the designation of the WUI may use a different approach in the local level CWPPs. For example, local knowledge of the influences of fuels, fire weather, and fire behavior on spotting distances can influence WUI boundaries. Boundaries can also be influenced by local concerns and priorities for values that are threatened by wildfire, including public safety, local economies, infrastructure, and natural and cultural resources.

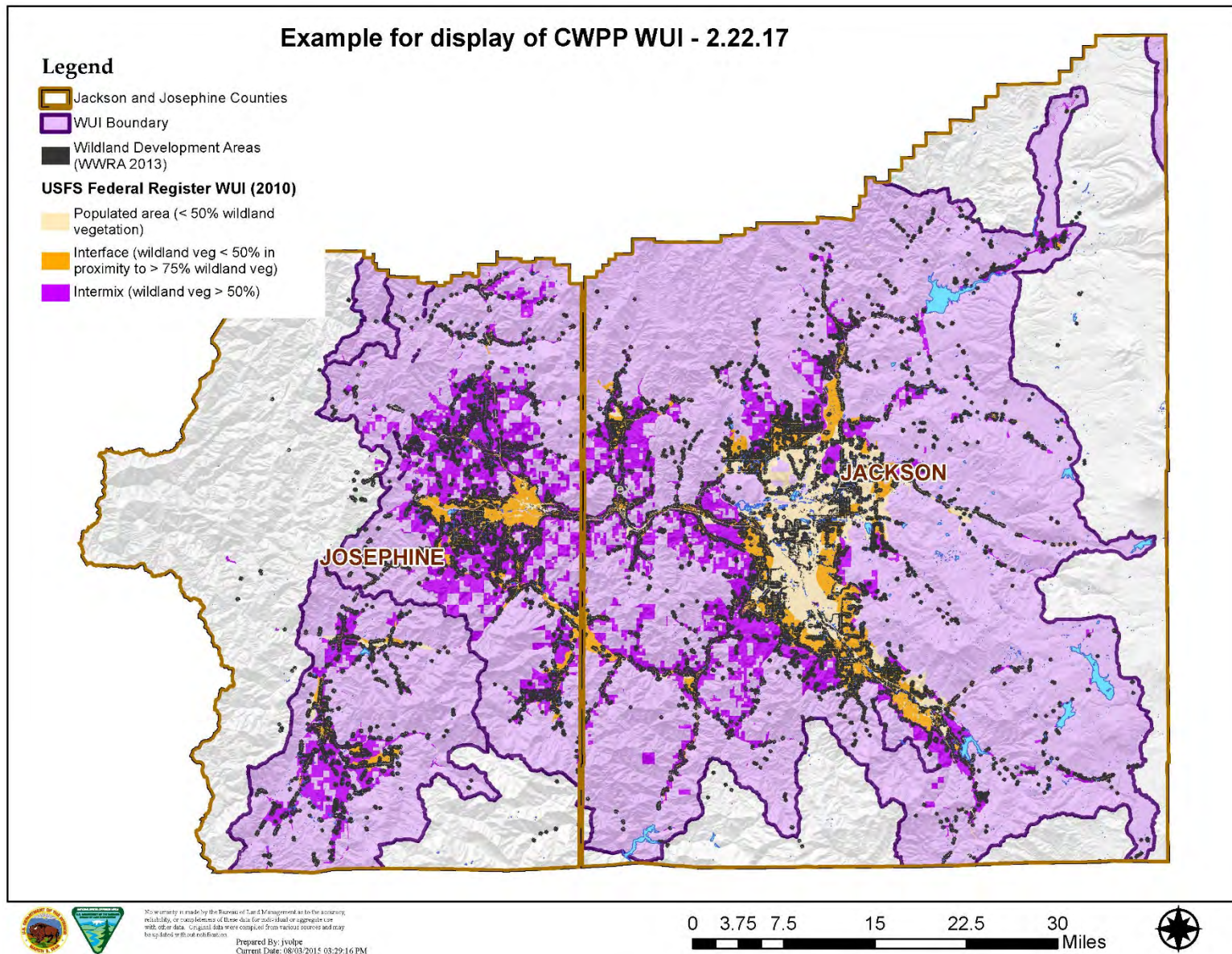


Figure 3.24. WUI Detail Map

3.14.4 Anthropogenic Fire Regime

Section 3.7 described the general fire history of southwestern Oregon; specifically, wildfire has played, and continues to play, a significant role in shaping ecosystems within the Rogue Valley and wildfires will also continue to affect the many WUI areas within the Rogue Valley as well.

Fires prior to the 20th Century were caused by both lightning and humans.^{148 149} As noted in the National Cohesive Strategy, Native American burning practices contributed significantly to landscape resiliency and were an important part of community livelihood across the west.¹⁵⁰ Native Americans used fire in the Rogue Valley area for cultural practices, sustainability, and vegetation management.¹⁵¹ Studies of the Athapascan-speaking Native Americans of the Lower and Upper Rogue River areas, including the Takelma and their Galice Creek and Applegate River groups, indicate the importance of fire to their culture.¹⁵²

Habitation of the area appears to have occurred as long as 9,000 years ago¹⁵³, and included active long-distance trading patterns as well as utilization of both maritime and terrestrial resources. Fires were set annually to clear brush and to attract deer for hunting by improving grasses¹⁵⁴. Fire was also used to drive deer into snares, and illuminated ponds at night for spearing fish. The only plant cultivated by the Takelma and their Athapascan neighbors was tobacco, which was grown on land cleared with fire.¹⁵⁵ Tribes used fire for other socio-economic and ecological objectives including maintaining oak woodlands, basketry materials, foods and hunting grounds.^{156,157}

¹⁴⁸ Sensenig, T.S., 2002. Development, Fire History and Current and Past Growth, of Old-Growth and Young-Growth Forest Stands in the Cascade, Siskiyou and Mid-Coast Mountains of Southwestern Oregon. PhD dissertation, Oregon State University, Corvallis, OR.

¹⁴⁹ LaLande, J., 1995. An environmental history of the Little Applegate River watershed. USDA, 563 Forest Service, Rogue River National Forest, Medford, OR.

¹⁵⁰ <https://www.forestsandrangelands.gov/strategy/documents/reports/phase3/WesternRegionalRiskAnalysisReportNov2012.pdf>.

¹⁵¹ Ibid.

¹⁵² Gray, Dennis J. 1987. The Takelma and Their Athapascan Neighbors: Ethnographic Synthesis for the Upper Rogue River of Southwestern Oregon. University of Oregon Anthropological Papers No. 37

¹⁵³ Connolly, Thomas J. 1988. A Culture-Historical Model for the Klamath Mountain Region of Southwest Oregon and Northern California. *Journal of California and Great Basin Anthropology*, 10(2), Oregon State Museum of Anthropology, University of Oregon, Journal of California and Great Basin Anthropology, UC Merced Library, UC Merced, Permalink

¹⁵⁴ Drucker, Philp 1937. The Tolowa and Their Southwestern Oregon Kin. Univ. of Cal. American Arch and Ethnology report, Vol. 35, No. 4, pp 221-300.

¹⁵⁵ Gray, Ibid

¹⁵⁶ Pullen, R. 1996. Overview of the environment of native inhabitants of southwestern Oregon, late prehistoric era. Pullen Consulting, Prepared for USDA Forest Service Rogue River Siskiyou National Forest and USDI Bureau of Land Management Medford District. Available at: <http://soda.sou.edu/awdata/021204a1.pdf>.

¹⁵⁷ Long, J. W., M. K. Anderson, L. Quinn-Davidson, R. W. Goode, F. K. Lake, and C. N. Skinner. 2016. Restoring California black oak to support tribal values and wildlife. USFS Pacific Southwest Research Station PSW-GTR-252.

The arrival of European settlers in the 1850's disrupted Native American cultures, including the use of fire. It has been noted that pioneers would not let traditional burning be done, which interfered with the production of new seed crops, as well as with the brush clearance which facilitated hunting. Consequently, without the ability to use fire as tool, Native Americans in the region were reduced to starvation.¹⁵⁸

Throughout the settlement period of the Rogue Valley, settlers used fire to improve forage for livestock, to clear areas for farming, and to expose soil and rock for mining.^{159 160}

In the early 1900's, fire suppression became the goal for managers. Fire exclusion and other land management practices such as even-aged forest management, mining, and grazing have altered natural fire return intervals, and researchers surmise that many areas have missed two to five fire cycles in the interior south.^{161 162 163} The results of missing fire cycles include altering the forest structure in ways that make it more susceptible to larger, less natural and more catastrophic fires.

3.14.5 Ignition History

Past fire occurrence data was assembled from two main sources: the USFS¹⁶⁴ and ODF¹⁶⁵. The USFS dataset includes fires occurring in the years 1992 to 2013 and was assembled from the USDI Wildland Fire Management Information System, USFWS Fire Management Information System, USFS Fire Statistics, and ODF. The ODF dataset includes fires in the years 2005 to 2016.

Both fire occurrence data sets encompassed both counties and areas beyond. The data presented in this document only includes fires within Jackson and Josephine counties.

For the 25-year period examined, for all fires regardless of size and cause, the average (mean) number of acres burned per year was 7,808, with an average of 296 fires started. However, the average does not

¹⁵⁸ Attwood, Kay and Gray, Dennis J. 1996. People and the River, A History of the Human Occupation of the Middle Course of the Rogue River of Southwestern Oregon. Volume I. Prepared for USDI-Bureau of Land Management Grants Pass Resource Area Medford, OR 97504, Contract # 1422H110-P4-5080

¹⁵⁹ Atzet, T. and D. L. Wheeler. *Historical and ecological perspectives on fire activity in the Klamath geological province of the Rogue River and Siskiyou National Forests*. USDA Forest Service, Pacific Northwest Region, Portland, OR. Pub. R-6-Range-102.

¹⁶⁰ Leiberg 1900, op.cit.

¹⁶¹ Hessburg, P.F., Churchill, D.J., Larson, A.J. et al. *Landscape Ecol* (2015) 30: 1805. doi:10.1007/s10980-015-0218-0

¹⁶² Olson, D.L., Agee, J.K., 2005. Historical fires in Douglas-fir dominated riparian forests of the southern Cascades, Oregon. *Fire Ecol.* 1, 50–74.

¹⁶³ Taylor, A.H., Skinner, C.N., 2003. Spatial patterns and controls on historical fire regimes and forest structure in the Klamath Mountains. *Ecol. Appl.* 13, 704–719.

¹⁶⁴ Short, 2015. Editor: Place this text in bibliography: Short, Karen C. 2015. Spatial wildfire occurrence data for the United States, 1992-2013 [FPA_FOD_20150323]. 3rd Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2013-0009.3>

¹⁶⁵ Acquired from Erik Larson of ODF via Email on February 14th, 2017.

paint an accurate picture of fire occurrence for the two counties. The number of fires started each year varies from a low of 186 to a high of 598, with a standard deviation of 104. From this we can deduce (with 95% confidence) that the number of fires for any future year would fall between 89 and 503. This is a large spread.

Figure 3.25 shows the episodic nature of the number of fires occurring each year in the past 25 years in addition to the number of acres burned.

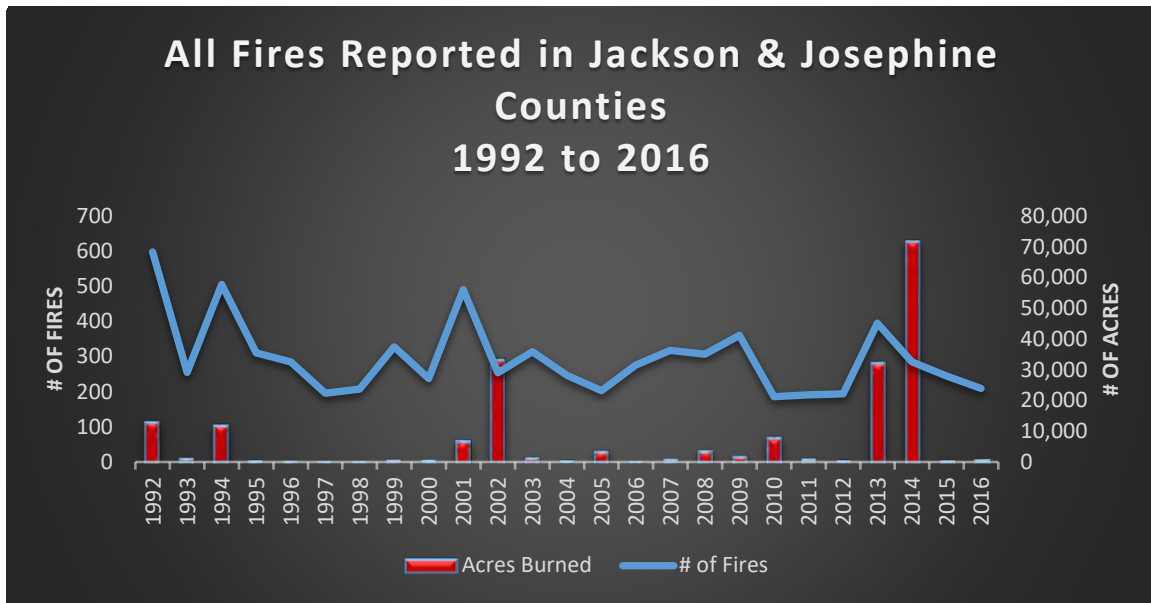


Figure 3.25. Graph of all fires (all causes and fire sizes) reported in Jackson and Josephine Counties from 1992 to 2016.

There appears to be a cyclical pattern of a distinct gap of five or more years between what could be characterized as “extreme” fire years. This pattern is evident again in Figure 3.26 which examines only fires that reached 36 acres or more (the fire size limit chosen in the fire risk assessment outlined in Chapter 4).¹⁶⁶

¹⁶⁶ Helmbrecht, 2016. Editor: reference paper titled Wildfire Simulation Methods for The Rogue Basin Cohesive Forest Restoration Strategy, report prepared by Don Helmbrecht, October 2016.

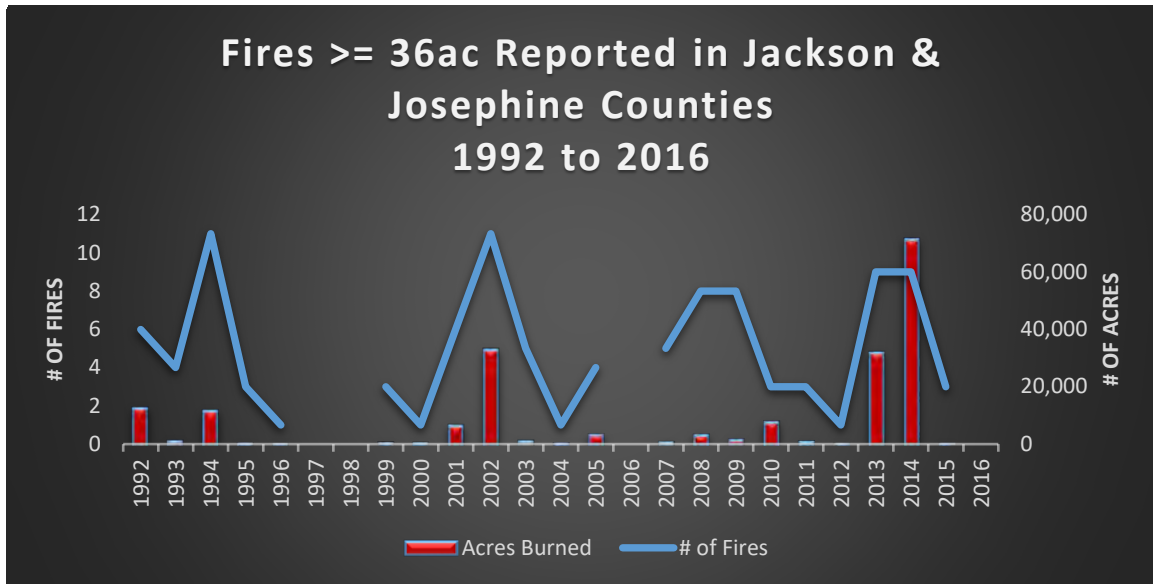


Figure 3.26. Graph of all fires (all causes) greater than or equal to 36 acres reported in Jackson and Josephine counties from 1992 to 2016.

The trends suggest that most fires have been successfully initial attacked and suppressed. However, in years where fires escape initial attack, some have grown very large and make up the majority of acres burned in a fire season.

3.14.6 Locations

The majority of ignitions in the two counties tend to be concentrated along travel corridors and the edges of major urban areas (see Figure 3.27 and Figure 3.28). Many of these fires are suppressed before they grow in size. Larger fires (>36 acres) used in the RBS risk assessment (described in Chapter 4) occurred in more remote locations (Figure 3.29), and according to analysts large fire occurrence varies spatially across the Rogue Basin, with large fires more likely to occur in some portions of the landscape than others.¹⁶⁷ The RBS utilizes fire simulation models to simulate annual burn probability across the landscape based on this historic fire analysis. For more information on the RBS see Chapters 4 and 5.

¹⁶⁷ Helmbrecht, D. 2016. Wildfire Simulation Methods for the Rogue Basin Cohesive Forest Restoration Strategy.

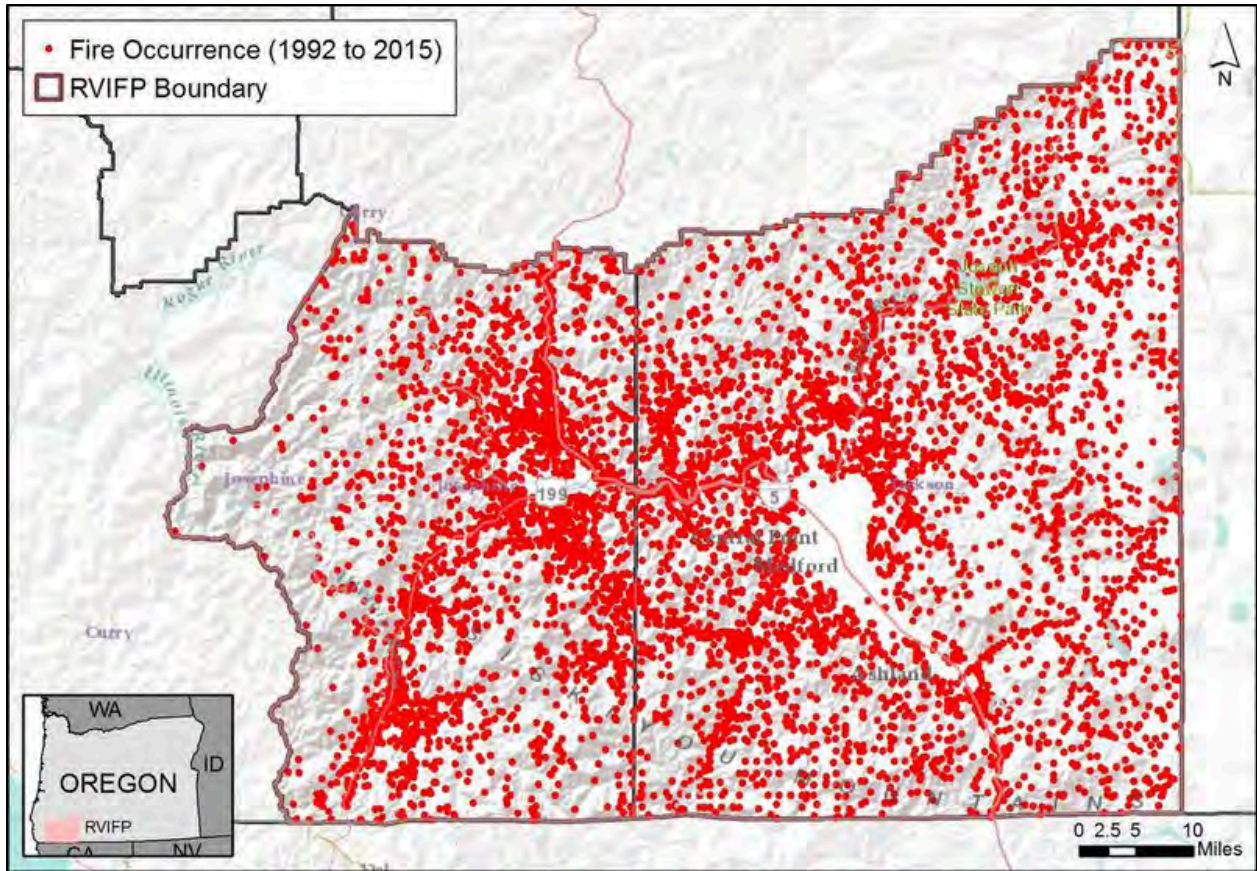


Figure 3.27. Map of all fire occurrence data (regardless of fire size or cause) from 1992 to 2015.



Figure 3.28. Roadside fire resulting from human caused ignition.

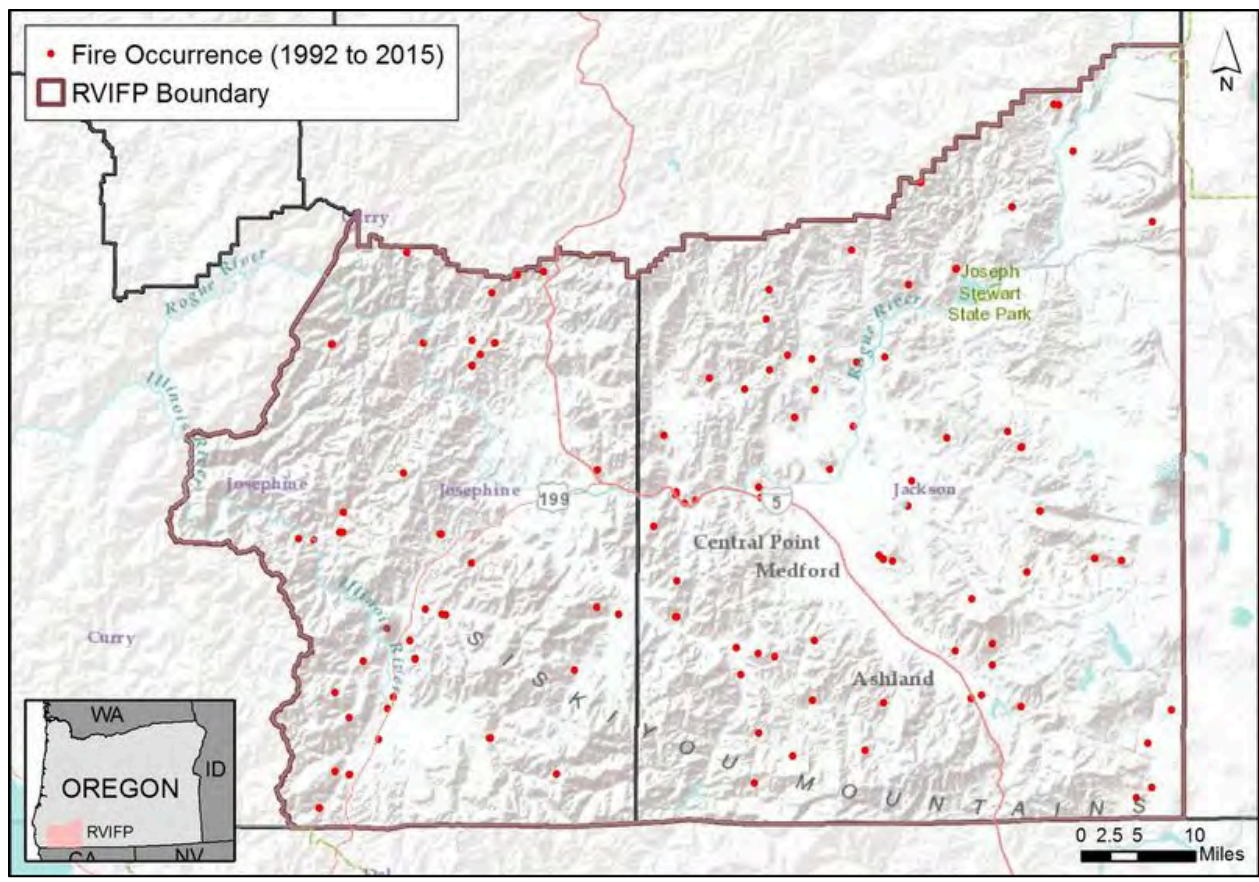


Figure 3.29. Map of fire occurrence data of fires greater or equal to 36 acres in size, regardless of cause, from 1992 to 2015.

3.14.7 Fire Causes

Fires caused by lightning account for 34% of all fire starts in Jackson and Josephine counties. Human-caused fires (ranging from arson to fires started along powerlines and equipment use) account for the remaining 66% (Figure 3.30 and Figure 3.31). Prevention programs should have a special focus on equipment use, given that this is the second largest cause of fire in the Rogue Valley.

Table 3.5. Table of all fires by cause with number of fires and acres burned.

FIRE CAUSE	1992 - 2016		FIRE CAUSE	1992 - 2016	
	# OF ACRES	COUNT		# OF ACRES	COUNT
Arson	5,697	374	Miscellaneous	10,780	912
Campfire	418	395	Missing/Undefined	2,276	143
Children	1,395	319	Powerline	1,953	16
Debris Burning	2,551	653	Railroad	24	26
Equipment Use	15,404	1488	Recreationist	47	66
Fireworks	259	24	Smoking	547	445
Juveniles	5	14	Structure	8	23
Lightning	153,303	2503			



Figure 3.30. The 2016 Gold Canyon Fire outside Selma was thought to be human caused. The fire burned 61 acres. Credit: ODF.

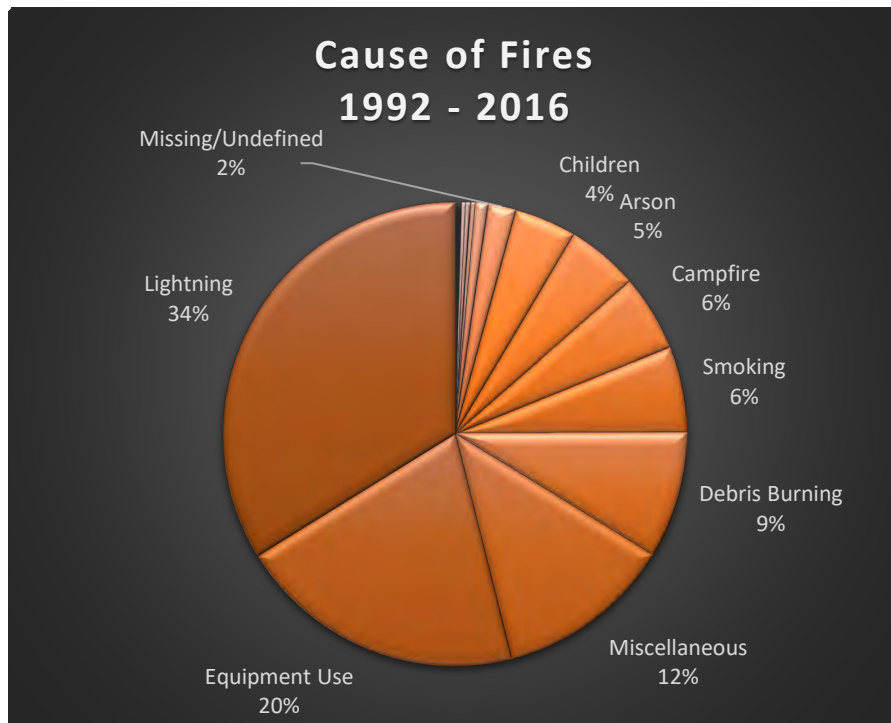


Figure 3.31. Graph of fire cause by percent of total fires.

3.15 SOCIOECONOMIC COMPONENTS

3.15.1 Population

Based on U.S. Census data, Jackson County population has increased from approximately 203,206 in 2010 to 212,567 in 2015. Approximately 20% of the population is under the age of 18, and another 20% of the population is over the age of 65. Census data shows the Josephine County population has increased from approximately 82,713 in 2010 to 84,745 in 2015. Slightly less than 20% of the population is under the age of 18, and approximately 25% of the population is over 65. Research from Portland State University's Population Research Center reveals that the general population in the Rogue Valley is slightly older than the overall population of Oregon, and that population growth is due primarily to migration into the area.¹⁶⁸

3.15.2 Current Social and Economic Condition

For CWPPs to be successful, partners must be knowledgeable about current social and economic conditions to make their initiatives responsive to community interests as well as effective in meeting CWPP objectives. Without integrating community conditions into wildfire planning, risks to lives and property and the costs of wildfire prevention and response are likely to increase. Moreover, local social and economic conditions can significantly affect the resilience of a population to a wildfire event.

There are seven major social and economic trends and conditions in the Rogue Valley that pertain to the fire plan:

1. Population continues to increase.
2. Population is increasingly ethnically-diverse.
3. Population is concentrated along the urban I-5 Corridor.
4. Population is aging and the dependency ratio is rising.
5. High poverty rate predicts lower resilience in disaster situations.
6. Low health insurance coverage and high disability status are predictors of vulnerability.
7. Housing cost burdens are high.

¹⁶⁸ Tauer, Guy. *Rogue Valley Population Estimates*. State of Oregon Employment Department. May 11, 2016.

3.15.3 Smoke Impacts

The Pacific Northwest has a long fire history that includes lightning, application by Native Americans, and changes in wildfire regimes brought on by Euro-American settlement. Throughout this history, smoke has had a large impact.

When European explorers came to Oregon, many noted the presence of smoke and burned vegetation. In 1826, Scottish botanist David Douglas described charred landscapes, largely due to Native American burning, as he traveled south through the Willamette Valley into the Umpqua basin. Douglas's party often found it difficult to camp, find forage for horses, and walk on stubble left behind by recent fires.¹⁶⁹ Native American burning practices were similar in the Rogue River basin.

As Euro-Americans settled in Oregon's valleys, agriculture replaced hunting and gathering as the predominant land use, and fire was a commonly used tool. Just as Native Americans had done, the first settlers used fire to clear land. It was likely a mix of settlers and indigenous peoples who set fires in the late 1840's that burned nearly a million acres over multiple years near the Siuslaw and Siletz rivers. As settlements became permanent towns and cities, the largest complaint was not fire itself, but smoke. Smoke was so thick along the Columbia River that officials almost put up lighthouses to help ships navigate. In 1868, it's estimated that more than one million acres burned along the Pacific coastline. Driven by strong east winds, major fires near the mouth of the Columbia River and Coos Bay cast large parts of the state under a veil of smoke.

Over time, fire protection and prevention efforts replaced intentional burning, but large fires continued to burn across the region, including in the Rogue Valley.

Health Impacts from Smoke

Wildfire smoke contains pollutants that can damage human health. Dangerous emissions from wildfires include carbon monoxide, atmospheric mercury, ozone, volatile organic compounds, and fine particulate matter. The effects are widespread, and can affect the health and activity of many individuals in many ways, causing community disruptions. For example, during periods of heavy wildfire smoke, the Oregon

¹⁶⁹ Stephen J. Pyne. *Fire in America: A Cultural History of Wildland and Rural Fire*. 1982. Princeton University Press, New Jersey. Pg 335.

Shakespeare Festival in Ashland has created a “Smoke and Elizabethan Performance Update” to notify playgoers by 7 PM as to whether the performance would proceed.¹⁷⁰

A recent study found the area affected by smoke can be nearly 50 times that of the actual area burned by the wildfire.¹⁷¹ Lake Selmac in Josephine County is a popular destination for travelers, however it is also the facility used to set up fire camp when there are fires in the Illinois Valley area. When fire camp is established, camper and/or event reservations are often cancelled, making the public hesitant to make future reservations at this location.

Small particles in wildfire smoke irritate the eyes, nose, and throat. Some of the smallest particles can be inhaled deeply into the lungs, causing more substantial health problems, especially for those with pre-existing health conditions. The duration and concentration of wildfire smoke exposure, along with patient age and degree of sensitivity, play important roles in determining the effects of smoke-related health problems.¹⁷²

Wildfire smoke can cause issues for generally healthy individuals as well, such as eye irritation, persistent cough, phlegm, wheezing, scratchy throat, irritated sinuses, headache, shortness of breath, and pulmonary inflammation.¹⁷³

Exposure to wildfire smoke can affect more seriously those with pre-existing respiratory conditions such as respiratory allergies, asthma, chronic obstructive pulmonary disease (COPD), and heart disease. In addition to the above symptoms, such persons may experience fatigue; chest pain or discomfort; exacerbation of their respiratory conditions; and reductions in lung function.¹⁷⁴ The 2002-2005 age adjusted prevalence of asthma in the Josephine County adult population was 11%. In 2011, neighboring Jackson County reported that 9.0%–9.9% of the adult population had asthma. In general, children and the elderly are at the greatest risk of wildfire-related illness.

Local population estimates may underestimate the geographic extent of negative health effects associated with smoke. A recent Natural Resources Defense Council (NRDC) study found that the area

¹⁷⁰ Stuart Tomlinson, Southern Oregon Wildfires Torching Business for Outfitters, Rafting Companies, OREGONIAN, Aug. 10, 2013, available at http://www.oregonlive.com/pacific-northwest-news/index.ssf/2013/08/southern_oregon_wildfires_torc.html.

¹⁷¹ NRDC, WHERE THERE’S FIRE, THERE’S SMOKE: WILDFIRE SMOKE AFFECTS COMMUNITIES DISTANT FROM DEADLY FLAMES (2013), available at <http://www.nrdc.org/health/impacts-of-wildfire-smoke/files/wildfire-smoke-IB.pdf>.

¹⁷² Oregon Health Authority, “Wildfires, Air Quality and Health,” CD Summary 62:18 (Aug. 2013), available at <http://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/CDSummaryNewsletter/Documents/2013/ohd6218.pdf>.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

affected by wildfire is often much greater than the immediate vicinity of the fire. The total area affected by medium-to-high density smoke for a period of 12-47 days was found to be nearly 50 times greater than the area actually consumed by the fire.

In 2011, Oregon had 19,336 people living within areas subject to wildfire, but 482,499 people were in areas with medium/high-density smoke conditions for a week or more (7-47 Days).¹⁷⁵ The affected population was almost 25 times the size of the community living within the area of wildfire.

The Oregon Health Authority provides information regarding the health effects of smoke and actions that vulnerable individuals should take to mitigate the impacts.¹⁷⁶

3.15.4 Economic Impacts

Large wildfires disrupt communities and often have lasting socioeconomic effects.¹⁷⁷ The costs of suppressing wildfires across the country has been increasing since record keeping began in the 1970's. Oregon has been heavily impacted by this trend; the 2016 ODF Fire Program review stated that,

“Ten-year averages for suppression costs and acres burned, along with loss of resources and structures, have significantly increased and a trend toward more complex fire conditions in Oregon is anticipated in the future.”¹⁷⁸

Oregon's Large Wildfire Funding System is sourced with a combination of public contributions (General Funds), assessments and surcharges from public and private lands, cost recoveries from responsible parties, FEMA funds (when incidents are eligible) and insurance coverage.¹⁷⁹ Severe fire seasons create significant program costs as was experienced in 2013-2015; the amount of firefighting resources required during a busy fire season can tax the ODF protection system, both financially and

¹⁷⁵ Ibid.

¹⁷⁶ Oregon Health Authority:

http://public.health.oregon.gov/Preparedness/Prepare/Documents/OHA%208622_Public_Health_Wildfires_Flyer_fullpage_English.pdf

¹⁷⁷ Mosley, C., K.Gebert, P.J. Jakes, L. Leete and M. Nielson-Pincus. 2013. The economic effects of wildfires. JFSP Research Project Reports. Paper 55. <http://digitalcommons.unl.edu/jfspresearch/55>

¹⁷⁸ 2015/2016 Fire Program Review Committee- Report to State Forester:

<https://www.oregon.gov/ODF/Board/Documents/FireProgramReview/2016%20Fire%20Program%20Review%20Committee%20Final%20Report.pdf>

¹⁷⁹ Oregon Department of Forestry 2017. BLM Western Oregon Protection Study, 2006-2015. BLM Financial Impacts to Oregon Forest Land Protection Fund (OFLPF) in western Oregon 2006-2015.

operationally.¹⁸⁰ These issues are currently being reviewed in order to mitigate increasing operational concerns in responding to wildfire.

Suppression costs are just one element to the economic impacts of wildfire; many communities, including those in the Rogue Valley, report huge economic losses as a result of wildfire.¹⁸¹ Recreation and tourism are integral to many economies in southern Oregon. Wildfire tends to cause significant declines for these industries. Because wildfires often occur during peak tourist season, losses can be tremendous. The 2002 Biscuit Complex is one example of the significant losses that are felt from wildfire. The Complex burned approximately 500,000 acres across Josephine and Curry Counties and cost \$150 million to suppress. Although the fires burned primarily within the Kalmiopsis Wilderness Area, fire outside the wilderness threatened commercial forestland and other resources, as well as homes and local residents. Tourism was negatively affected by the smoke. The Biscuit Complex led to development of the first Josephine County Integrated Fire Plan (IFP), followed closely by the Jackson County IFP.

The Douglas Complex in August 2013 was another significant fire, effects were felt for nearly three weeks from the wildfires and smoke that remained present in the valley. The Galice Resort in Josephine County reported laying off 60+ seasonal employees because of fire and smoke. The estimated loss to the region's wilderness outfitters and river rafting companies was estimated to be approximately \$100,000 to \$150,000 each day (Figure 3.32). The Ashland Shakespeare Festival was also heavily impacted by wildfire smoke that caused the cancellation of a number of outdoor performances.

¹⁸⁰ 2015/2016 Fire Program Review Committee- Ibid.

¹⁸¹ Diaz, J. M. *Economic Impacts of Wildfire*. Southern Fire Exchange. SFE Fact Sheet 2012-7.



Figure 3.32. Heavy wildfire smoke has caused significant impact to recreation on the Rogue River in the past. Credit: ODF.

Below are some of the other economic impacts that the Rogue Valley faces during a large wildfire event:

- Disaster Relief as displaced families and businesses find places to relocate after loss of residential and commercial properties and wooded acres.
- The actual loss of residential and commercial real estate and corresponding property.
- Impacts to tourism and recreation due to smoke impacts and closures.
- The substantial costs of fighting wildfires sustained by federal, state and local entities. Counter to this is the contention that the input of money from fire suppression and recovery efforts may also provide economic opportunities.
- Smoke impacts to transportation infrastructure such as roads and highways, with deteriorated visibility leading potentially to accidents, injuries, and fatalities (Figure 3.33).
- Threats to and actual degradation of water quality from watersheds burning. The resulting vegetation loss and exposure of erosive soils can result in sedimentation impacts on streams and rivers.
- Suppression costs, including overtime and utilization of contract resources.
- Costs to rehabilitate critical wildlife habitat.

- Socioeconomic impacts to hunting and fishing due to resulting impacts on wildlife distribution. Additionally, the Rogue Valley is known for diversity of plants species, many of which will be negatively impacted by wildfire.
- Public safety impacts from post fire flooding.
- Loss of pre-merchantable timber, with values often in the millions of dollars.
- Loss of timber inventories, and pressure from burnt timber requiring immediate salvage on private and agency timber lands. Salvage is required in a short time frame (~ 1 year) to recover economic value of trees.
- Post fire infrastructure repairs.



Figure 3.33. Smoke can obscure roads and bridges creating a public health and safety concern.
Credit: ODF

Since the advent of the HFRA, land managers have been pushing for ongoing legislation that would enable a more pro-active approach to reduce large fire size by encouraging forest restoration with the intent to reduce the scale and extent of catastrophic wildfires and the economic burden associated with them.

In 2012 the *National Forest Health Restoration: An Economic Assessment of Forest Restoration on Oregon's Eastside National Forests* (including the eastern portion of the Rogue River-Siskiyou National Forest) was developed to quantify the economic value of forest restoration activities. The Assessment estimated that every \$1 million spent on dry forest restoration generates \$5.7 million in economic

returns.¹⁸² The study reported that decline of timber management impacted local communities as reduced timber supply has contributed to local unemployment. Investment in restoration creates timber industry jobs and reliable timber supplies to sustain local timber mills, which in turn stimulates local economies. Contributing to the economic benefit of the timber industry, restored forests also exhibit improved vigor and resiliency to insect and disease. Through management of variable size classes and retention of larger diameter trees, timber volumes are increased over time. In addition to the direct economic impacts of restoration activities, it is well accepted and documented that restoration of dry forest types, leads to improved forest health and reduced potential for unnaturally severe wildfire.^{183 184} A significant economic benefit of restoration is therefore the reduction of fire suppression costs, reduced need for costly post fire rehabilitation and infrastructure repairs, social service programs, and unemployment benefits.

3.16 ROADS AND TRANSPORTATION

Transportation systems are of critical importance in wildfire planning. Road systems provide access for fire suppression units and a means of escaping wildfire, and provide access for carrying out important fuel treatment projects such as fuel breaks and landscape thinning. Railroads also increase potential for wildfire starts. Railroads can contribute to the incidence of fire starts due to malfunctioning brakes and other equipment.

3.16.1 Jackson County

Jackson County's major roads include Interstate 5, connecting Jackson and Josephine counties and Highway 99 or Rogue River Highway, connecting Grants Pass, Central Point, Medford and Ashland. Highway 238 or Williams Highway connects the community of Applegate to Jacksonville, Medford and Grants Pass. Highway 62 or Crater Lake Highway provides north/south travel between Medford and the northeast corner of the county. Highway 227 or the Tiller Trail Highway connects the county to the community of Tiller in neighboring Douglas County. Highway 234 provides access through Sam's Valley and Highway 140 connects Jackson County to neighboring Klamath County to the east.

¹⁸² http://oregonforests.org/sites/default/files/publications/pdf/NF_Restoration_Economic_Report.pdf

¹⁸³ Franklin, J.F., K.N. Johnson, D.J. Churchill, K. Hagmann, D. Johnson, and J. Johnston. 2013. Restoration of dry forests in eastern Oregon: a field guide. The Nature Conservancy, Portland, OR. 202 p.

¹⁸⁴ Fitch, R.A., Y. S.Kim, A.E.M. Waltz and D.Ega. 2013. Forest Restoration Treatments: The Effect on Wildland Fire Suppression Costs. Northern Arizona Ecological Restoration Institute: <http://library.eri.nau.edu/gsd/collect/erilibra/index/assoc/D2013009.dir/doc.pdf>

The Jackson County Transportation System Plan (TSP) was revised in 2016 and approved in early 2017¹⁸⁵. The Plan describes current road conditions and needs for the County.

3.16.2 Josephine County

Josephine County's major roadways include Interstate 5 and U.S. Highway 99 or Rogue River Highway, which comprise the major north/south routes through the county. Highway 199 or Redwood Highway connects Grants Pass and the southwestern county, including Cave Junction. Hwy 199 connects to both the California and Oregon coast, making it important for tourism and product transportation. Highway 238 or Williams Highway connects the southeastern part of the county.

Roads in Josephine County are under the jurisdiction of city, county, state, and federal governmental agencies that cooperate to monitor and maintain roadside vegetation, primarily for driver safety. The Public Works Department works in cooperation in and near the Grants Pass City Limits and administers the remaining roads in Josephine County. Josephine County has recently adopted the state mandated Transportation System Plan.¹⁸⁶ This plan describes current road conditions and needs.

¹⁸⁵ Jackson County Transportation System Plan (TSP) 2016: <http://jacksoncountytsp.com/websites/27/pages/131>

¹⁸⁶ <http://www.co.josephine.or.us/Page.asp?NavID=263>

4 RISK ASSESSMENT

4.1 RISK ASSESSMENT OVERVIEW AND SCOPE

The risk assessment is an essential component of a CWPP as outlined by the HFRA. The HFRA requires that the community:

“Identify the wildland urban interface, communities at risk, and high-risk areas in the County, and provide the basis for development of a prioritized list of fuel hazard reduction projects across the County that addresses both short-term (reduce fire hazards in the WUI) and long-term (forest health, ecosystem restoration, and landscape fire management) goals and strategies.” Healthy Forests Restoration Act, 2003.

A risk assessment consists of three phases: hazard identification, vulnerability assessment, and risk analysis.

- Identifying fire hazard involves analyzing various factors across the landscape that contribute to fire (i.e. vegetation type, elevation, slope, aspect, weather patterns, past fire occurrence, burn probability, etc.).
- The vulnerability assessment identifies highly valued resources and assets (HVRAs) in the hazard area, and identifies fire conditions that have a negative or positive impact on the HVRAs.
- Risk analysis examines how the HVRAs are affected by the potential fire hazard.

Risk assessments are generally conducted on a ‘landscape’ scale, meaning that all aspects of a particular landscape feature are studied and analyzed. This is done for a variety of reasons, including ensuring that the study area is large enough to provide representative data on wildfire risk. The area studied for Jackson and Josephine counties is the Rogue Basin, which includes both Jackson and Josephine counties, along with parts of the West Cascades, East Cascades, and the Klamath Mountains.

In 2009, a two-county risk assessment was completed and accepted for use by both the Jackson and Josephine county integrated fire plans. There was a strong desire on the part of fire plan partners to have a two-county risk assessment using consistent data and methods. This also was a specific goal of the Jackson-Josephine Local Coordinating Group (JJLCG). The goal of the risk assessment was to incorporate higher quality fuels data obtained from LANDFIRE (a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of

the Interior, providing landscape scale geo-spatial products to support cross-boundary planning, management, and operations) which ultimately gave fuels specialists a better idea of the actual fuel types and amounts present. This updated information allowed fuels specialists to more accurately assess fire hazards in different areas as they continued to prioritize fuel treatments throughout the two county area. This effort was further refined in 2015 with the risk assessment spearheaded by the Southern Oregon Forest Restoration Collaborative.

4.1.1 Rogue Basin Cohesive Forest Restoration Strategy

In 2015, the Southern Oregon Forest Restoration Collaborative (SOFRC) developed the Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2 (RBS).¹⁸⁷ The 4.6 million-acre project was centered on the Rogue River Basin of southwestern Oregon. It included all of Jackson and Josephine counties, along with parts of the West Cascades, East Cascades, and the Klamath Mountains, and all communities adjacent to the Pacific Highway (5 and 99), the Redwood Highway (199), Crater Lake Highway (62), and others (Figure 4.1).

¹⁸⁷ : Metlen, K. L.*, D. Borgeas, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, E. Reilly, B. Moody, M. Bennett, and C. Zanger. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR, XXX pp

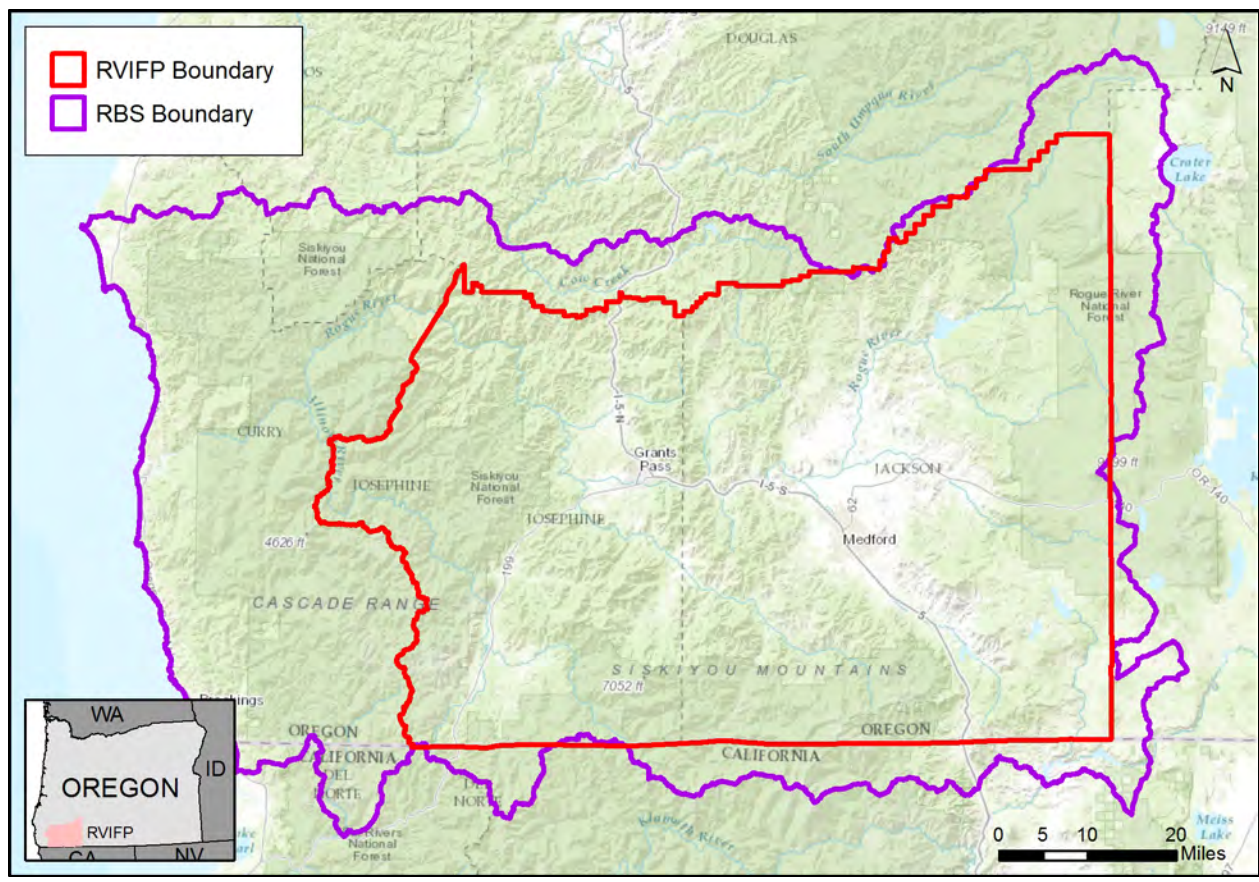


Figure 4.1. Rogue Valley Integrated CWPP project boundary in relation to the Rogue Basin Cohesive Forest Restoration Strategy (RBS) boundary. Data sources: Jackson County, Josephine County, Oregon Department of Forestry, The Nature Conservancy, and others.

The RBS follows a methodology that is more rigorous than traditional CWPP risk assessments which typically consider only wildfire’s losses, under one fire scenario (often the worst-case scenario). Based on a rigorous new assessment methodology outlined in *A Wildfire Risk Assessment Framework for Land and Resource Management*, the RBS risk assessment methodology is more complex and robust, allowing for different approaches for measuring risk while providing a framework for planning mitigation projects.¹⁸⁸

The scope of the RBS included a strategy to accelerate forest restoration planning, implementation, and monitoring. It identified and prioritized 50,000-acre project areas to promote resilient landscapes, diverse habitats, fire-adapted human communities, and a predictable flow of economic benefits and

¹⁸⁸ Scott, J.H., M.P. Thompson, D.E. Calkin. 2013. *A Wildfire Risk Assessment Framework for Land and Resource Management*: https://www.fs.fed.us/rm/pubs/rmrs_gtr315.pdf

other ecosystem services. The RBS evaluates an ambitious 20-year plan of work and uses modelling to prioritize future landscape restoration opportunities.

In summary, through an exhaustive modelling process, the RBS developed several layers that can be used to help identify and prioritize areas in need of fuel mitigation work or fuel treatments. The results of this analysis can vary depending on two things:

- evaluation of three 20 year management alternatives, referred to as *treatment scenarios*, and
- five collaboratively derived landscape objectives that can be achieved with mechanical treatments, referred to as *optimized objectives*.

Treatment Scenarios

To understand the tradeoffs in treating different numbers of acres, three different *mechanical treatment scenarios* were identified and modeled over 20 years for the 4.6 million-acre project area (Figure 4.2). They include:

- **Business as Usual:** the current level of fuel treatments (business as usual, represents approximately 150,000 acres treated on BLM and USFS land);
- **Full Extent:** restoration and fuels treatments on all treatable and accessible BLM and USFS lands (represents approximately 0.9 million acres treated); and
- **All Lands:** restoration treatments on all BLM and USFS currently treatable and accessible; and fuels treatments on state, county, city, and private lands that treat up to 40% of the community at risk (represents approximately 1.1 million acres treated).

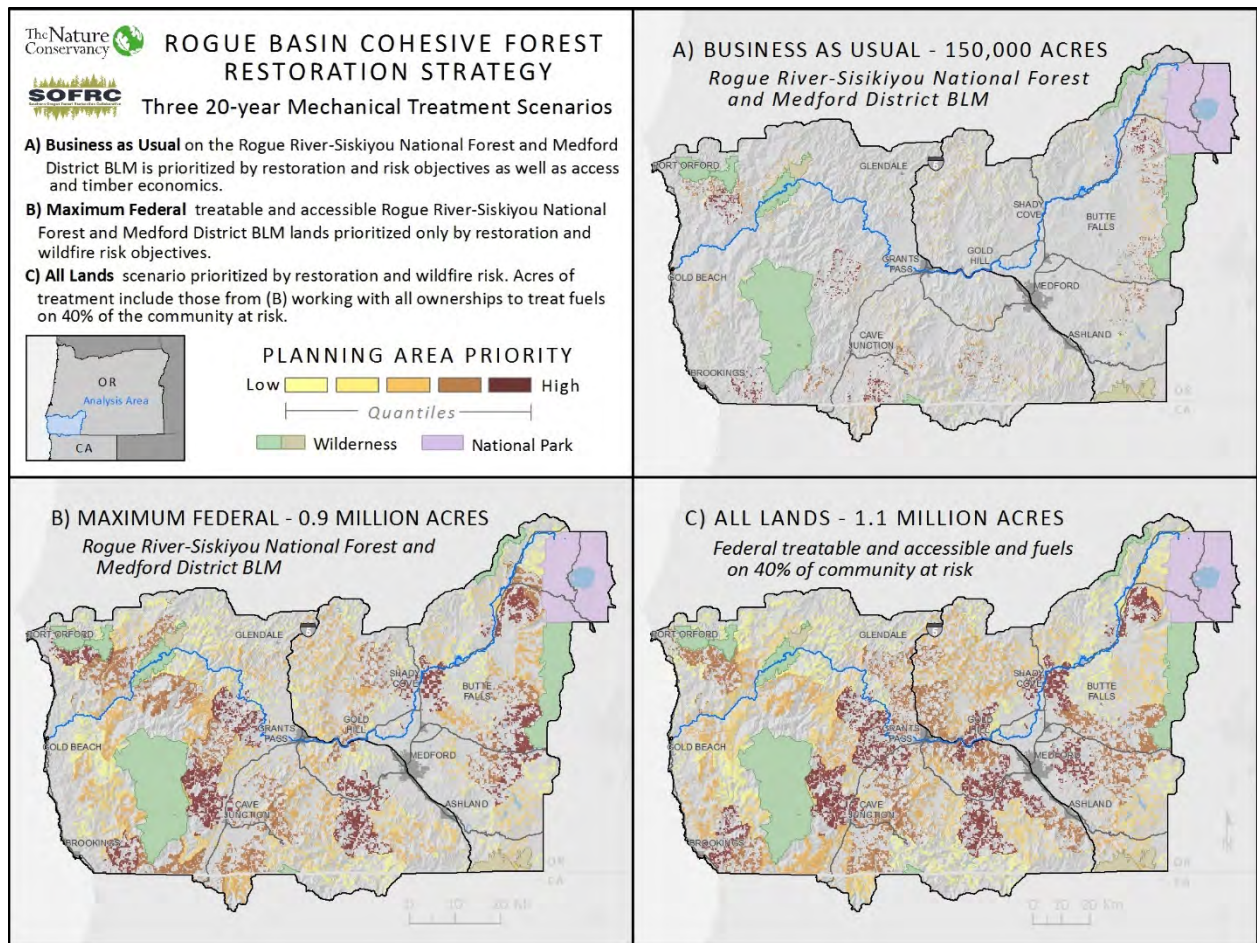


Figure 4.2. RBS three 20-year landscape treatment scenarios. Figure courtesy of The Nature Conservancy.

Optimized Objectives

To prioritize the locations of treatments, the RBS modeling efforts evaluated five different landscape-level objectives to optimize the resulting fuel treatment areas (shown in green in Figure 4.2).

These five objectives were defined as follows:

- Local fire community risk (to prioritize fuel treatments within communities at risk to fire)
- Large wildfire community risk (to prioritize fuels reduction in the landscapes that deliver fires that threaten community assets with fires larger than 35 acres)
- Landscape resilience (to prioritize treatments that balance open and closed forest habitats)
- Protecting and promoting Northern Spotted Owl habitat (to prioritize to maintain existing habitat and reduce adjacent wildfire risk while promoting complex forest structure)
- Climate resilient landscapes (to prioritize landscapes that are most climate resilient)

During a workshop held on February 22nd and 23rd of 2017, representatives from ODF, USFS, BLM, Jackson and Josephine Counties and several local fire departments and agencies convened, and agreed to follow, in principal, the most inclusive and optimistic of the RBS strategies, the All-lands Scenario. This scenario would allow federal managers to develop projects on lands under their direct management that met the five objectives outlined above, while providing a strong framework that will also allow non-federal land managers to participate. Using the RBS approach, land managers would work towards coordinated fuel treatment efforts across all lands, contingent upon funding availability and agency policy (see Figure 4.3).

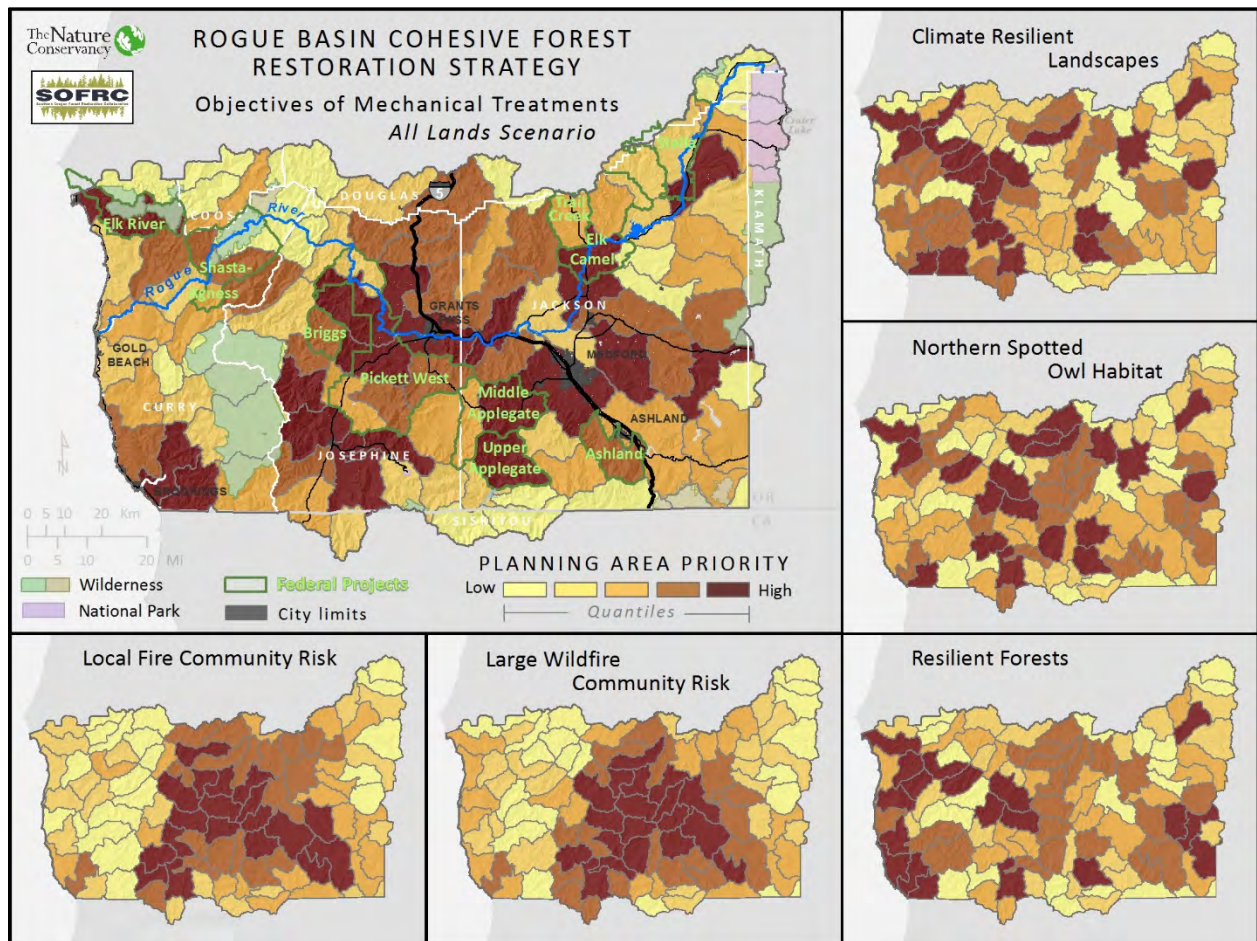


Figure 4.3. Priority planning areas for mechanical treatments to achieve the five landscape scale objectives under an all-lands scenario; higher browns indicating greater priority. The larger map shows the priority if all landscape objectives are maximized in a single entry with ongoing federal planning projects overlaid in green. Side panels indicate planning area priority for the five objectives separately. Figure source: The Nature Conservancy.

Agencies like the USFS have long-term fuel projects already developed for their lands under their existing plans, so there may be a time lag in the adoption of RBS projects in the short term, but the

strategy described above for prioritizing future work will be considered by all agencies working within Jackson and Josephine counties when developing new fuel mitigation projects. Both Jackson and Josephine counties agreed that the All-lands Scenario best reflects the National Cohesive Wildland Fire Management Strategy, and it will be incorporated into this RVIFP to help inform and guide future fuel mitigation projects. A strict ranking of planning areas has not been provided by the RBS. Instead, a robust restoration framework and data are provided to facilitate evaluation of potential projects on a case-by-case basis. To facilitate this, summarization of RBS metrics (e.g. total acres, treatable and accessible acres, and performance on objectives) for all 96 planning areas are in factsheets available from TNC.¹⁸⁹

Appendix C provides summary sections of the full RBS report that help explain the process employed to derive the results above. The full report is available from the Nature Conservancy.¹⁹⁰

Regional Quantitative Risk Assessment

Similar to the risk assessment conducted for the RBS, an Oregon State Office (USFS/BLM) coordinated regional (OR & WA) quantitative risk assessment (QRA) is under way. This effort is being implemented in an integrated fashion with multi agency staff from Natural Resources and Planning. The intent is to involve inter-agency partners from multiple disciplines and cover all lands. The effort is designed to be complimentary to the RBS but at a lower resolution.

Potential applications of the QRA include:

- informing the forest plan revision process by incorporating positive and negative effects of wildfire to Highly Valued Resources and Assets (HVRAs) into ecological effects analysis;
- incorporating results into fire management planning and actions with spatial fire planning in the Wildland Fire Decision Support System;
- strengthening and developing partnerships;
- identifying priority areas for fuel treatment;

¹⁸⁹ The Nature Conservancy Fact Sheets, available online at: <https://tnc.box.com/s/43wdsykogna8jd0pqh7fkwy85njy1fi1>.

¹⁹⁰ Metlen, K. L., D. Borgias, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, C. Zanger, M. Bennett, B. Moody, and E. Reilly. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR. Available online at: <https://tnc.box.com/s/k8kel1cww1i3oo4ru55lc1dv7xpyuob>.

- enabling allocation of hazard fuel and preparedness funds based on values at risk both at the unit and regional scale;
- overlaying the positive and negative wildfire effects to HVRAs with active wildfire simulations to quantify risk more accurately; and
- providing a base analysis to enable discussions about our existing suppression resources and dispatch locations.

5 RVIFP GOAL 1- RESTORE AND MAINTAIN LANDSCAPES AND FUELS MANAGEMENT

Fire planning in the Rogue Valley has always been a collaborative venture. Fire plan partners have been operating with an “all hands, all lands” approach to achieve planning goals since long before the National Cohesive Wildfire Strategy (2009). Fire plan partners felt strongly that this plan’s goals should be evaluated for alignment with the national Cohesive Wildfire Strategy and the Western Regional Action Plan as outlined in Chapter 1, Table 1.2. The goals and recommendations outlined in Table 1.2 are developed and discussed further in the following chapters- 5, 6 and 7, which align with CWS/WRAP Goals, 1, 2 and 3.

Goal 1 of the CWS/WRAP is:

Restore and Maintain Landscapes: Landscapes across all jurisdictions are resilient to fire and other disturbances in accordance with management objectives.

“Sustaining landscape resiliency and the role of wildland fire as a critical ecological process requires a mix of actions that are consistent with management objectives. The West will use all available methods and tools for active management of the landscape to consider and conserve a diversity of ecological, social, and economic values. The West will coordinate with all partners and seek continued stakeholder engagement in developing market-based, flexible and proactive solutions that can take advantage of economies of scale. All aspects of wildland fire will be used to restore and maintain resilient landscapes. Emphasis will be placed on protecting the middle lands near communities.” Western Regional Action Plan (2013), page 14.

Fuels management of public and private land in the WUI is the key to the survival of homes during a wildfire event as well as the means to meet the criteria of Goal 1. The importance of fuels management is reflected in forest policy at the federal level, with the Healthy Forests Restoration Act (HFRA) requiring that federal land management agencies spend at least fifty percent of their fuels reduction funds on projects in the WUI.

The checkerboard nature of southwestern Oregon has led to the conclusion that landscape-scale fire risk mitigation and effective implementation needs to be considered an “all-lands” endeavor to achieve landscape-scale success. To meet HFRA requirements, the RVIFP must be developed in collaboration with interested parties and local federal officials, and be signed by the local government, local fire

department, and state forestry agency. Identification and prioritization of fuels reduction areas in and around the community, along with recommendations to make homes less flammable are also required.

5.1 FUEL CONDITIONS

As described previously (Section 3.4), the dry forests of southwestern Oregon were maintained historically by frequent low- and mixed-severity fires. Fires were relatively small and typically constrained by lack of fuel from preceding burns and rugged topography.¹⁹¹ A patchy mosaic of dense and open stands prospered. However, a recent study of restoration need across the frequent fire forests of Oregon and Washington highlights the fact that the forests of southwestern Oregon are now in need of restoration to mitigate potential catastrophic wildfire and associated impacts.

5.2 POTENTIAL IMPACTS OF CATASTROPHIC WILDFIRE IN DRY FOREST TYPES

Large wildfires burning under current fuel conditions in the region are expensive to suppress and mitigate, and are costly to local communities, local industry, and natural resources. Existing dense stand structures leave stands vulnerable to intense crown fires that spread readily through the canopy. Crown fires result in significant tree mortality, forest fragmentation and habitat loss. High severity wildfire also affects soil properties and elevates erosion potential.^{192 193} Increased run-off following severe wildfire can cause mud slides and sedimentation to water bodies. Wildfires release large amounts of carbon through combustion and through subsequent decomposition.¹⁹⁴

5.3 PRINCIPLES OF FIRE RESISTANCE FOR DRY FORESTS

Dry forests, typical of large areas of the Rogue Valley, are in need of active management to mitigate the severe effects of wildfire described above. Wildfire behavior is clearly linked with stand structure, so fuel-reduction treatments are a logical approach to reduce extreme fire behavior.¹⁹⁵ The principal goal of fuel-reduction treatments is to reduce fireline intensities (heat release per unit distance per unit

¹⁹¹ Taylor and Skinner 1998: [https://www.fs.fed.us/psw/publications/skinner/psw_1998_skinner\(taylor\)001.pdf](https://www.fs.fed.us/psw/publications/skinner/psw_1998_skinner(taylor)001.pdf)

¹⁹² Thompson, J., & Spies, T. 2010. Factors associated with crown damage following recurring mixed-severity wildfires and post-fire management in southwestern Oregon. *Landscape Ecology* 25(5): 775-789.

¹⁹³ DeBano, L.F. 1996. The Effect of Fire on Soil Properties. In: **GTR-INT-280 – Proceedings—Management and Productivity of Western-Montane Forest Soils**, April 10–12, 1990, Boise, ID, USDA Forest Service General Technical Report INT-280, August 1991.

¹⁹⁴ Miller, J. D., Safford, H. D., Crimmins, M., Thode, A. E. 2009. Quantitative Evidence for Increasing Forest Fire Severity in the Sierra Nevada and Southern Cascade Mountains, California and Nevada, USA. *Ecosystems* 12: 16-32.

¹⁹⁵ Rothermel, R.C. 1991. Predicting behavior and size of crown fires in the Northern Rocky Mountains. Res. Pap. INT-438. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 46 p

time), reduce the potential for crown fires, improve opportunities for successful fire suppression, and improve the ability of forest stands to survive wildfire.^{196 197} Table 5.1 provides a set of well-established principles for increasing fire-resistance in these dry forest types. The principles were established based on knowledge of fire behavior, in particular crown fire initiation and crown fire spread.¹⁹⁸

Table 5.1. Principles of fire resistance for dry forests (adapted from Agee and Skinner 2005).

PRINCIPLE	EFFECT	ADVANTAGE	CONCERNS
Reduce surface fuels	Reduces potential flame length	Control easier; less torching	Surface disturbance less with fire than other techniques
Increase height to live crown	Requires longer flame length to begin torching	Less torching	Opens understory; may allow surface wind to increase
Decrease crown density	Makes tree-to-tree crown fire less probable	Reduces crown fire potential	Surface wind may increase and surface fuels may be drier
Keep big trees of resistant species	Less mortality for same fire intensity	Generally restores historic structure	Less economical; may keep trees at risk of insect attack

5.4 FOREST MANAGEMENT STRATEGY

Across the 4.6 million acres analyzed by the Rogue Basin Strategy (RBS), 4 million acres are vegetated and support forests where thinning would be appropriate (s-class B or E, fire regime I or III), 51% (2.1 million acres) are excess closed forests that should be opened up through thinning and/or fire.¹⁹⁹ To correct the current condition, many types of treatments may be used to restore fire-adapted forests and woodlands and to promote resilient landscapes. Treatment can be focused on promoting fire-resistant stands dominated by large, fire-tolerant tree species while retaining variation in forest density and species composition at the landscape scale, strongly informed by topography and other factors that historically would have promoted open or closed forest attributes.^{200 201 202} Treatments would help maintain both open and dense habitats on the landscape, sustain ecosystems, and contribute in multiple

¹⁹⁶ Peterson, David L.; Johnson, Morris C.; Agee, James K.; Jain, Theresa B.; McKenzie, Donald; Reinhardt, Elizabeth D. 2005. Forest structure and fire hazard in dry forests of the Western United States. Gen. Tech. Rep. PNW-GTR-628. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 30 p.

¹⁹⁷ Agee, J.K. 2002. The fallacy of passive management: managing for firesafe forest reserves. *Conservation Biology in Practice*. 3: 18–25.

¹⁹⁸ Agee, J.K. and C.N. Skinner. 2005. Basic Principles of forest fuels reduction treatments. *Forest Ecology and Management*. 211: 83-96. [https://www.fs.fed.us/psw/publications/skinner/psw_2005_skinner\(agee\)001.pdf](https://www.fs.fed.us/psw/publications/skinner/psw_2005_skinner(agee)001.pdf)

¹⁹⁹ Haugo, R., C. Zanger, T.DeMeo, C.Ringo, A. Shlisky, K. Blankenship, M. Simpson, K. Mellen-McLean, J. Kertis and M. Stern. 2015. A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. *Forest Ecology and Management*. Volume 335. 37-50: <http://www.sciencedirect.com/science/article/pii/S0378112714005519>

²⁰⁰ J.F. Franklin, K.N. Johnson A restoration framework for federal forests in the Pacific Northwest *J. For.*, 110 (2012), pp. 429–439.

²⁰¹ Hessburg, P. F., D. J. Churchill, A. J. Larson, R. D. Haugo, C. Miller, T. A. Spies, M. P. North, N. A. Povak, R. T. Belote, and P. H. Singleton. 2015. Restoring fire-prone Inland Pacific landscapes: seven core principles. *Landscape Ecology* 30:1805-1835.

²⁰² Hessburg, P. F., T. A. Spies, D. A. Perry, C. N. Skinner, A. H. Taylor, P. M. Brown, S. L. Stephens, A. J. Larson, D. J. Churchill, and N. A. Povak. 2016. Tamm Review: Management of mixed-severity fire regime forests in Oregon, Washington, and Northern California. *Forest Ecology and Management* 366:221-250.

ways to human well-being, including increasing safe fire management options and generating material and jobs important to local economies.

The RBS described in Section 4.1.1 is integral to updating the RVIFP, and informing CWPPs in the region. The basin-wide, landscape-level strategy is needed to identify and prioritize treatments to improve resiliency and protect important community values. This strategy could focus investments where there is community agreement to meet multiple objectives, and where the greatest benefits can be achieved. The strategy would help identify and prioritize CWPP project areas. Support should be provided to the current effort underway by agencies and several collaborators to develop a landscape assessment and strategy.

As mentioned in Chapter 4, the RBS compares three alternative management strategies over a 20-year period. The first is “business as usual” where approximately 150,000 acres of combined fuels and timber projects are treated. The second proposes an increase of fuels treatments to approximately 0.9 million acres across the 2.6 million acres of federal USFS and BLM lands. The third takes an all-lands approach to increase fuels treatments over 20 years to approximately 1.1 million acres on project areas that span jurisdictions across federal, state, county, city, and private lands.

The alternatives are compared on how well they:

- reduce overall wildfire risk;
- reduce risk to community assets;
- restore resilient landscapes;
- promote and protect Northern Spotted Owl habitat; and
- deliver sustainable timber volume to local mills to achieve restoration goals and support resilient communities.

The goal of the RBS is to optimally promote resilient landscapes, fire-adapted communities, and diverse habitats while improving suppression effectiveness, and increasing the use of “good” fire on the landscape where appropriate to do so. During modelling runs, implementation of the All Lands scenario reduced wildfire risk to homes by 50%, and was most effective at reducing wildfire risk to all values. Northern Spotted Owl habitat was best protected by the All Lands scenario, reducing wildfire risk to high quality Northern Spotted Owl habitat by 47%. Thinning to restore open forests did downgrade some

Northern Spotted Owl habitat, but it was on ridges and warm mid-slopes, and was associated with modest improvements in landscape resilience.

The economic analysis of the RBS focused on the Maximum Federal strategy, which would treat 0.9 million acres over 20 years. This would require an annual investment of \$34 million to implement the mechanical treatments and treat associated fuels with pile burning. In addition to reductions in wildfire risk, the work would generate an estimated 66 million board feet of merchantable timber, 1700 direct and indirect jobs, \$65 million in local wages, and over \$260 million in local economic output every year.

This plan, following discussion among the members of its Core Team, will adopt the “all lands” goal of treating 1.1 million acres within the Rogue Basin within the next 20 years. Work associated with the attainment of this goal will be accompanied by public involvement, interagency coordination, and appropriate environmental compliance procedures. It is important to note that management approaches will vary depending on land ownership, and application of different techniques should be based on the specific designations of those lands.

With robust protections for species that are dependent on complex habitats, an increase in active management levels generates ecosystem benefits, forest products, and associated economic outputs as well as attendant social benefits. The RBS strives to promote and conserve critical closed-canopy, old, complex forest habitats in appropriate landscape positions, restore open fire- and drought-resilient stands in intervening areas, and encourage a fire-adapted landscape that emphasizes fuels reduction around communities in the public-private interface.

5.5 FUEL TREATMENT METHODS

5.5.1 Fuel Breaks and Open Space Cleanup near and within the Wildland Urban Interface (WUI)

Priority areas for fuels treatments should focus on where the community meets the wildland. This may be the outer margins of a town, infrastructure in the wildland necessary to support community access and response to events in the wildland, or an area adjacent to open spaces such as parks.

Fuel breaks (or shaded fuel breaks) are strips of land where fuel (i.e., trees and brush, dead branches, needles, or downed logs) has been modified or reduced to limit fire’s ability to spread rapidly and/or to reduce fire intensity. Fuel breaks should not be confused with fire breaks, which are areas where

vegetation and organic matter are removed down to mineral soil. Shaded fuel breaks may be created to provide better options for suppression resources through increased defensible space, opportunities to introduce prescribed fire, or to create a zone where crown fire will be forced to the ground where it can be more easily contained. In many cases, shaded fuel breaks may be created by thinning along roads. This provides access for firefighters and enhances the safety of evacuation routes.

Land managers are cautioned, however, that fuel breaks will not always stop a fire under extreme fire behavior or strong winds; fuel breaks should only be seen as mitigating measures and not fail-safe methods for fire containment.

It is not possible to provide a standard treatment prescription for the entire landscape because fuel break dimensions should be based on local fuel conditions and prevailing weather patterns. For example, in some areas, depending on the width of a particular fuel break, shrubs may need to be removed or cut in mosaics to reduce fire intensity and spot fire potential. In other areas, clearing an area too wide could open the landscape to strong winds that could generate more intense fire behavior and/or create wind throw. Opening up the canopy within fuel breaks may also risk allowing finer or flashier fuels to develop, which could result in higher rates of spread, but with lower intensity and less resistance to control.

The following are features common to many fuel breaks that can be modified for site-specific conditions:

- Reduce ladder fuels by pruning branches of trees from the ground surface up to a height of four to eight feet, depending on the height of the fuel below the canopy.
- Remove/thin trees less than ten inches in diameter down to an acceptable stocking level to reduce fire intensity and spread potential while ensuring the desired future stand structure.
- Thin larger diameter trees in dense stands to a spacing of up to two to three times the average tree height to avoid movement of an active fire into the trees.
- Remove and/or pile and burn excessive dead and downed fuels, as feasible.
- Favor shade-intolerant/fire-tolerant species such as ponderosa pine over shade-tolerant/fire intolerant species such Douglas-fir through removal of dense vegetation.
- Break up continuous shrub fuels by removing or cutting into mosaics.

- Dispose of debris through pile burning, chipping, scattering, hauling away, or other method.

Strategic placement of fuel breaks is critical to prevent fire from moving from wildlands into adjacent neighborhoods (Figure 5.1 and Figure 5.2). A fuel break of 100 to 300 feet in shrubland should modify fire behavior significantly enough to allow suppression by firefighters. It is important to note, however, that shrub fuels are often replaced by grassland fuels in shrubland fuel breaks. Rates of spread could be faster in these grassland fuels, but fireline intensity (heat produced per fireline foot per second) will be reduced.



Figure 5.1. Pre-fuel break treatment
Credit: Joseph D. Hyatt



Figure 5.2. Post-fuel break treatment

Lower intensity may allow for more effective suppression, however, faster rates of spread will make suppression resource response time more critical. For effective management of most fuels, fuel breaks should be prescribed based on conditions in each particular treatment area. Some examples of this would be to place fuel breaks in areas where fuels are heavier, along ridgetops to take advantage of favorable topography, and/or in areas with easy access for fire crews.

5.5.2 Forest Road Access

Forest roads provide vital access for firefighters battling fires in the WUI and beyond. Both the USFS and the BLM have programs that detail the maintenance of forest roads, brushing along the roads to aid in visibility, and the removal of hazard trees. The level of maintenance performed depends on the classification of the road. Continued road maintenance for reduced sediment and greater visibility

increases public access and allows for expedited response by firefighters to manage or suppress wildfires.²⁰³

5.5.3 Larger-scale Treatments

Farther away from WUI communities, the emphasis and objectives of treatments often become broader. While reducing the build-up of hazardous fuels remains important, other objectives are often included, such as restoration of historic conditions, and forest health and resiliency. Wildfires frequently burn across jurisdictional boundaries and landscape scales. As such, larger treatments need to be coordinated on a strategic level. This requires coordination between projects and jurisdictions, as is currently occurring throughout both counties and with adjacent counties (Figure 5.3 and Figure 5.4).

Land managers have carried out numerous fuels reduction projects across the planning area and region, and have ongoing projects planned on public lands designed to reduce hazardous fuels to protect communities and resources. There remains a need to improve coordination among various jurisdictions and stakeholders in the timing, placement, and treatment objectives to improve their effectiveness in the restoration of forest resiliency and the mitigation of wildfire damage at a landscape scale. Where possible, stand management should mimic the pre-settlement condition. An example would involve high frequency, low intensity prescribed burning in a ponderosa pine stand.

²⁰³ USDA "Guidelines for Road Maintenance Levels" 7700-Transportation Management 1177 1811-SDTDC June 2012



Figure 5.3. Pilot Joe collaborative fuel treatment project, one year post treatment. Credit: BLM.



Figure 5.4. Pilot Joe Project, treated landscape view. Credit: BLM.

5.5.4 Commercial Timber Management

The State of Oregon dominates U.S. production of softwood lumber and plywood as well as engineered wood. The industry is an important part of local economies. Additionally, Oregon forests are integral to Oregon residents' way of life, as they provide natural resources and recreation. Wildfire threatens communities through the loss of valuable timber and resulting impacts on timber industry jobs. In addition to the loss of timber and replanting costs following a fire, wildfire can affect industry through losses to equipment and infrastructure, and may result in rehabilitation costs related to site preparation and erosion control. The economic benefits of forest restoration and importance of a forest management infrastructure (processing capacity, skilled workforce) are recognized and supported by the local population.²⁰⁴

In the Rogue Valley, active timber management as part of the commercial timber industry is a key component of the management of local forests and can be used as one part of fuel management.

Policy Nexus

Forest Practices Act

The Oregon Forest Practices Act of 1971 sets standards for all commercial activities involving the establishment, management, or harvesting of trees on Oregon's forestlands.²⁰⁵ ODF is responsible for enforcing the FPA rules for forest practices, the rules are set by the Oregon Board of Forestry, and they are adapted regularly in response to new scientific findings and evolving public needs and interests.²⁰⁶

O&C Lands Act

The Oregon and California Railroad Revested Lands (O&C Lands) occur throughout 18 counties in western Oregon, in a checkerboard arrangement. The lands comprise 2.4 million acres of forest. The O&C Lands Act of 1937 classified the lands as timberlands to be managed for permanent forest production and the timber was to be sold, cut, and removed in conformity with the principle of sustained yield management for the purpose of providing a permanent source of timber supply (43 *U.S.C. 1181a*). The Act also provided for protecting watersheds, regulating stream flow, contributing to

²⁰⁴ The Contours of the Support for Forest Restoration in Southwest Oregon: <http://sofrc.org/wp-content/uploads/2015/05/Illinois-Valley-Timber-Assessment.pdf>

²⁰⁵ Forest Practices Act- ODF: <https://www.oregon.gov/ODF/Working/Pages/FPA.aspx>

²⁰⁶ ODF- Forest Practice Administrative Rules and Forest Practices Act: <https://www.oregon.gov/ODF/Documents/WorkingForests/FPARulebook.pdf>

the economic stability of local communities and industries, and providing recreational facilities.²⁰⁷ The O&C Lands Act stated 50 percent of receipts from the sale of O&C timber was to be distributed among the 18 O&C counties, however, in 1952-1953, the O&C Act was amended, with the support of the counties, to provide for a distribution of 50 percent of the receipts to the county, with the remaining 25 percent of the counties original portion of the distribution to be dedicated to maintaining the O&C lands to facilitate permanent forestland production.

In the late 1980's controversy increased over the harvest of public timber in the Northwest and Congress recognized that reduced timber sale volume would cause financial uncertainty for O&C counties. In 1994 the Northwest Forest Plan was established to provide a stable supply of timber, and production of fish and wildlife habitat, for millions of acres of federal forest in the Pacific Northwest Region. Since 2000, payments to O&C counties have been legislated under the Secure Rural Schools and Community Self Determination Act and successor legislation.

Sustained Yield Management

The principle of sustained yield, under the O&C Act, is for harvesting at a rate that is in balance with, and does not exceed, the growth rate of the forest.²⁰⁸

“The O&C Act was the first federal statute that regulated the rate of harvest to ensure a perpetual timber supply and a full range of forest values for future generations. Sustained yield management of the O&C forest can produce an everlasting supply of wood products while simultaneously providing clean water, a broad range of wildlife habitats, carbon storage and ample recreation opportunities. Sustained yield management provides economic benefits for all citizens: funding for vital community services, thousands of family-wage jobs and the ability to maintain necessary industrial infrastructure. Sustained yield management of the O&C forest is vital to the fabric of rural communities in western Oregon.”

(Association of O&C Counties website).

Several management practices may be applied under Sustained Yield Management in the region:

²⁰⁷ O&C Lands Act Flyer: <https://www.blm.gov/or/rac/files/Oregon%20Flyer.pdf>

²⁰⁸ O&C Counties: <http://www.oandc.org/o-c-lands/sustained-yield-forestry/>

Regeneration Harvest

Regeneration Harvest can occur with or without tree retention. Regeneration Harvest with tree retention matures to a multi-aged stand with more complex forest conditions and more rapid return to Northern Spotted Owl habitat conditions.

Regeneration Harvest without tree retention, otherwise known as a 'clear cut' is the most economical method of harvest, and maximizes volume production, but creates a single story, single aged stand. Opinion surveys carried out in the area have found little public support for clear-cut treatments in dry forests of southwestern Oregon²⁰⁹, however advocates suggest this type of management is appropriate in lodge pole pine stands that regenerate by releasing their seeds through high intensity, low frequency stand replacement fires. In this scenario, a clear-cut mimics the natural stand condition and creates a mosaic pattern in the forest. These mosaic patterns can act as a natural fuel break.

Commercial Thinning

Commercial thinning can be used as an intermediate harvest to improve tree growth or to expedite structural complexity. Trees are removed from the understory to improve growing conditions for residual trees. This treatment improves forest resiliency to insect, disease, and drought by reducing competition. Treatments to improve structural complexity involve the harvest of a range of sizes of trees to increase structural diversity. The openings created increase botanical diversity within the understory.

Density Reduction with Fuel Reduction

Density reduction can be used to make a stand more resilient to wildfire by reducing fuel loading (the volume of fuels that could contribute to wildfire intensity and spread). This approach is applicable to the dry forest types in the project area. Stands are treated by the removal of commercial sized trees, and cutting, burning, and removal of non-commercial trees.

Uneven Aged Management

Uneven aged management is designed to create a stand with multiple -ages of trees (Figure 5.5). This approach increases forest resiliency by increasing spacing between tree crowns, and is appropriate where emphasis is on retention of older forest stands (which is essential for the long-term overall health

²⁰⁹ The Contours of Support for Forest Restoration in Southwest Oregon: <http://sofrc.org/wp-content/uploads/2015/05/Illinois-Valley-Timber-Assessment.pdf>

of the stand). Diameter limits are generally seen as sideboards that help facilitate successful project implementation.²¹⁰



Figure 5.5. Uneven-aged management. Credit: Association of O&C Counties.

Uneven Aged Management with “Gap” Openings

Similar to uneven aged management, this approach creates open gaps that are regenerated with younger stands. This practice helps retain areas of older forest, but also promotes younger growth. Surveys indicate legacy tree retention at stand and landscape scales is broadly supported by the public.²¹¹

Individual Tree Selection

This practice targets harvest of individual trees within a stand, creating minimal impact on the overall stand structure. Small openings can be created, which increases stand diversity.

Cycle of Management

The rotation of management and the cycle of harvest influence the overall structure of a stand. The cycle of harvest is used to meet certain management objectives. These include:

²¹⁰ Ibid

²¹¹ Ibid

Economics

Economic objectives are a key part of the management of O&C Lands. The intensity of production will differ from private industrial lands managed purely for economic objectives and maximizing return of investments. Private industrial lands, therefore, are typically managed with shorter harvest rotations (<50 years) than O&C lands. The southwestern Oregon timber industry requires a predictable timber sale program on federal and state lands to maintain a viable forest products industry on which this economy is based. Without a stable timber supply, the timber industry in the region cannot make the necessary investments to remain competitive in the marketplace. Economic viability depends on designing harvest units around high volume and high quality stands. The infrastructure and expertise of both small and large contractors are essential to accomplishing management objectives determined by the landowners. There are currently only three large mills in the area with an average haul distance from approximately 50 to 100 miles. As infrastructure is lost and haul distances increase, trucking costs become a prohibitive factor when considering the economic viability of an individual project.

Volume

Maximizing timber volume output depends on the biological capacity of the forest, which in turn depends on site conditions and individual species. The age of maximum productivity is used to establish the minimum harvest age to maximize timber volume. For O&C forests this age of peak production typically occurs around 80-150 years. The O&C Act calls for a minimum harvest of 500 million board feet per year (which is approximately 40% of the annual volume produced).²¹²

Complex Forest Conditions

Managing for complex forest conditions can take time (approximately 80 years), however, active management can create these conditions more expeditiously through tree retention, uneven-aged management, and planting of seedlings. A balance between the long-term viability of the forest will sometimes conflict with the short-term need for action. For example, a constructed fuel break in the WUI may supersede the need for retention of old growth.

²¹² <http://www.oandc.org/o-c-lands/sustained-yield-forestry#!/management-practices>

Riparian Habitats

Managing riparian areas often requires different practices to protect riparian habitat and water sources. Retention of larger trees is important for maintaining habitat conditions for fish in streams and rivers. Intermediate harvest is often used to reduce density and improve resiliency of larger mature trees. Riparian management is critical to minimize damage by wildfires within these habitats. A wildfire has the potential to wipe out riparian zones and severely degrade water quality. The amount of sediment entering a stream due to a careful harvesting operation can be much smaller than the potentially massive amounts of sediment that may be moved due to the loss of riparian vegetation following a wildfire.

Current Harvest on O&C Lands

According to David Schott (Executive Vice President of the Southern Oregon Timber Industries Association), federal land managers are not keeping pace with the annual growth of forests within the O&C lands of the Rogue Valley. He states that when stands become overstocked, there is a loss of trees to insect and disease, and increased potential loss from large wildfires. This places WUI communities and private inholdings at risk (personal communication, David Schott, April 2017).

The O&C Association (representing 17 counties) is continuing to pursue sustained yield management on the O&C lands to ensure that the minimum harvest of 500 million board feet per year (as determined under the O&C Lands Act) is met. Current management of BLM lands is falling below these volume objectives, and discussions continue between all parties to resolve this issue.²¹³ Both counties are concerned that threats to the supply of timber from O&C lands is affecting the ability of the timber industry in the region to be sustainable.

Oregon Department of Forestry Policy

The Oregon Department of Forestry's mission is to *'Serve the People of Oregon by protecting, managing, and promoting stewardship of Oregon's forests to enhance environmental, economic and community sustainability.'*

The major program activities of ODF include:

- Protection from Fire- prevention, detection, suppression, smoke and fuels management.
- Private Forests- administering the Oregon Forest Practices Act.

²¹³ Association of O&C Counties: <http://www.oandc.org/o-c-lands/sustained-yield-forestry/#regeneration-wtreeretention>

- State Forests Management- managing acres of state forest land for revenues from timber harvests, water quality, and recreational educational opportunities.
- Urban and community forestry- planting, care, and management of trees in the community.
- Agency administration- policy direction and management control of department activities.

Under the Southwest Oregon (SWO) State Forest Management Plan (FMP) and the Southwest Oregon District Implementation Plan, the objectives for the SWO District are to maintain the high level of biodiversity exhibited throughout the landscape as well as provide for economic and social sustainability in the future.²¹⁴

The SWO District manages its timber management lands through administering timber sales. For example, the SWO Annual Operating Plan for 2017 includes two main timber sales and one alternate. The two timber sales will produce 1.83 million board feet of timber from 213 acres (1.2% of the land-base) and will include a combination of selective thinning, partial cuts, and clear cuts. Timber treatments on ODF lands are designed to move stands towards agency-desired future conditions through the retention of all “legacy” forest components (snags, down wood, old growth trees); the retention of the majority of the overstory; and, utilization of a variety of residual densities and small open patches, site preparation, and under-planting of a variety of forest tree species. In addition, the structural components of snags and downed wood will be created where deficiencies exist.

The SWO District also continues to develop and maintain a low impact transportation system for the management of SWO State Forests.

For more information regarding the strategies used to manage state forests in southwestern Oregon, refer to the Southwest Oregon State Forest Management Plan (April 2010).

Rogue River-Siskiyou National Forest- Timber Management

Timber harvested from the Rogue River-Siskiyou National Forest contributes to the local timber supply of the Rogue Valley. The principal merchantable timber species on the national forest are Douglas-fir, ponderosa pine, white fir and Shasta red fir. Timber management on USFS lands is guided by policy outlined in the 1990 Rogue River-Siskiyou Land and Resource Management Plan (Forest Plan) which

²¹⁴ 2017 Southwest Oregon District ODF Annual Operating Plan:
<https://www.oregon.gov/ODF/Documents/AboutODF/2017AOPSouthwestOregon.pdf>

established the allowable sale quantity for timber and identified land suitable for timber management.²¹⁵ Timber harvests are scheduled only from lands that are considered suitable for timber harvest in management areas that include programmed timber harvest. Timber harvests use a range of silvicultural methods outlined in the Forest Plan. A schedule of timber sale offerings are updated annually by the forest; all prescribed timber harvests, reforestation, timber stand improvement, and related silvicultural methods are administered to be in compliance with forest plan direction.

Medford District of the Bureau of Land Management- Timber Management

Timber management on Medford District BLM lands is guided by the Southwest Oregon Resource Management Plan (RMP; August 2016).²¹⁶ This RMP was developed concurrently with, and informed by, the RBS. As such, a primary purpose of the RMP is to restore fire-adapted ecosystems. The RMP includes management direction to improve landscape resiliency by reducing fire risk and hazard on BLM-administered lands within the WUI and adjacent to highly valued resources and assets. The RMP also calls for management of fuels and wildfire response that is consistent with the National Cohesive Strategy. The RMP includes management direction to use uneven-aged management systems in an integrated vegetation management approach that includes selection harvesting and prescribed fire to create within- and between-stand diversity.²¹⁷

The RMP outlines the allowable sales quantity (ASQ or annual productive capacity) of O&C lands, accounting for the requirements of compliance with other laws and with consideration of the objectives, land use allocations, and management direction of the RMP, all of which affect the amount of timber that each of the sustained yield units can produce.

The ASQ for the Medford sustained yield unit is 37 MMbf (millions of board feet of timber) with as much as 40% variation on an annual basis (for example, on this unit the BLM will offer for sale between 22 and 52 MMbf annually, and between 260 and 480 MMbf on a decadal basis). All timber sales administered by the Medford BLM must be consistent with the management direction in the approved RMP. The revised RMP was developed to provide a more sustained yield of timber than was declared in the 1995 RMPs, and represents more than the BLM has been able to offer for sale in recent years. In addition to

²¹⁵ Rogue River -Siskiyou Land and Resource Management Plan, 1990:
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5315122.pdf

²¹⁶ Southwest Oregon BLM Resource Management Plan/Record of Decision. Aug 2016.
https://www.blm.gov/or/plans/rmpswesternoregon/files/rod/SWO_ROD_RMP.pdf

²¹⁷ Ibid.

ensuring a sustained yield of timber, the RMP must balance timber management with the conservation and recovery of threatened and endangered species, provide clean water in watersheds, restore fire-adapted ecosystems, provide recreational opportunities, and coordinate management with any adjacent tribal lands.

Private (Timber Industries and Private Land Owners)

Although private forested land acreages are dwarfed by public land ownership in the Rogue Valley, a number of large private companies do operate in both counties (Table 5.2. and

Table 5.3).

Table 5.2 *Top ten landowners/managers in Jackson County*

	ACRES	% OWNERSHIP
US BLM (O&C, PD, Other)	472,827	26.4%
US FOREST SERVICE	440,772	24.6%
WEYERHAEUSER COMPANY	61,382	3.4%
MURPHY TIMBER INVESTMENTS L	43,541	2.4%
AP TIMBER LLC	37,418	2.1%
JUNIPER PROPERTIES LLC	34,200	1.9%
INDIAN HILL LLC	28,606	1.6%
GREEN DIAMOND RESOURCE COMP	20,207	1.1%
HANCOCK TIMBERLAND X INC	18,852	1.1%
SILVER BUTTE TIMBER CO	17,865	1.0%

Table 5.3. *Top ten landowners/managers in Josephine County*

	ACRES	% OWNERSHIP
US FOREST SERVICE	422,162	40.6%
US BLM (O&C, PD, Other)	282,106	27.2%
JOSEPHINE COUNTY	33,063	3.2%
INDIAN HILL LLC	22,851	2.2%
PERPETUA FORESTS COMPANY	13,934	1.3%
PLUM CREEK TIMBERLANDS LP	8,714	0.8%
STATE OF OREGON	8,435	0.8%
SPALDING & SON INC/SPALDING TRUST, EPSIE L	8,212	0.8%
MURPHY TIMBER INVESTMENTS LLC	3,032	0.3%
DOHERTY, JACQUELINE M	1,648	0.2%

The private timber industries in Oregon generate the largest volumes of harvested lumber across the state (Figure 5.6). According to the Oregon Forest Resources Institute, 75% of Oregon’s timber production comes from forestlands owned by companies, families, and Native American tribes. Private forest industries are held to high standards of forest protection under the Oregon Forest Protection Act. As a result these private forest managers practice sustainable forest management by optimizing methods of reforestation, thinning, and fire and infestation prevention, while protecting natural resources such as water, and fish and wildlife habitats.²¹⁸

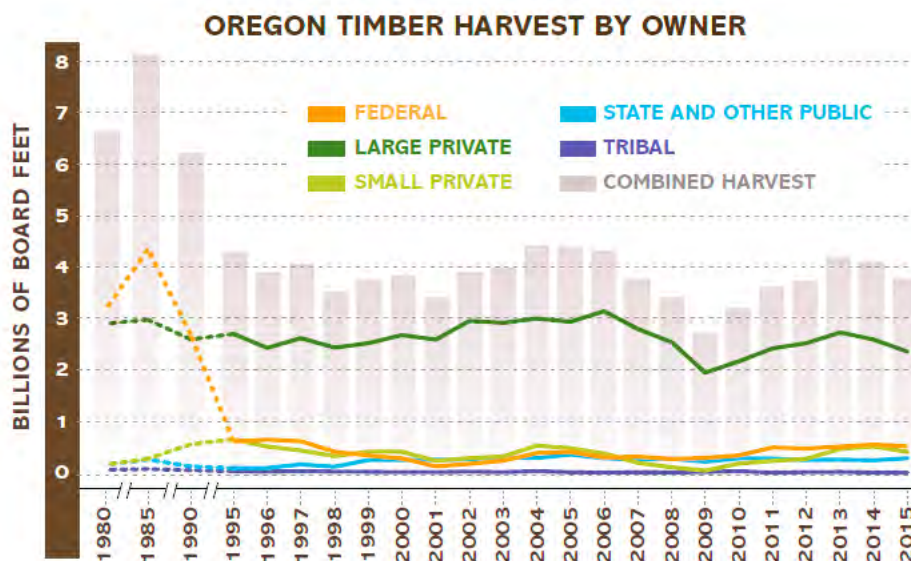


Figure 5.6. Statewide timber harvest volumes by owner. Source: ODF/Oregon Forest Resources Institute

A significant portion of private forest land is also managed by family forest landowners. At the state level, family forest landowners account for 15% of Oregon’s total forest land and 7% of the state’s timber harvest.²¹⁹ Private landowners use the Oregon Forest Protection Laws Guide for practical guidelines on forest practices.²²⁰

Timber Values at Risk

The total amount of timber harvested in Oregon has fallen substantially over the last century (Figure 5.7). The amount of timber harvested on private lands, however, has remained relatively steady, suggesting it

²¹⁸ Oregon Forest Resource Institute-Forest Economy: <http://oregonforests.org/content/growth>

²¹⁹ Know Your Forest: <http://knowyourforest.org/>

²²⁰ Oregon Forest Protection Laws: Second Edition: http://oregonforests.org/sites/default/files/publications/pdf/OR_For_Protect_Laws_2011.pdf

has been a decline in federal land harvest that has affected overall harvest volumes.²²¹ Data from 2014 suggest the harvests on federal lands that year were 15% of the levels harvested in the 1960's and 1970's.²²²

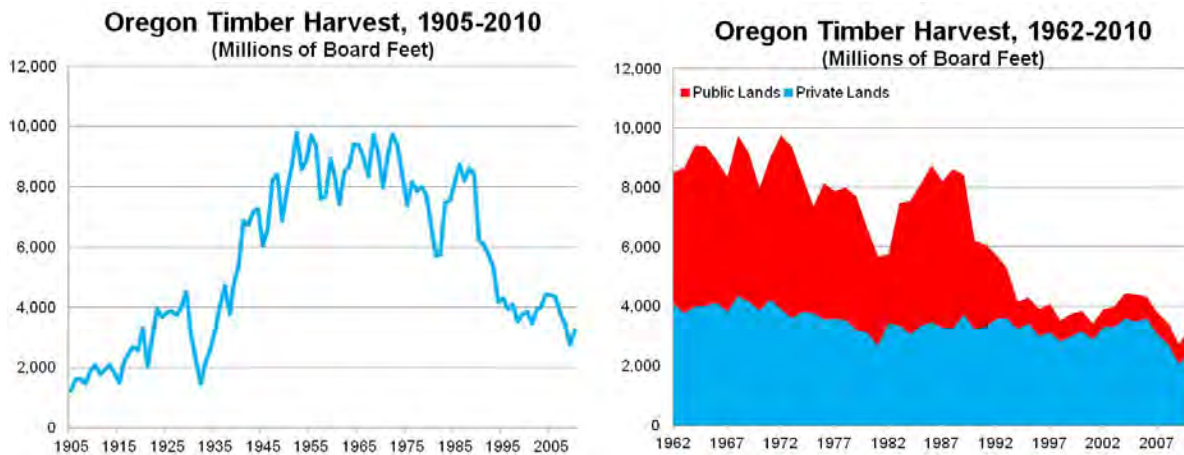


Figure 5.7. Oregon timber industry statistics from 1905-2010. Source: Oregon Office of Economic Analysis

Table 5.4 and Table 5.5 outline the number of board feet harvested in Jackson and Josephine Counties, by ownership (based on 2015 data provided by OFRI). Jackson County harvests significantly more board feet than Josephine County. Similar to statewide statistics, the majority of lumber is harvested from private lands in both counties, even though private lands account for a smaller portion of each county compared to federal ownership (Figure 5.8-Figure 5.11). The gulf in harvest volumes is because private lands manage their timber to optimize for volume and revenue while State and Federal lands manage for multiple objectives, including recreation, habitat and natural resource objectives mandated by federal and state policies.

Table 5.4. Jackson County timber harvest (2015) Source: OFRI

JACKSON COUNTY	TIMBER HARVEST (THOUSANDS OF BOARD FEET)
Federal	31,720
Large Private	57,840
Small Private	12,875
State and other Public	438
Tribal	0
Total	102,873
Forest Sector Jobs	4,674 (4.7% of county employment)

²²¹ Oregon Office of Economic Analysis: <https://oregoneconomicanalysis.com/2012/01/23/historical-look-at-oregons-wood-product-industry/>

²²² Ibid

Table 5.5. Josephine County timber harvest (2015) Source OFRI

JOSEPHINE COUNTY		TIMBER HARVESTS
		(THOUSANDS OF BOARD FEET)
Federal		9,647
Large Private		15,450
Small Private		4,319
State and other Public		3,452
Tribal		0
Total		32,868
Forest Sector jobs		1,775
		(5.8% of county employment)

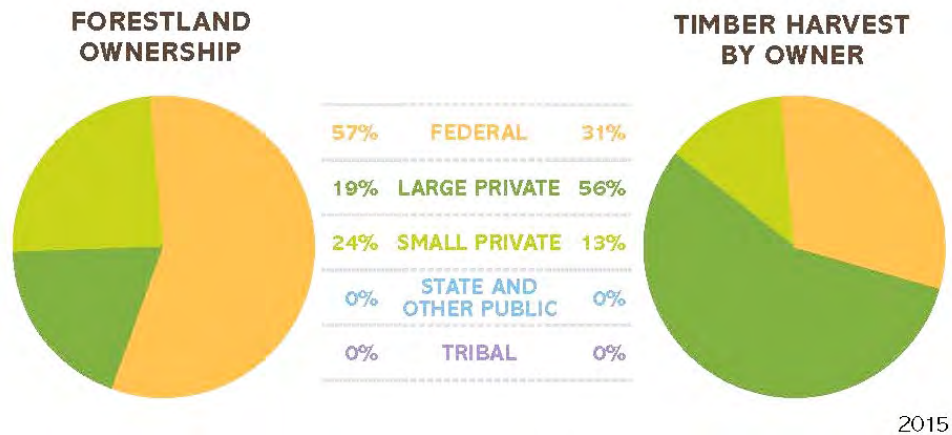


Figure 5.8. Jackson County harvest by ownership. Source: ODF/Oregon Forest Resources Institute

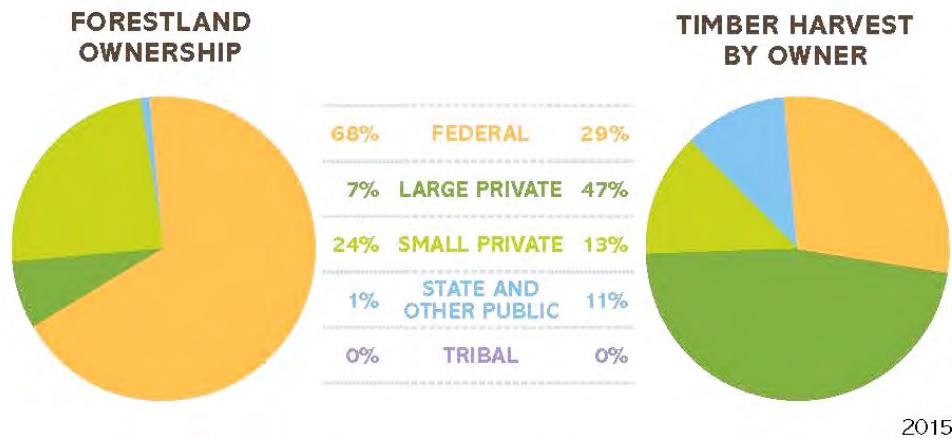


Figure 5.9. Josephine County harvest by ownership. Source: ODF/Oregon Forest Resources Institute

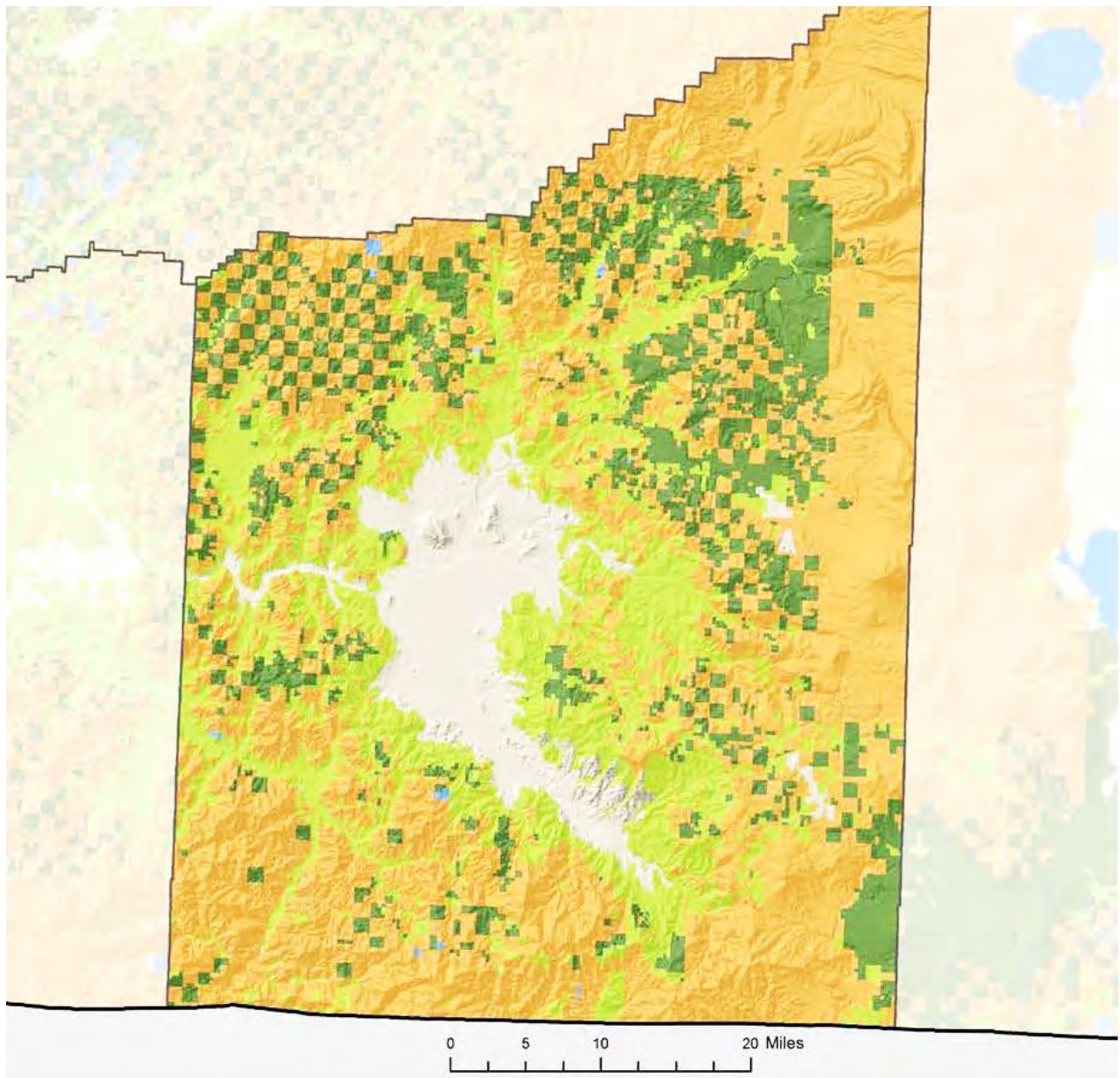


Figure 5.10. Jackson County forest ownership. Source: ODF/Oregon Forest Resources Institute

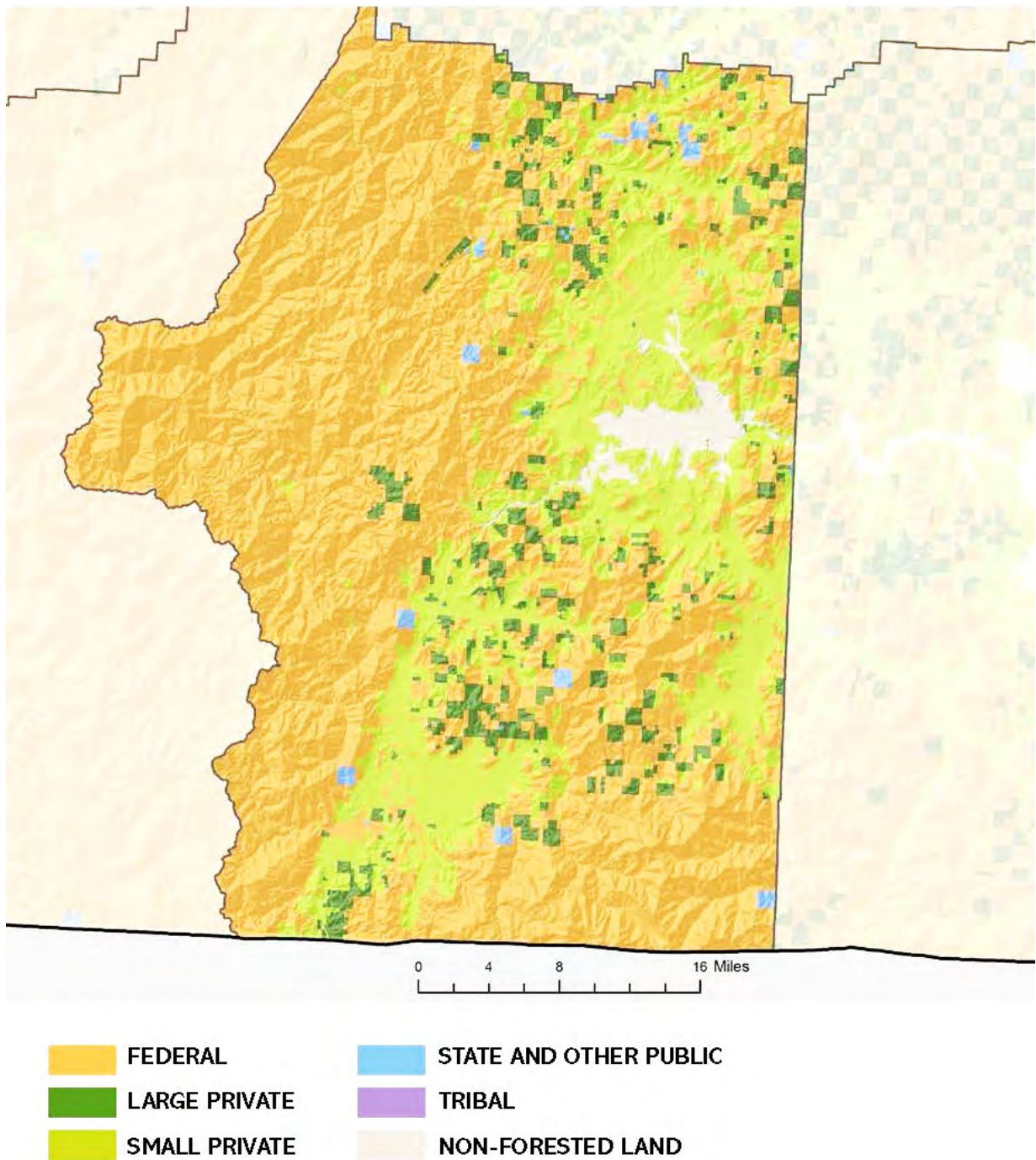


Figure 5.11. Josephine County forest ownership. Source: ODF/Oregon Forest Resources Institute

As well as lumber extraction, both counties have accompanying processing infrastructure to support the industry. Jackson County has eight wood processing facilities, five plywood/veneer plants, two board plants, and one engineered wood plant. Josephine County has only one plywood/veneer plant.

Declining timber harvests have significantly reduced wood product-related jobs since the 1980's (Figure 5.12).

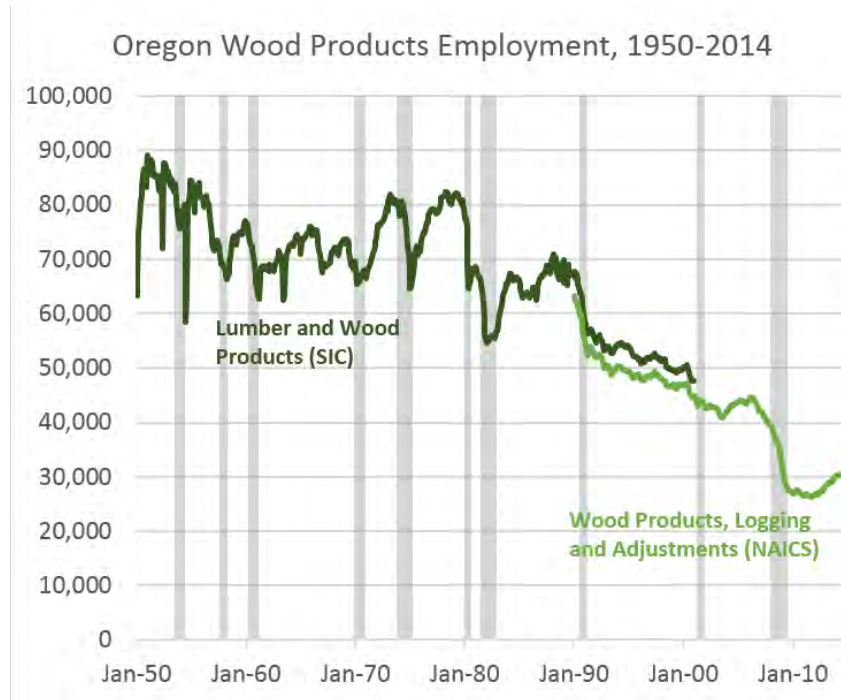


Figure 5.12. Employment in the timber industry – statistics from 1950-2014. Source: Oregon Office of Economic Analysis²²³

According to a 2014 Oregon Office of Economic Analysis report, the wood products industry in Oregon once had 70,000+ jobs that paid 30% more than the state average; but economic cycles, increased competition, increased productivity, and decreased timber harvests on federal lands have resulted in only 25,000 jobs that pay the state average (Figure 5.13).²²⁴

In Jackson County, forest sector jobs make up 4.7% of the county employment according to data from the Oregon Employment Department. Josephine County forest sector jobs are slightly higher at 5.8%, though smaller in total number relative to Jackson County (Table 5.4 and Table 5.5).

The Rogue Valley has been hit significantly by these declines. Timber harvest in the Rogue Valley is now far below a historical peak that was reached in 1972, when about 775 million board feet of timber were harvested.²²⁵ Data from 2014 show the Rogue Valley harvest level at that time was about 20 percent of

²²³ Ibid

²²⁴ Ibid

²²⁵ State of Oregon Employment Department- Rogue Valley Timber Harvest and Related Employment: <https://www.qualityinfo.org/-/rogue-valley-timber-harvest-and-related-employment>

the 1972 figure, at 157 million board feet. Recent data from each county (Figure 5.13 and Figure 5.14) show that Jackson County harvest reached a peak in 2002, then fell as the recession and the housing bust gripped the country. Josephine County harvests more than doubled between 2001 and 2005, only to sharply decline through 2010.

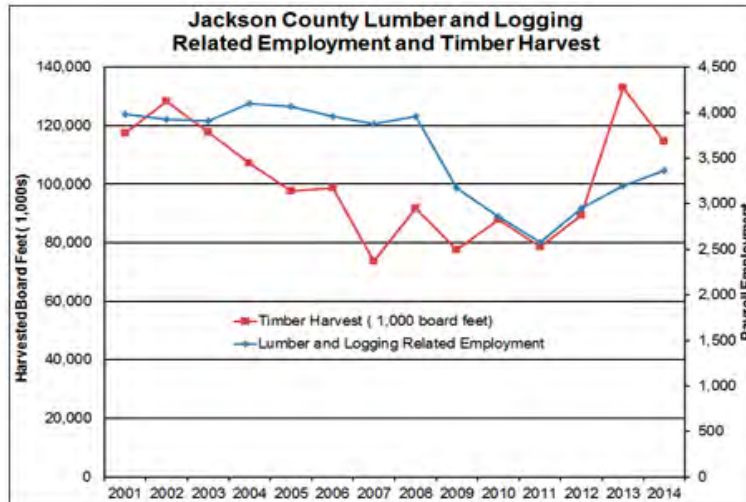


Figure 5.13. Jackson County harvest and employment data 2001-2014. Source: State of Oregon Employment Department.

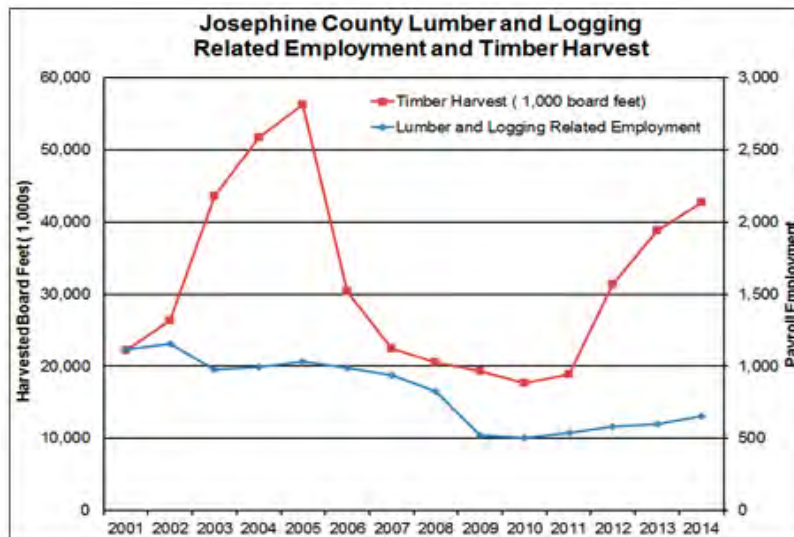


Figure 5.14. Josephine County harvest and employment data 2001-2014. Source: State of Oregon Employment Department.

In recent years, both counties have seen a slight growth in harvest volumes, with a 10.2% increase between 2013 and 2014, According to an assessment by economists:

"The parts of the (timber) industry that remain standing today are not only resilient, but are doing fairly well. The broader forest sector and related industries have added 5,000 jobs from 2010 through 2015 (statewide)." (Oregon Office of Economic Analysis, 2015).²²⁶

Wood products employment does not appear to be as volatile as harvests in either county, however numerous other jobs not accounted for in Figure 5.13 and Figure 5.14 also support the timber industry, and are affected by fluctuating harvest levels. The lumber and timber industries are heavily dependent on the housing market, the business cycle, competition for wood products, and with international competition. Further, the industry is susceptible to the prevailing political system and litigation.

The decline in federal land harvests led to the implementation of a number of different federal funding programs to assist rural communities for services like roads and schools in lieu of using tax revenue:

- Payments in Lieu of Taxes (PILT)
- Taylor Grazing Act Section 3 and Section 15
- 25% of the Forest Reserve Fund (Secure Rural Schools Community Self Determination Act)*
- Refuge Revenue Sharing Act Federal stewardship contracting also provides opportunities for local employment (see section below).

**Secure Rural School funding has been cut and the USFS will revert to making payments of 25 percent of the federal timber sale revenue from national forestlands generated in each county.*

Replanting costs

Under the Forest Practices Act, which governs private landowners, forestland managers must replant stands within two years of harvest or salvage. Planting helps reestablish forest stands, and can create layering and diversity of canopies. Initial planting serves to reforest following a clear-cut, patch cut, or severe wildfire. Inter-planting helps improve reforestation success when significant mortality results from wildland fire, animal browse, drought, freeze, or other event usually targeting only a portion of the stand. Under-planting creates multiple forest canopy layers while maintaining or improving overall stand health and diversity. In addition, each of these planting strategies has a target stocking level for the planted species. Regardless of the planting method/s used, the trees must be 'free to grow' after six

²²⁶ Rural Oregon, Analyzing demographic and economic trends across rural Oregon and a look ahead. <https://oregoneconomicanalysis.files.wordpress.com/2015/08/rural-oregon-2015.pdf>

years, meaning that the State Forester's determination that a tree or a stand of well-distributed trees of acceptable species and good form has a high probability of remaining or becoming vigorous, healthy, and dominant over undesired competing vegetation.²²⁷ According to the SWO District ODF AOP, the cost of seedlings and cost to plant them for initial plant and inter-planting combined is estimated to be \$283 per acre.²²⁸

Other timber management treatment approaches

Restoration Treatments

Restoration treatments to increase resilience of historically open-canopy forests to projected drought and fire have included goals to retain and release old trees; shift composition toward fire- and drought-tolerant species; restore fine- and meso-scale variation in tree, shrub, and herbaceous cover; reduce live tree density; increase mean tree diameter; protect and restore understory plant communities; and treat activity fuels (Fuels resulting from, or altered by, forestry practices such as timber harvest or thinning, as opposed to naturally created fuels).²²⁹

Restoration is defined in the 2012 Planning Rule to implement the National Forest Management Act as *“the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions.* (USDA, 2012)²³⁰

Stewardship Contracts

Stewardship contracts and agreements include both forest product removal and service work items. There are three types of stewardship contracts and agreements:

Integrated Resource Timber Contracts (IRTCs): used when the value of goods is greater than the value of services.

²²⁷ Oregon Administrative Rule 629-600-0100(29)

²²⁸ SWO AOP, 2017: <https://www.oregon.gov/ODF/Documents/AboutODF/2016AOPSouthwestOregon.pdf>

²²⁹ Hagmann, R.K., D.L. Johnson, and K.N. Johnson. 2017. Historical and current forest conditions in the range of the Northern Spotted Owl in south central Oregon, USA. *Forest Ecology and Management*. 389. 374-385.

²³⁰ USDA, 2012. 36 CFR Part 219. National forest system land management planning. *Federal Register*, 77(68). 21162–21276.

Integrated Resource Service Contracts (IRSCs): used when the value of goods is less than the value of services, so funds must be added to the contract in the form of appropriated dollars or retained receipts.

Stewardship Service Contracts: do not involve goods-for-services trade and do not include timber removal.

Stewardship contracts are often used to carry out restoration treatments described above. Stewardship contracts can range from small-scale treatments producing smaller harvest volumes than commercial thinning to larger, more extensive treatments. Some areas appropriate for stewardship contracting include lands that would be inappropriate for large commercial thinning where volume production would not be economically feasible or is not the main objective, or on projects that have a restoration focus, like a small-scale stream restoration (Figure 5.15). Typical stewardship contracts will remove 1,000-2,000 board ft./acre, and can move stands toward the goals of forest restoration. According to David Schott of Southern Oregon Timber Industries Association (SOTIA), however, a timber sale would need to remove over 5,000 board ft./acre to be economically viable, and stewardship treatments often require subsidization, while grant funds and fuels dollars to support these projects are dwindling in the region (personal communication, April 2017). Where appropriate (i.e. on O&C lands), economically viable commercial thinning may be selected as the desired management approach.



Figure 5.15. Large equipment use on a forest stream restoration project. Source Oregon BLM.

When appropriate, local governments can avail themselves of their stakeholder status during the planning stages of a BLM or USFS stewardship project. During this stage, local government can insist

that higher consideration be given to the local work force during the bid evaluation process. The use of the local workforce is already written into the best value bid forms of these federal agencies. The local government entities just need to define what that is. For example, local workforce is defined as a company with a permanent address within a specific geographical area or within a specific number of miles from the project area. Local companies are subsequently afforded more consideration when determining project award than non-local companies, thereby retaining revenue for local businesses.

Biomass Treatments

Biomass treatments are suitable where growing conditions and access would hinder production of commercial grade timber. Whether the treatment product is merchantable timber or biomass, access to an area is critical so that the large volumes of biomass can be removed (Figure 5.16). There are numerous ways to manage biomass. Removal can be paid for under a traditional service contract or under a stewardship contract. Biomass removal can be required from a project area or from a harvest unit, and can be staged at a landing area for later disposal through burning or as a firewood sale.



Figure 5.16. A grinding operation in western Oregon

Post fire salvage

Many areas of the western United States experience huge losses from wildfire. Timber industry advocates call for increased salvage of burned stands to use some standing dead lumber. The pace with which salvage occurs on federal lands is the subject of much debate. Opponents claim salvage can have long-lasting adverse impacts on soil structure and runoff as a result of compaction from large machinery. Proponents claim salvage logging can leave behind residual slash that protects exposed soil,

and removal of large tree stems reduces the volume of remaining fuel that could contribute to future wildfires.

On private lands salvage occurs very soon after the fire is contained so that the lumber holds its commercial value. On federal lands salvage actions are often held up in planning and litigation. The federal agencies could respond more quickly if, for example, an individual management unit had a fire salvage programmatic EIS in place prior to a wildfire. This would minimize the response time because the major environmental analyses required for NEPA documents would already be completed. However, the dilemma for a federal agency is that a programmatic EIS requires a commitment of agency resources up front that may or may not pay dividends in the future. An evaluation of the risk of a catastrophic event occurring within the foreseeable future would be required.

Failure to salvage could greatly affect future fires in the area. For example, the Buckskin Fire in 2015 in Josephine County burned an area previously burned in the 2002 Biscuit Fire. The lack of post-fire management created significant hazards for firefighters on the ground, and because of that, some of the fire could only be fought using air resources.

5.5.5 Methods and Selection of Fuels Reduction Treatments

Strategic timing and location of fuels treatments and timber management are critical for safe and effective fuels management practices and should be prescribed based on the conditions of each particular treatment area. There are many ways to achieve this. For example, the RBS contains detailed methodology for modifying fuel characteristics for modeling fire behavior, to assist in identification of post-treatment activities in support of the RBS.

Methods may vary by individual project and by individual land ownership direction. Spatial considerations for mechanical methods, for example, could include placing fuel breaks to break up fuel continuity in areas where topography is favorable, where fire crews have good access, and/or where the fuels are heavier with high spotting potential. Temporal considerations would include mowing grasses after their growing season, and just after they cure and become flammable. Site specificity in the selection of treatment types and implementation is something that is favored by the public according to opinion surveys.²³¹

²³¹ The Contours of support for forest restoration in southwest Oregon: <http://sofrc.org/wp-content/uploads/2015/05/Illinois-Valley-Timber-Assessment.pdf>

In the use of prescribed fire, burning at the drier end of the prescription may be desired since hotter fires are typically more effective at reducing heavy fuels and shrub growth, as long as this is balanced with controllability and smoke management (Figure 5.17). The timing of prescribed fire projects can be affected by seasonal air quality conditions, state smoke regulations, wildlife nesting or breeding seasons, visitor use trends, or other constraints.



Figure 5.17. Prescribed fire at Table Rock. Credit: BLM.

In areas where vegetation is sparse and not continuous, fuels treatments may not be necessary to create defensible space where firefighters can work. In this situation, where the amount of fuel to carry a fire is minimal, it is best to leave the site in its current condition to avoid the introduction of non-native invasive plant species which may establish or spread following a disturbance.

A summary of several treatments that may be used are shown in Table 5.6. The appropriate treatment method and cost will vary depending on the following factors:

- Landownership and management direction
- Project objectives
- Project acreage
- Proximity to structures
- Area accessibility
- Density of fuels
- Diameter of materials

- Steepness of slope
- Equipment costs

Regardless of the methods used, measurable objectives must be established to clarify the purpose of the treatment and to define what success looks like. Success may be defined in both short- and long-term objectives. For example, a treatment may be designed to remove a specific proportion or type of fuel in the short term, while in the long term the goal is to establish early seral tree species and diversity. Measurements may show objectives were achieved, and the treatment was successful. Conversely, measurements documenting creation of a uniform spatial patterning of vegetation may be undesirable, because this creates a continuous fuel layer that increases wildfire risk and compromises ecological objectives. In this case, post-treatment measurements can provide information on undesirable treatment outcomes and prompt the design of modifications to avoid those results.

Regardless of the treatment method, it is imperative that long-term monitoring and maintenance of all treatments is implemented to inform future management actions. It is also important to consider that post-treatment site rehabilitation such as seeding with native plants or erosion control may be necessary. Section 5.8 addresses treatment monitoring and maintenance.

Table 5.6. Summary of Fuels Treatment Methods

TREATMENT	COMMENTS
Machine mowing	Appropriate for large, flat, grassy areas on relatively flat terrain.
Brush mastication	Brush species (e.g., oaks) tend to re-sprout vigorously after mechanical treatment. Frequent maintenance of treatments is typically necessary. Mastication tends to be less expensive than manual (chainsaw) treatment and eliminates disposal issues.
Timber mastication	Materials up to 10 inches in diameter and slopes up to 30% can be treated. Eliminates disposal issues. Environmental impact of residue being left on-site is still being studied.
Feller-buncher	Mechanical treatment on slopes less than 30% or of materials from 10-24 inches in diameter may require a feller-buncher rather than a masticator. Costs tend to be considerably higher than masticator.
Manual treatment with chipping or pile burning	Using hand crews cutting with chain-saws. May provide local employment opportunities. Requires chipping, hauling, and pile burning of slash in cases where lop and scatter is inappropriate. Pile burning must comply with smoke management policy.
Prescribed fire	Can be very cost effective. Ecologically beneficial. Can be used as training opportunities for firefighters. Prescribed fires help local populations get familiar with fire, and foster trust and support Has to be carefully managed to minimize smoke impacts. Requires collaborative efforts across jurisdictional boundaries. May require manual or mechanical pretreatment. Usually requires more intensive planning and approval. Cannot be used in dense stands Carries risk of escape, which is usually unacceptable in WUI areas. Unreliable scheduling due to weather and smoke management constraints.
Thinning and prescribed fire combined	Can be used in areas where fuel loading is too high to implement prescribed fire without pre-treatment. Ecologically beneficial. Can create fuel breaks to reduce risk of escape.

Mechanized Treatments

Mechanized treatments include using equipment for mowing, mastication (brush and/or timber ground up into small pieces), and whole tree felling. These treatments allow for more precision than prescribed fire and often are more cost effective than manual treatment.

Mowing, including all-terrain vehicle (ATV) and tractor-pulled mower decks, can effectively reduce grass fuels adjacent to structures and along highway rights-of-way and fence lines. For heavier fuels, a number of different masticating machines can be used, including drum- or blade-type masticating heads mounted on machines and ranging in size from a small skid-steer to large front-end loaders. Some masticators are capable of grinding standing timber up to ten inches in diameter. Other masticators are more effective for use in brush or surface fuels. Mowing and mastication do not actually reduce the amount of on-site biomass, but alter the fuel arrangement to a less combustible profile.

Mechanical shears mounted on feller-bunchers are used for whole tree removal. The stems are typically hauled off-site for use while the limbs are discarded. The discarded material may be masticated, chipped, or burned to reduce wildfire hazard and to speed recycling of nutrients.

Manual Treatments

Manual treatment refers to crew-implemented cutting with chainsaws. Although this can be more expensive than mechanized treatment, crews can access many areas that are too steep or otherwise inaccessible with machines (Figure 5.18). Treatments often can be implemented with more precision than prescribed fire or mechanized methods allow. Merchantable materials and firewood can be removed while non-merchantable materials are often lopped and scattered, chipped, or piled and burned on site. Care should be exercised to not increase the fire hazard by failing to remove or treat discarded material in a site-appropriate manner.



Figure 5.18. Manual understory thinning is suitable where access or slope may hinder the use of mechanized equipment. Credit: ODF.

Manual treatments may open up local employment opportunities, which would provide an additional benefit in economically challenged areas.

Prescribed Burning

Prescribed burning is a critical tool to reduce the threat of extreme fire behavior by removing excessive standing plant material, litter, and woody debris, while limiting encroachment of shrubby vegetation.²³² Where possible and where appropriate, prescribed fire could occur on public lands since fire is ecologically beneficial when applied to fire-adapted vegetation communities and wildlife habitat (Figure 5.19 and Figure 5.20).

²³² Stephens, S. L., J. J. Moghaddas, C. Edminster, C. E. Fiedler, S. Haase, M. Harrington, J. E. Keeley, E. E. Knapp, J. D. McIver, and K. Metlen. 2009. Fire treatment effects on vegetation structure, fuels, and potential fire severity in western US forests. *Ecological Applications* 19:305-320.



Figure 5.19. Oak woodland prescribed fire. Credit: BLM.



Figure 5.20. Trail Creek Meadow prescribed fire. Credit: A Mason.

On all public lands prescribed burning can only be implemented by properly qualified personnel. All prescribed fire operations must be conducted in accordance with federal policy, and state laws and regulations. Public and firefighter safety should be the primary consideration in the design of any prescribed burn plan. Proposed burned areas must be contained within defensible fuel breaks or appropriate fire lines.

Agency use of prescribed fire on public lands would be carried out within the confines of the agency's fire management planning documents. Prescribed fires require individual burn plans developed for specific burn units. These burn plans consider, among other things, resource and control objectives, safety, values at risk, fuel and weather parameters, and smoke management concerns and sensitive human receptors within the WUI, e.g. residents with respiratory illness. Prescribed burns are only lit if weather conditions fall within a tight prescription window and adhere to strict smoke and air quality regulations at the state level. Close adherence to policy and regulations ensures that the burn does not exceed control and planned resource objectives are met (Figure 5.21 and Figure 5.22).



Figure 5.21. Prescribed burns help to remove heavy understory build-up and reduce ladder fuels. Credit ODF.



Figure 5.22. Hand-piles ready to be burned in the Pilot Joe fuel treatment area. Credit: BLM.

Thinning and Prescribed Fire Combined

Combining thinning and prescribed fire can be a very effective treatment for reducing crown fire potential and tree mortality because of low surface fuel loads and increased vertical and horizontal canopy separation.^{233 234} In forests where fire exclusion or disease has created a buildup of hazardous fuels, prescribed fire cannot always be safely applied and pre-burn thinning is required. The subsequent use of fire can further reduce residual fuels and re-introduce this ecologically imperative process.^{235 236}

²³⁷

These combined treatments also have potential to increase local employment opportunities and create markets for small diameter wood material (see Section 5.4). Stewardship contracts can be developed so local contractors could perform the thinning and prescribed burning and the governing agency could provide necessary oversight and control.

²³³ Graham, R., S. McCaffrey and T. Jain. 2004. Science basis for changing forest structure to modify wildfire behavior and severity. Gen. Tech. Rep. RMRS. Fort Collins, CO. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

²³⁴ Stephens, S. L., J. J. Moghaddas, C. Edminster, C. E. Fiedler, S. Haase, M. Harrington, J. E. Keeley, E. E. Knapp, J. D. McIver, and K. Metlen. 2009. Fire treatment effects on vegetation structure, fuels, and potential fire severity in western US forests. *Ecological Applications* 19:305-320.

²³⁵ Martinson, E. J., and P. N. Omi. 2013. Fuel treatments and fire severity: a meta-analysis. USDA Forest Service, Rocky Mountain Research Station RMRS-RP-103WWW.

²³⁶ Safford, H., J. Stevens, K. Merriam, M. Meyer, and A. Latimer. 2012. Fuel treatment effectiveness in California yellow pine and mixed conifer forests. *Forest Ecology and Management* 274:17-28.

²³⁷ Shive, K. L., C. H. Sieg, and P. Z. Fulé. 2013. Pre-wildfire management treatments interact with fire severity to have lasting effects on post-wildfire vegetation response. *Forest Ecology and Management* 297:75-83.

It is not feasible that all lands in need of fuel reductions will be treated, but conservative harvest levels can be developed based on existing planning documents for high priority areas, cost of treatments, and budgetary and operational constraints. Because of the steep, rough terrain across much of the Rogue Basin, restoration and fuels reduction will carry high costs. Projects on steeper ground mean increased labor and equipment costs compared with flatter terrain. Most ground-based equipment such as feller-bunchers, rubber-tired skidders, and forwarders will not operate on slopes steeper than 35%. In addition, these types of equipment may be further restricted depending upon additional NEPA restrictions.

Mitigation of Non-native Plants

Fuel treatment approaches should always consider the potential for introduction or spread of invasive non-native plant species resulting from management actions. Previous efforts to mitigate the unwanted spread of invasive plants has been accomplished through liaison with Jackson and Josephine County Cooperative Weed Management Areas (CWMA). The CWMA involves a group of agencies and land managers who share the common interest of promoting integrated weed management programs through education, coordination, and prevention. Oregon State University Extension Service's Land Steward program is being used to educate and energize private landowners to care about, and therefore spread the word about, noxious weeds.

Some examples of standard best practices for reducing non-native plant spread during fuels management treatments include:

- Prevent equipment used for fuels treatments from introducing non-native invasive plant species. Before equipment is brought into a project area, it should be pressure or steam washed to remove seed-containing soil or plant propagules.
- Fire crew or other personnel should inspect boots and field equipment for soil, seed, and plant parts before implementing fuels treatments. Remove suspect material and dispose of in bagged garbage.
- Survey proposed fire lines and locate them well away from patches of non-native invasive plant species whenever possible.

5.6 ECONOMICALLY VIABLE/SOCIALLY ACCEPTABLE RESTORATION AND FUELS MANAGEMENT OPPORTUNITIES

Restoration of open forest habitats and promotion of fire- and drought-resistant tree species is expected to create long-term sustainable forests resilient to a variety of stressors, with the potential to provide economic return from harvest. The local population supports forest restoration activities in the valley, especially where restoration can be self-supporting. Restoration goals include:

- maintain and restore diversity of habitat, species, and stand structure;
- reduce loss to fire, insects, and drought (increase resistance and resilience);
- conserve old trees and stands within and outside of complex forest habitat areas;
- establish conditions for controlled under-burning for stand maintenance;
- foster conditions for timber production using restoration forestry principles; and
- generate ongoing products and employment through long-term restoration.

In a comparison of several regions in the Pacific Northwest, the highest proportion of restoration needs was in the southwest portion of Oregon, with 3.2 million acres in need (51% of all forests). Unlike other regions in the study, the greatest forest structure restoration needs in southwestern Oregon were not on federal land, but in private ownership, though USFS and BLM restoration needs also were large.⁹⁹

Federal ownership totals 2.7 million acres within the Rogue River Basin, of which 1.1 million acres are accessible under the existing road network. On accessible BLM and USFS lands alone, there are 1 billion board feet of restoration by-product timber available under the SOFRC principles. These areas will be the focus for active restoration.

The amount of work to be done for forest restoration is very large. Of the 4.6-million-acre Rogue Basin analytical area, forests and woodlands make up 4.2 million acres. Of these, 2.1 million acres are overly dense (50%). This translates to an annual disturbance need, for a 20-year retreatment interval, of approximately 105,000 ac/yr., through a mix of mechanical and fire treatments.

The amount of restoration work to be done on private land, in addition to that on federal land, presents stakeholders in the Rogue River Basin with an opportunity to develop a variety of programs including economically viable commercial timber treatments and stewardship projects at a variety of different scales where appropriate. There is a need for employment, and no shortage of potential workers in the

Rogue Valley. Given the level of fire risk and the need for hazardous fuels reduction, there is potential for abundant employment opportunities.

Small woodland owners and independent logging operators have cut and marketed small diameter trees in this region for years, developing techniques and niche markets for an otherwise unusable by-product. Each effort has made headway in some aspect of this issue, but there has not been a breakthrough yet from small-scale projects to a landscape vision.

In response, current work by the Southern Oregon Forest Restoration Collaborative has a two-county scope (Jackson and Josephine) and is addressing the perceived root of the problem: a stable supply of ecologically-harvested and economically-viable material from federal lands that prioritizes local economic stability. The county governments have supported promising efforts by passing resolutions, using small diameter materials for county projects, and funding small diameter efforts through Title III grants. However Title III grants are no longer available, so new funding sources are needed to support these efforts.

The two-county approach demonstrates that coordination among federal, private, and public stakeholders is the key to moving the restoration program to a more stable footing. Part of this stability requires developing incentives to motivate people and businesses to take action. If there are markets that will ensure payment for raw materials (and a way to transfer raw materials), a local landowner may be more inclined to reduce hazardous fuels. This coordination will require formation of groups to guide this stewardship process.

For example, the Josephine County Integrated Fire Plan Stewardship Group was established in 2004 by local citizens and agency partners as an effort to integrate community fire safety planning with the development of forest restoration and stewardship projects to protect forests and community interface areas from unwanted fire. This entity was a diverse and committed group of local and regional individuals and organizations with representation from local government, federal and state land management agencies, forestry contractors, non-profit organizations, and environmental groups who worked together to improve forest and community health in Josephine County. Funding for the group ended in August 2012, but the Forestry Practices Working Group continued to meet and develop forestry projects.

Many groups in the Rogue Basin have been engaged in the use of fuels treatment and forest restoration by-products, and in development of economic opportunities around small diameter tree and biomass

harvest. In addition to SOFRC, groups in the Rogue Basin who are spearheading projects include the Jackson County Small Diameter Tree Committee, the Southwest Oregon Resource Conservation and Development Council, the Applegate Biomass Study Group, the Jefferson Sustainable Development Initiative, the Illinois Valley Forest Collaborative, and the Lomakatsi Restoration Project (Figure 5.23).

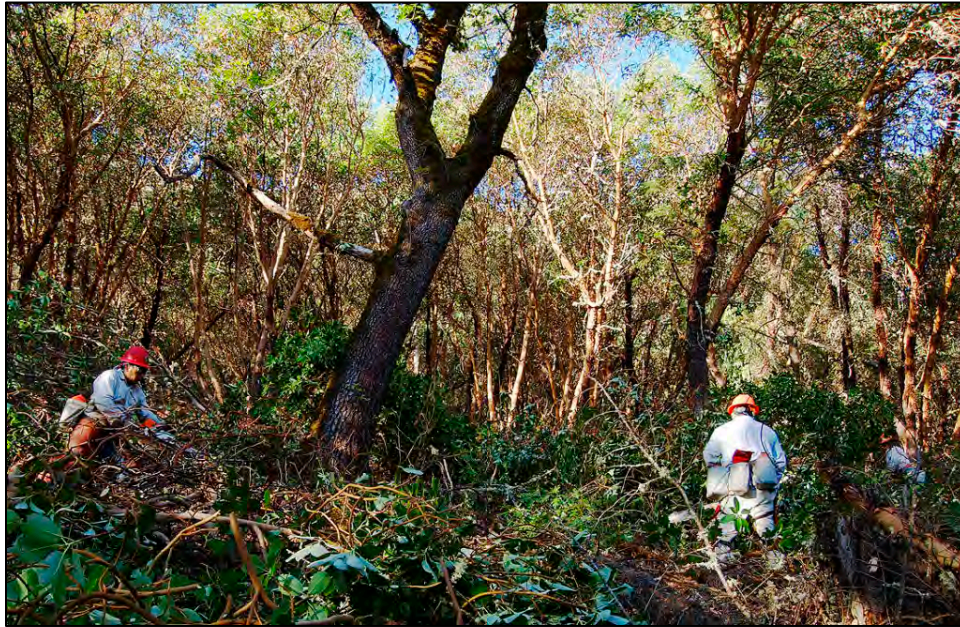


Figure 5.23. Lomakatsi Restoration Project. Credit: Lomakatsi

Past efforts by such groups explored the viability of small diameter tree and woody biomass utilization in southern Oregon, and furthered development of a viable economy based on small trees and biomass. The terms “small diameter” and “biomass” are used interchangeably, and in some cases, they are synonymous. While small diameter trees can be converted into lumber, furniture, and dozens of other value-added products, the term “biomass” can also be used to describe tree limbs, tree tops, brush, and other material derived from forest vegetation. One viable option for biomass is conversion to electricity or heat. This type of biomass is usually ground up and sold by the ton, rather than measured in board feet.

Past efforts also include a feasibility study of an energy facility; a study of community support for a biomass drop site; and on-site use of portable kilns to produce biochar. Use of biomass remains a somewhat untapped resource for reducing forest fuels, yet remains hampered by economic, logistical; and supply difficulties. In hard economic times when commercial timber prices are low, local industry people may not be optimistic that biomass utilization of restoration forestry by-products is economically feasible.

A social assessment carried out in the Illinois Valley in 2011 highlighted some options for more economically viable restoration forestry:²³⁸

- Subsidy through appropriated funds;
- Commercial harvests included in restoration forestry projects;
- Pellet or fire brick manufacturing;
- Small diameter log utilization, including dimension lumber, poles and firewood operations;
- Value-added production of material via the arts and crafts community;
- Biomass burning for energy or biochar uses; and
- Chemical treatment of biomass to create synthetic natural gas.

Many approaches have been taken by Rogue Valley stakeholders over the years to develop a forest stewardship approach that is sustainable through changing market conditions, and reduces the threat of wildfire while restoring deteriorating forest conditions at a more significant scale. The goal of this plan is to take the lessons of the past to build a more sustainable forest management program for the future.

Increasing and sustaining the pace of forest restoration will allow businesses to invest, contractors to hire more workers, and mills to maintain operations and employees. Time is critical; infrastructure and a skilled work force for accomplishing forest restoration work are declining. Thus, it is important to support the existing infrastructure and to develop market-based solutions. The counties need to be prepared to move forward on biomass utilization and other timber industry activities as the economy improves.

Even in the face of declining opportunities for grant monies and other economic incentives, local government can improve their situation by direct involvement with the local representatives employed by the federal and state agencies. Coordination as stakeholders on federal and state forest resource projects will increase their chances of solving local resource issues. Bringing forth local concerns within an open and constructive format will foster mutual understanding resulting in practical solutions.

5.7 USE FIRE WHERE APPROPRIATE

If determined to be feasible, the longer-term goal of restoring and maintaining a natural fire regime in portions of the greater southern Oregon and Rogue Valley area can be considered where appropriate to

²³⁸ Preister, K. 2011. Social Assessment: Interests and Issues of Illinois Valley Residents Regarding Public Land Management. Submitted to U.S. Forest Service, and Josephine County Stewardship Group.

do so. It is recognized that our forest lands are in need of immediate and consistent management to reduce the danger of Catastrophic Wildfire. The ultimate goal of a CWPP is to protect lives and communities from the multi-level harms and dangers of Catastrophic Wildfire.

All partners have a common goal of reducing fuel loads in the forest and ultimately reduce smoke emissions and the intensity of wildfires. This understanding and commonality of purpose will, by natural course, create a more fire resilient landscape, and insure the Health, Safety and Welfare of our communities. There are choices of various “tools” that will help accomplish the prudent management of our lands and we must recognize the value and limitations of each and use them accordingly.

By the use of the lead authority of the declared State Fire Season, all partners share a commonsense guideline as to the use of prescribed burning as a management tool. Variances from this policy can be considered on a case by case basis, with the ultimate approval by the State Forester with coordination, consultation, and communication with the Jackson/Josephine County Board of Commissioners.

Natural ignitions will be managed under full suppression strategy and will not be considered as prescribed fire during the State declared fire season.

This strategy is limited to federally-managed lands. The Rogue River-Siskiyou NF have completed their Land and Resource Management Plan to allow for the use of prescribed fire. Fire management plans on federal lands need to be policy-compliant to support this type of activity.

In areas of heavier fuels, it may be necessary to first employ mechanized treatments, followed by prescribed burning to work toward restoring a natural fire regime. Taking advantage of topography (e.g., placing treatments on ridgetops, tying treatments into natural or man-made barriers, etc.) is critical to break up the fuel profile across landscapes.

Adequate resources must be available to ensure that prescribed fires do not escape from their planning areas. Smoke must be carefully monitored and managed to avoid affecting sensitive areas. The public must be given clear information and education as to the purpose of prescribed fire management so they understand why there is a visible smoke column.

Using prescribed fire where appropriate is not without risk. Whether or not to engage in this process is a decision that can only be made at the local level with support from all the players involved. However, careful and long-term planning toward this end is usually cost-efficient, contributes to a more resilient landscape, and limits the growth of future fires through restoration of a mosaic of burned areas, which can mitigate wildfire behavior and provide protection to the WUI over the long run.

5.8 TREATMENT MONITORING AND MAINTENANCE PLAN

Following any type of fuels reduction treatment, and regardless of the method used, all treatments should be monitored and maintained through adaptive management. Adaptive management involves learning from past management actions. It includes implementing projects, monitoring and analyzing the effects of those projects, and then incorporating these findings into the next round of projects.

Post-treatment monitoring should be on-going to ensure that management actions continue to be effective throughout the fire season and beyond. Vegetation can change rapidly in response to drought or moisture during the course of the season and from year to year, so fuel treatments should be adjusted accordingly. This holds true whether or not there is the added objective of using small diameter timber or restoring natural fire regimes.

Monitoring fuels reduction projects in southern Oregon can be difficult due to the presence of a wide diversity of vegetation types. Various types of fuels reduction can have very different outcomes in terms of fire behavior, forest health, and long-term maintenance. For example, to maintain a fire safe condition in vegetation dominated by brush and stump-sprouting species, a 5-7 year maintenance cycle might be needed. A similar investment in a stand of mature trees may require maintenance every 10-15 years.

At the end of each project (or monitoring period), the following questions will need to be asked:

- Were the mitigation measures implemented as planned?
- Were objectives met?
- What went right and what went wrong?
- Are there opportunities for improvement?
- Were the mitigation measures effective at protecting the resources?
- If the mitigation measures successfully protected the resources, were they over-protective and/or did they place unnecessary constraints on the ability to accomplish project objectives?

Fuel break and fuel treatment utility is contingent on regular maintenance, as regrowth in a treated area can quickly reduce treatment effectiveness. Maintenance of existing fuel breaks protects the initial investment and could be more cost-efficient than installation of new features. In existing fuel break areas maintenance is crucial, especially in areas of encroaching shrubs or trees. In extreme risk areas, more intensive treatment maintenance may be necessary to keep the fire on the ground surface and reduce flame lengths. Prescribed fire could be used where it can be done so with minimal risk to property to reduce understory growth as part of a cost-effective maintenance plan. Monitoring will ensure that objectives are being met in a cost-effective manner.

Well-managed, monitored, and maintained fuels reduction projects often result in long-term ecological benefits to wildlife and watershed health. The effectiveness (i.e., increased landscape resilience to

wildfires, drought, climate change, etc.) of any fuels reduction treatment can be demonstrated over time with a well-defined monitoring plan, and a maintenance plan that is implemented as indicated by the results of monitoring data.

5.9 EXISTING FUELS REDUCTION PROJECTS

Between 2006 and 2013, over 106,000 acres of fuels projects were completed in Jackson and Josephine counties. Approximately 97% of these treatments occurred on USFS and BLM lands. Treatments were widely scattered throughout each county, with the greatest concentration located in the middle 1/3 of the region (Figure 5.24). The available fuels projects database contained data for 1990 and 1996-2013 only.

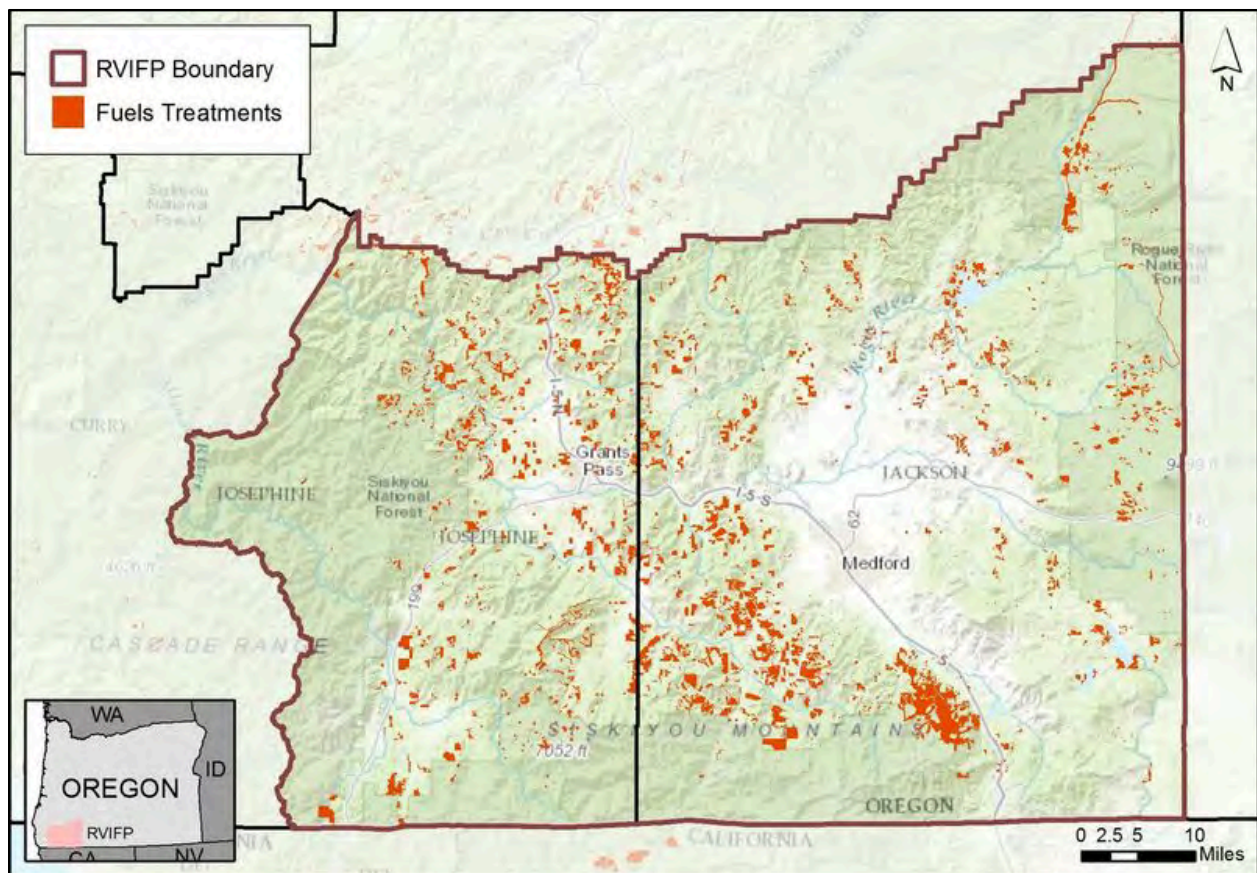


Figure 5.24. Map of past fuels treatments within Jackson and Josephine counties for all major land management agencies (USFS, BLM, ODF, and others). Data source: Jackson County.

There are several reasons for the pattern and size of existing fuels reduction work. The original fire plan partners report good relations with federal agencies, and frequent coordination with them regarding fuel hazard reduction projects and results monitoring. While coordination has been very good, it has not

reached the level of collaboration where priorities and project implementation are mutually-determined.

The fuel hazard priorities of local communities and jurisdictions are not always embedded within federal project planning. Agencies often come to the fire plan committees with projects already determined. However, the BLM has used the fire hazard standards of the original county fire plans in its own recently-approved programmatic Integrated Vegetation Management (IVM) Project.²³⁹

Federal agency personnel report that continued limitations of reduced budgets and declining staff present ongoing challenges for their participation in joint planning activities. They are concerned internally with how to maintain areas in which they have already conducted fuel hazard reduction projects (Figure 5.25. and Figure 5.26), and how to balance their activities between maintenance areas and new areas for fuels reduction work.



Figure 5.25. Woodland pre-fuel treatment
Credit: Joseph D. Hyatt



Figure 5.26. Woodland post-fuel treatment. Credit: Joseph D. Hyatt.

5.10 PRIORITY AREAS FOR TREATMENT

Several forest collaborative groups and watershed councils have worked to build public support and agency capacity for federal forest restoration to improve forest health and resilience, reduce the risk of wildfire to communities and forests, and strengthen the economic viability of the regional workforce and manufacturing infrastructure. The groups have engaged diverse community stakeholders and agency partners to advance active management on federal forests to achieve integrated fuels reduction, forest health, and market-supported goals.

²³⁹ Programmatic Integrated Vegetation Management Project (IVMP): <https://www.blm.gov/or/plans/nepa-details.php?id=2025>

As discussed in Chapter 4, this RVIFP will use the All Lands Scenario developed in the RBS to identify areas and units for priority treatment within the region (Figure 5.27). The RBS could be used to generate a strict ranking of planning areas. However, all planning areas across the Rogue Basin have important value, particularly to the local residents that would be impacted by treatments. Therefore, the RBS is best used to evaluate opportunities to achieve landscape-scale objectives, and, in particular, to inform the landscape-scale relative contribution of a given planning area.

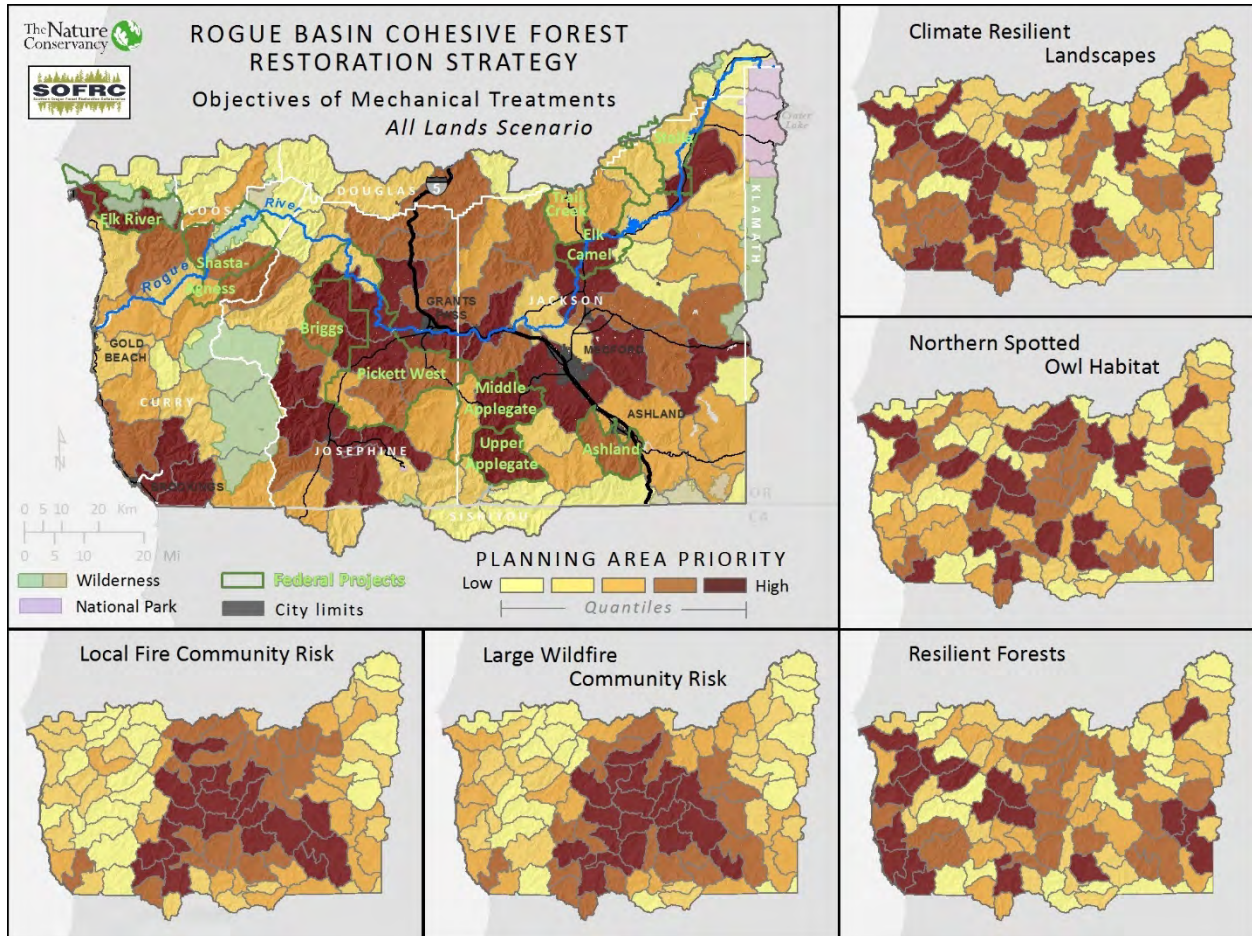


Figure 5.27. Priority planning areas for mechanical treatments to achieve the five landscape-scale objectives under an All-Lands Scenario; higher browns indicating greater priority. The larger map shows the priority if all landscape objectives are maximized in a single entry with ongoing federal planning overlaid in green. Side panels indicate planning area priority for the five objectives separately. Figure source: The Nature Conservancy.

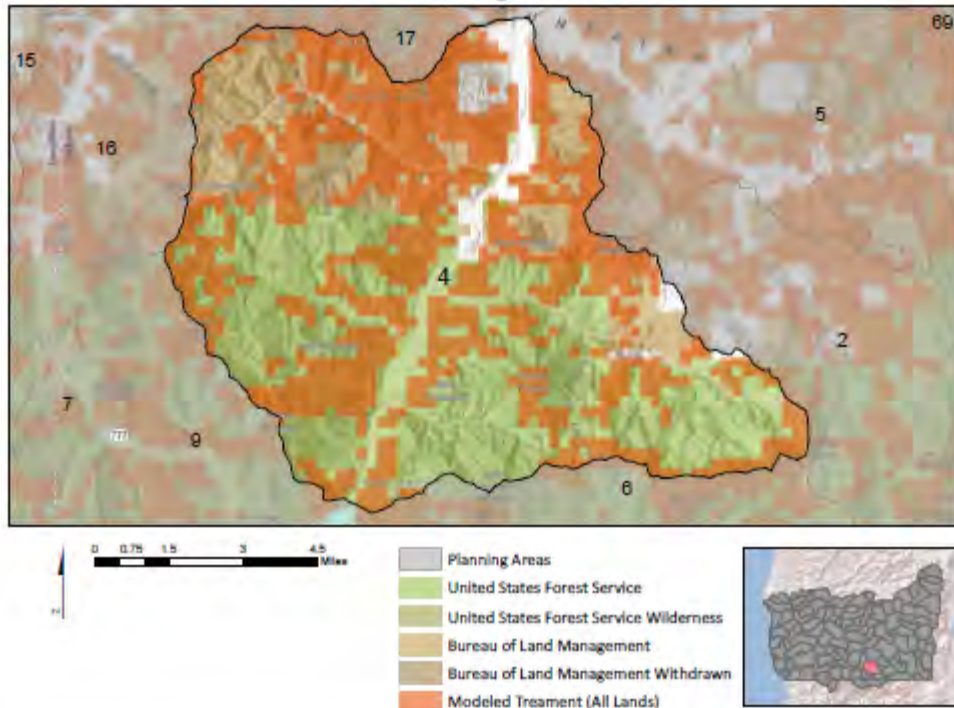
Future selection of treatment locations based on the RBS will be conducted via the use of factsheets that have been developed by TNC.²⁴⁰ When planning fuels mitigation work, the counties, ODF, federal agencies, or any land owner can consult the factsheets developed using the risk assessment results.

These factsheets will list specific indices for each landscape-scale objective and the potential reduction of fire risk within any of the planning areas depicted in Figure 5.27 as well as the cost per acre to achieve this.

As an example of the content available in the factsheet, Figure 5.28 shows the factsheet for “Planning Area 4”. If the All Lands Scenario is used to identify fuels treatment projects, and this work is completed, wildfire risk reduction relative to current conditions goes down by 56% and wildfire risk to core Northern Spotted Owl habitat is reduced by 73%. Treatments under that scenario are projected to cost about \$1,000 per acre, as shown in the net revenue per acre portion of the factsheet. The planning area is 52,259 acres, of which 53% is inaccessible via existing roads or inappropriate for treatment under the strategy. Of the entire planning area, the RBS would treat 23% to restore more open forest, 7% to directly reduce fuels in the Community at Risk, and 5% to promote near- and long-range complex Northern Spotted Owl habitat in appropriate landscape settings. The treated footprint to accomplish landscape-scale objectives under the All-Lands scenario is 17,868 acres, of which 399 acres are modeled to be on non-federal land.

²⁴⁰ RBS Fact Sheets: available online at: <https://tnc.box.com/s/43wdsykogna8jd0pqh7fkwy85njy1fi1>

Rogue Basin Strategy Factsheet: Planning Area 4



Scenario	Current Condition	Maximum Federal		All Lands		Private Selected in All Lands
Ownership	All	USFS/BLM		Mixed		Private
Planning Area (ac)	52,259	-		-		-
Treatable and Accessible (ac)	-	17,473		17,868		399
Treatable and Accessible no Modeled Treatment (ac)	-	3,678		3,869		191
Non-merchantable Thinning (ac)	-	4,869		5,005		136
Community at Risk (ac)	-	3,429		3,738		309
Nesting Roosting & Foraging Development (ac)	-	2,545		2,573		29
Excess Closed Forest Thinned (ac)	-	12,870		13,133		264
MARXAN Optimization Relative Index (0-100)						
Objective Function		Sum	Relative Abundance	Sum	Relative Abundance	
Cumulative	-	100	75	83	67	-
Northern Spotted Owl	-	100	82	90	82	-
Local Fire Community Risk	-	23	10	10	7	-
Large Fire Community Risk	-	36	13	17	12	-
Resilient Landscapes	-	71	44	71	50	-
Climate Resilience	-	100	91	100	91	-

Rogue Basin Strategy Factsheet: Planning Area 4

Scenario	Current Condition	Maximum Federal	All Lands	Private Selected in All Lands
Ownership	All	USFS/BLM	Mixed	Private
Economics				
Modeled Treatment with Positive Net Revenue (ac)	-	529	529	0
Modeled Treatment with Negative Net Revenue (ac)	-	8,398	8,465	67
Restoration Byproduct (Board Feet)	-	21,108,971	21,202,250	93,279
Revenue	-	\$12,665,000	\$12,721,000	\$56,000
Cost	-	\$30,853,000	\$31,126,000	\$273,000
Net Revenue	-	(\$18,187,000)	(\$18,404,000)	(\$217,000)
Net Revenue per Acre	-	(\$1,000)	(\$1,000)	(\$500)
Wildfire Risk Relative Index (0-100) (Risk reduction relative to current condition)				
Total Risk (eNVC)	8	-	-	-
Spotted Owl Core Risk	20	-	-	-
Community Risk	1	-	-	-
NSO Core Risk Reduction (%)	-	66%	73%	8%
Community Risk Reduction (%)	-	43%	56%	13%

**Treatment Themes Under the All Lands Scenario:
Planning Area 4**



Figure 5.28. Example 'Score Card' for Planning Area 4 of the RBS. Source TNC.

A series of score cards have been developed to assess a number of metrics relative to the RBS. While they do not identify the exact units where effective fuels mitigation work can occur, for each planning area they provide landscape context, outline the types of objectives achievable, and estimate the amount of work needed as well as the cost to implement mechanical treatments. Scorecards have been completed for every planning unit shown in Figure 5.27. However, direct consultation with TNC is encouraged.

The RBS is designed to be flexible. Treatment approaches and methods will be site-specific and should be adapted to best meet the needs of the landowner and resources available. Each treatment recommendation should address protection of Community Values at Risk or Highly Valued Resources and Assets (as identified in the RBS), such as protection of threatened or endangered species, water resources, timber, aquatic resources, recreation, and scenic values. Given those considerations, the value of the RBS prioritization process is to give all stakeholders a common framework with which fuel projects can be planned and implemented.

5.10.1 Implementation Costs of Restoration

Implementation of the RBS requires a significant investment. The total net cost to implement the strategy is \$607 million, or about \$30 million per year over the 20-year plan horizon.²⁴¹ This figure does not, however, include additional key factors such as the avoided costs of fire suppression and the value of the ecosystem services resulting from implementation of the strategy. The implementation cost is a critical factor in the economic viability of the RBS.

Implementation of either the Maximum Federal or All Lands Scenarios of the RBS would come with substantial local economic impacts. Full implementation of the Maximum Federal strategy would produce an annual harvest of 66 MMBF and would require an investment of \$34 million annually for mechanical treatments. Partners used these as inputs to calculate jobs and economic activity using the Southwestern Oregon Restoration Economic Impacts Calculator.²⁴² They predict that full implementation of the Maximum Federal scenario and related economic activity would annually support

²⁴¹ Metlen, K. L., D. Borgias, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, C. Zanger, M. Bennett, B. Moody, and E. Reilly. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR. Available online at: <https://tnc.box.com/s/k8kel1cww1i3oo4ru55lc1dv7xpyxuob>.

²⁴² Ecosystem Workforce Program. 2016. Southwestern Oregon Restoration Economic Impacts Calculator. University of Oregon, Eugene, Oregon. Available online: <http://ewp.uoregon.edu/>.

1,700 direct and indirect jobs, generate over \$65 million in local wages, and generate over \$260 million in local economic output.

Stakeholders recognize that a better understanding of the costs, revenues, and opportunities to improve economic performance will help in making informed decisions about strategy implementation.

The significant cost of restoration is not surprising, particularly with the consideration that the RBS addresses the need to reduce fuels and fire hazard, in addition to supporting local communities with timber revenue. From a timber perspective, relatively low productivity, scattered timber, limited access, steep terrain, and low volume per acre removals translate into expensive logging with less potential to generate net positive revenue compared to forests north of the Rogue Basin. Many high volume per acre stands are frequently inaccessible given the current road system, or serve as complex late seral habitat needed for Northern Spotted Owl conservation and other late seral objectives. Even where larger merchantable volumes exist, the RBS strategy intentionally retains the largest trees while thinning out competing smaller trees. This conservation-focused approach results in more costly logging and lower revenues than one focused on maximizing timber production or revenues. Finally, the RBS accounts for the full range of implementation costs associated with mechanical restoration treatments; not just logging and hauling costs, but also the cost to treat activity fuels, and the significant cost to treat non-merchantable stands or the non-merchantable component of merchantable stands. Historically these costs have been hidden by a budget process that pays for timber sales and activity fuel treatments separately.²⁴³

5.11 RECOMMENDATIONS FOR FUELS REDUCTION PROJECTS

The following goals have been considered important by previous fire plan team members in the implementation of fuels projects in the Rogue Valley region:

- Work to fully integrate planning and implementation of hazard fuels reduction projects on public and private lands between federal agencies and fire plan partners to achieve the greatest efficiency in resource use and the best outcomes on the ground.
- Prescribed fires intentionally ignited by qualified personnel should be developed when appropriate with necessary planning and mitigations in place. The use of natural ignitions to

²⁴³ Ibid

achieve resource benefit should be considered on federal property if and when it is appropriate, and when necessary precautions are provided.

- Develop economically-viable treatments on federal lands—those that pay for themselves and support local timber economy—to accomplish fuels reduction at a landscape scale and to reduce overall fire risk in the counties.
- Increase biomass utilization as the economy turns around and economics improve.
- Fire plan partners support streamlining NEPA (National Environmental Policy Act) planning to reduce federal agency costs and to enhance their participation as fire plan partners.
- Continue to integrate the updated fire plan with the dry forest assessment and treatment strategy of the RBS. The initiatives reinforce each other and place fire within a broader vision with multiple areas of responsibility.
- The RBS plan needs to be accepted broadly in the community and endorsed by watershed councils and others close to these issues to foster continued federal commitment.
- Continued communication and coordination between federal agencies and other fire plan partners regarding fuels reductions project priorities and opportunities are crucial.

All of these items are worthwhile goals and steps in support of the RBS, and should be continued as this plan is implemented. However, the difference between the level of restoration work that has been done in the past and what needs to be done in the future to achieve the restoration and stewardship goals of this RVIFP indicates a need for a change in how this work is conducted.

Specific items to address to achieve implementation of forest restoration goals include:

- Ensuring that treatment areas and specific projects align with the Cohesive Strategy goals to maximize funding potential.
- Developing an effective model to brief the appropriate officials in Jackson and Josephine counties on the process to ensure economic buy-in.
- Prioritizing treatment areas and develop a list of priority fuels projects to implement upon receipt of funding.
- Developing priority fuels projects that are independently economically viable without outside funding.
- Determining how to reconcile the time lag between previous agency planning and updated treatment priority planning using the RBS model.

Core team members stated that past fuels management work has been impeded by the number of committees associated with this work. As staff is stretched to deal with many duties at the county, state, and federal levels, coordination meetings are missed, momentum slows, and opportunities for funding may be lost. Several steps can be taken to mitigate these factors, including:

- Applying the RBS process as described in Section 5.8 and Chapter 4, to identify and prioritize treatment areas. This approach will provide the cornerstone upon which fuels planning will be done. This provides a framework upon which fuels projects, funding requests, and project schedules can be developed and implemented in a coordinated manner by all stakeholders. However, while the RBS process provides the prioritization framework, it does not provide the mechanism by which it can be used by stakeholder committees to develop a coordinated and efficient program of work.
- Several committees and subcommittees have been established to guide implementation of a Rogue Valley fuels program in the past. As a first step under this plan, all such committees and subcommittees should be identified, their purpose and mission assessed during a collaborative diagramming exercise, and a structure established so that all groups are coordinated and working towards the “all lands, all hands” Cohesive Strategy goal of this plan.

5.11.1 Formation of a Forest Resiliency Group

Based on this analysis, the current fuels committee should be reconvened as a Forest Resiliency Group to align with the Cohesive Strategy goals. This group would have a number of responsibilities, including:

- Briefing the Executive Committee associated with this plan, as well as other leadership, so they are educated about the process that will be used to develop and implement fuels projects, gather their input on this process, and use this input to refine project lists.
- Using this input, the group will work with stakeholder agencies and with SOFRC to review the project plans developed from the TNC model prioritization model. Currently, there are 96 projects.
- Developing individual fuels project lists by agency based on the prioritized list generated from the model. Agencies such as the USFS and the BLM have planning, environmental compliance, and funding cycles and requirements that will affect the rate at which they can synchronize their fuels projects list with the TNC priorities. The goals of this plan would be to move toward 1)

greater interagency collaboration, 2) an increased rate of forest restoration, and 3) greater economic opportunities through stewardship than have occurred in the past.

- The Forest Resiliency Group would be the hub for information used by various agencies in public education and involvement concerning the purpose, benefits, and goals of the RBS, and would identify data and scientific needs to improve information upon which fuels projects are identified and managed.
- Establishing a third-party coordinator to organize and facilitate this work, which could be jointly funded by the various stakeholders as a new position. The complexity that will be involved in implementing this plan, especially given the number of stakeholders who will be involved, will be better facilitated by a dedicated position to avoid issues in the past that have impeded fuels management efforts.

Table 5.2 provides a recommendation matrix for the process outlined above.

These elements are placed within the Cohesive Strategy Framework in Chapter 1, Table 1.2.

Table 5.7 Recommendations for fuel management process

PROJECT DESCRIPTION	METHOD/TASKS	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Reconvene fuels committee to form a Forest Resiliency Group.	<ul style="list-style-type: none"> Carry out assessment of existing committees and missions to identify overlap and potential for unification. Identify and seek participation from agency representatives and interest groups. Develop annual work schedule and ask for commitment from participants. Incorporate science-based post-fire recovery and rehabilitation into the CWPP during future revisions. 	One year	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Monitor attendance at meetings. Identify revisions to participant list as issues develop. <p>Sustainability:</p> <ul style="list-style-type: none"> Invite participants to provide feedback on group effectiveness to identify fatigue amongst members. Minimize meeting number and length and ensure efficiency. Do not cancel meetings. 	RVIFP Coordinator led process Multi-agency input required
Work with RBS partners to fully implement the Strategy with an "All Lands" approach.	<ul style="list-style-type: none"> A task of the forest resiliency group is to move the RBS forward with all partners. The RBS plan needs to be accepted broadly in the community, and endorsed by watershed councils and others close to these issues, in order to foster continued federal commitment. Agency commitment as well as vision and leadership is necessary for success. Long-term success will require agency capacity to be maintained, improved, and supported. Ensure a long-term focus includes the need for maintenance following landscape treatments on all lands. Encourage federal partners to utilize Good Neighbor Authority when possible. 	ongoing	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Determine implementation status of RBS on federal lands and alignment with federal fuel treatment planning. Participate with multi-party monitoring proposed under the RBS. <p>Sustainability:</p> <ul style="list-style-type: none"> Adapt project implementation based on multi-party monitoring results. Ensure dialogue continues between partners and local government. 	RVIFP Coordinator led process Multi-agency input required
Develop effective model for communicating agency planning to county executives and decision makers.	<ul style="list-style-type: none"> County executive and decision makers could use the RVIFP story map to illustrate the CWPP purpose to constituents. Incorporate executive input into fuel project prioritization process. Channel monitoring results back to decision makers and the community to demonstrate results and build support. 	ongoing	2	<p>Monitoring:</p> <ul style="list-style-type: none"> Record meetings and attendance. <p>Sustainability:</p> <ul style="list-style-type: none"> Schedule regular meeting with executives to outline proposed annual program of fuels projects. Schedule regular meetings with executives to describe level of achievement of actual fuels work vs. propose, and discuss reasons for differences. 	RVIFP Coordinator led process Multi-agency input required

PROJECT DESCRIPTION	METHOD/TASKS	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Develop priority fuels reduction projects that can be ready to implement upon receipt of funding	<ul style="list-style-type: none"> Collaboratively develop annual list of fuels projects which have planning requirements completed and are ready for implementation Collaboratively identify future conceptual projects, scope, and NEPA requirements Develop fuels projects that are independently economically viable without outside funding. Pooled fiscal resources (i.e., federal, nonprofit, foundation, state) may be necessary for future restoration success. 	ongoing	3	<p>Monitoring:</p> <ul style="list-style-type: none"> Compare list of proposed fuels projects with projects actually approved for funding. Document occasions when funding opportunities are missed. Compare percentage of fuels projects funded vs. proposed annually to determine trend. <p>Sustainability:</p> <ul style="list-style-type: none"> Build collaboration. Integrate planning into agency FMPs and multi-year treatment planning. 	RVIFP Coordinator led process Multi-agency input required
Determine how to reconcile time lag between various agencies' fuels treatment processes and alignment with RBS priorities.	<ul style="list-style-type: none"> Compare fuels project planning cycles among agencies; determine which significant elements are out of phase with other agencies. 	ongoing	3	<p>Monitoring:</p> <ul style="list-style-type: none"> Monitor synchronization of projects of various agencies to determine if time lags are delaying implementation of interagency fuel projects. <p>Sustainability:</p> <ul style="list-style-type: none"> Conduct annual review of projects affected by time lags. Identify specific causes of time lags (funding cycle, planning cycle, etc.). Develop and test methods to mitigate time lag factors. Annually track number of projects affected by time lags to document improved efficiency 	RVIFP Coordinator led process Multi-agency input required
Use lessons of the past to build a more sustainable forest stewardship program for the future.	<ul style="list-style-type: none"> Use existing local models- i.e. SOFRC, Ashland Forest Resiliency. Actively pursue partnerships with agencies, organizations, and institutions. Develop appropriate landowner outreach and marketing strategies to increase engagement by private landowners. Use available technical and financial assistance programs. Increase and sustain the pace of forest restoration to allow businesses to invest, contractors to hire more workers, and mills to maintain operations and employees. Support existing infrastructure and develop market-based solutions. Prepare to move on biomass utilization projects as the economy improves. 	ongoing	3	<p>Monitoring:</p> <ul style="list-style-type: none"> Stewardship acres treated that met treatment goals. Total dollar investment in infrastructure per year. Common Stand Exams to capture ecological impacts (positive and negative) (See Table 8.1, Chapter 8). Jobs created in timber industries. Number of new participants in stewardship projects/year. <p>Sustainability:</p> <ul style="list-style-type: none"> Annual review of status of planned and implemented projects. Quarterly meetings with stakeholders and timber industry representatives to evaluate approach and discuss adaptive management. Evaluate effectiveness of outreach to landowners and adapt marketing approach. 	National Forest Stewardship Program https://www.fs.fed.us/cooperativeforestry/programs/loa/loa.html RVIFP Coordinator led process Multi-agency input required SOFRC TNC

PROJECT DESCRIPTION	METHOD/TASKS	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
<p>Promote continued collaboration between state and federal agencies to draft a plan to address the large-scale tree mortality rate throughout the Rouge Valley.</p>	<ul style="list-style-type: none"> Could be a task of the Forest Resiliency Group (described above) to address elevated forest mortality resulting from drought stress, insects, and disease. Include identification of needed areas of road-side brushing and hazard tree removal on forest roads in accordance with federal policies. 	<p>Ongoing</p>	<p>2</p>	<p>Monitoring:</p> <ul style="list-style-type: none"> Successful development of a plan outline and allocation of funds. Set schedule for plan completion. <p>Sustainability:</p> <ul style="list-style-type: none"> Regular review of plan progression at Forest Resiliency Group meetings. 	<p>RVIFP Coordinator led process Multi-agency input required SOFRFC</p>

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6 RVIFP GOAL 2- FIRE ADAPTED COMMUNITIES

Goal 2 of the CWS/WRAP is:

Fire Adapted Communities: *Human populations and infrastructure can withstand a wildfire without loss of life and property. The basic premise of this goal is:*

“Preventing or minimizing the loss of life and property due to wildfire requires a combination of thorough pre-fire planning and action, followed by prudent and immediate response during a wildfire event. Post-fire activities can also speed community recovery efforts and help limit the long-term effects and costs of wildfire. CWPPs should identify high-risk areas and actions residents can take to reduce their risk. Fuels treatments in and near communities can provide buffer zones to protect structures, important community values and evacuation routes. Collaboration, self-sufficiency, acceptance of the risks and consequences of actions (or non-action), assisting those who need assistance (such as the elderly), and encouraging cultural and behavioral changes regarding fire and fire protection are important concepts. Attention will be paid to values to be protected in the middle ground (lands between the community and the forest) including: watersheds, viewsheds, utility and transportation corridors, cultural and historic values, etc”. Western Regional Action Plan (2013), page 15.

This chapter describes community preparedness and education and outreach activities that have been used historically across the Rogue Valley to promote Fire-Adapted Communities, and then outlines measures that communities can continue to pursue to become more fire-adapted.

6.1 COMMUNITY PREPAREDNESS AND OUTREACH

The Rogue Valley has a long history of wildfire education and outreach programs, with many agencies and organizations actively engaging stakeholders in education to improve wildfire preparedness.

Since 1976 the Rogue Valley Fire Prevention Cooperative (RVFPC) has been an active partner in promoting education and outreach activities for residents to help alleviate wildfire risk in their communities.²⁴⁴ During development of the previous county fire plans, efforts were made to better

²⁴⁴ Rogue Valley Fire Prevention Cooperative- <https://rvfpc.blogspot.com/>

coordinate wildfire education in Jackson and Josephine counties; as a result a sub-committee of the RVFPC (the Outreach and Education Committee) was formed.

Below is a summary of some of the successes of the Outreach and Education Committee that could be built upon during implementation of the RVIFP:

- The Outreach and Education Committee served as information officers on local fires, and answered phones to give residents pre-evacuation information. Several publications were developed to be used by the fire prevention team (Appendix D), including a flip-book style handout addressing wildfire awareness and preparations, the “Living with Wildfire” booklet, the “Firebrand” newsletter (which had ten printed issues through 2013), and wildfire evacuation literature. Wildfire safety radio spots and video public service announcements were created, and a series of public presentations were given throughout the Rogue Valley by committee members and invited speakers.
- The Outreach and Education Committee coordinated a free Woody Vegetation Disposal Day in each county, and a spring wildfire awareness campaign that included radio announcements, mailings, TV public service announcements, and table top displays discussing defensible space actions that were used at local events.
- To increase effectiveness of public education efforts, wildfire public surveys were developed by the RVFPC and administered from 2010-2012 to over 27 communities or neighborhoods. Results showed that there is strong public interest in and concern about wildfire and results suggest that the outreach and education efforts of the RVFPC and partners have been successful in raising public awareness of wildfire. ²⁴⁵
- The Master Land Steward Program was introduced in 2009 through the Oregon State University (OSU) Extension Service to assist rural residents in addressing wildfire and other ecological issues on their properties. The program consists of a 10-week training session and on-going classes are conducted annually.
- A Citizen Fire Academy was developed to increase the outreach capacity of fire agencies. The academy was designed to increase implementation of defensible space and other Firewise practices and build residents’ capacity to deal with wildfire in their community.

²⁴⁵ RVFPC Wildfire Public Opinion Survey: <https://rvfpc.wordpress.com/113-2/>

- The Rogue Valley Fire Chief’s Association (RVFCA) developed a formal training package to provide home wildfire risk assessment training at local fire districts and wildland agencies, and implemented training for a number of years.
- Wildfire education kits were completed and distributed to various agencies. The kits have been used in many schools throughout both counties.
- New fire prevention signs were produced and displayed throughout the counties on major travel routes.
- The BLM offers wildfire education programs at McGregor Park and Table Rocks for students. Teachers can book field trips to McGregor Park that use specific kits like "Matchstick Forest" and "Fire Tag" where students are led through a series of activities exploring the importance of fire in our forests. They learn about the adaptations plants and animals have developed to survive and actually benefit from fire. Students learn how forest fires presently and historically are an important component in a healthy forest, where fire comes from, and what wildland firefighters are doing to manage fire in our forests. In addition, Table Rocks guided hikes can be tailored to specifically address wildfire topics.

6.1.1 Defensible Space

Defensible space is perhaps the fastest, most cost-effective, and most effective means of reducing the risk of loss of life, property and infrastructure. The various fire agencies throughout these counties have already laid a strong foundation for effective wildfire mitigation by working with county residents regarding wildland fire safety and prevention. Although fire agencies can be valuable in providing guidance and assistance, creating defensible space is the responsibility of the individual property owner (Figure 6.1).



Figure 6.1. *An example of well implemented defensible space treatment in the Rogue Valley. Credit: BLM, with special thanks to the family of the late Ed Reilly.*

Both Jackson and Josephine counties have land use planning requirements (Section 8.7 of the Jackson County LDO and Article 76 of the Josephine County LDO) that require residents to provide and maintain a 100-foot-wide fuel break around all new construction. These local guidelines, endorsed by all of the rural and municipal fire districts in the region, are more stringent than the state’s Senate Bill 360 requirements, but provide for a larger margin of safety for homes situated within the WUI. Defensible space tactics have been proven to protect property and infrastructure across the nation. The Institute for Business and Home Safety provides a recommendation for a 5-foot-wide non-combustible zone immediately adjacent to structures.²⁴⁶ This recommendation is reflected in defensible space guidelines provided in existing publications listed in Appendix D of this document.

It is important to note that no two properties are the same. Property owners and communities are encouraged to research which treatments or property retrofits would have the most effect for their properties. Owners of properties on steep slopes, for example, should be aware that when constructing defensible space they have to factor in slope and topography, which would require extensions to the

²⁴⁶ Institute for Business and Home Safety: www.disastersafety.org

conventional clearance recommendations. A number of educational programs are now available to property owners through programs like Firewise USA.

Effective defensible space consists of an essentially fuel-free zone adjacent to the home, a treated secondary zone that is thinned and cleaned of surface fuels, and (if the parcel is large enough) a transitional third zone that is basically a managed forest area. These components work together in a proven and predictable manner. Zone 1 keeps fire from burning directly to the home. Zone 2 reduces the adjacent fire intensity and the likelihood of torching, crown fire, and ember production. Zone 3 does the same at a broader scale, keeping fire intensity lower by reducing ladder fuels and creating canopy separation (Figure 6.2).

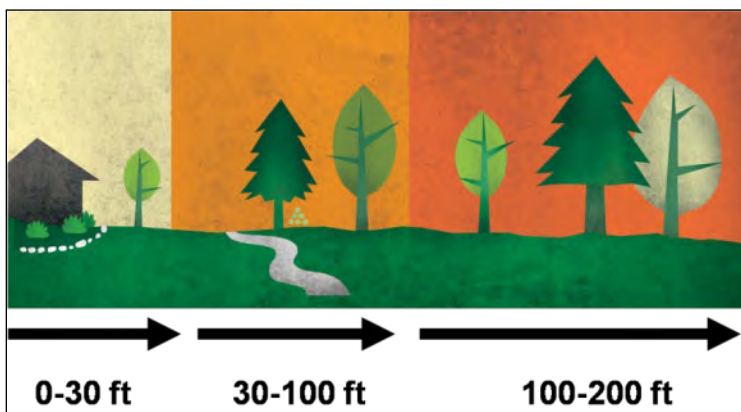


Figure 6.2. Defensible space zones (Source: www.firewise.org).

Within the defensible space area, a vertical separation of three times the height of the lower fuel layer is recommended. For example, if a shrub growing adjacent to a large pine tree is three feet tall, the recommended separation distance between the top of the shrub and the lowest branches of the tree would be nine feet. This could be accomplished by removing the lower tree branches, reducing the height of the shrub, or both. The shrub could also be removed or replaced with a fire-resistant species.²⁴⁷

It should be emphasized that defensible space is just that—an area that allows firefighters to work effectively and with some degree of safety to defend structures. While defensible space may increase the chance of a property surviving a fire, survival is not guaranteed, with or without firefighter protection. Nevertheless, when these principles are consistently applied, everybody benefits.

²⁴⁷ https://www.co.josephine.or.us/files/fire_county_jcifp_booklet.pdf

Specific recommendations should be based on the particular conditions adjacent to a structure such as slope steepness and fuel type. Local fire authorities or ODF should be contacted if a professional assessment seems warranted. Firewise guidelines are an excellent resource, and creating defensible space does not have to be an overwhelming process. Assisting neighbors may be essential in many cases. Property owners should consider assisting the elderly, sharing ladders for gutter cleaning, and assisting neighbors with large or complex thinning needs. Adopting a phased approach can make the process more manageable and encourage maintenance (Table 6.1).

Table 6.1. Example of a Phased Approach to Mitigating Home Ignitability

YEAR	PROJECT	ACTIONS
1	Basic yard cleanup (annual)	Dispose of clutter in the yard and under porches. Remove dead branches from yard. Mow and rake. Clean off roofs and gutters. Remove combustible vegetation near structures. Coordinate disposal as a neighborhood or community. Post 4-inch reflective address numbers visible from road.
2	Understory thinning near structures	Repeat basic yard cleanup. Limb trees up to 6–10 feet. Trim branches back 15 feet from chimneys. Trim or cut down brush. Remove young trees that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.
3	Understory thinning on private property along roads and drainages	Limb trees up to 6–10 feet. Trim or cut down brush. Remove young trees that can carry fire into forest canopy. Coordinate disposal as a neighborhood or community.
4	Overstory treatments on private property	Evaluate the need to thin mature or diseased trees. Prioritize and coordinate tree removal within neighborhoods to increase cost effectiveness.
5	Restart defensible space Treatment cycle	Continue the annual basic yard cleanup. Evaluate need to revisit past efforts or catch those that were bypassed.

6.1.2 “Hardening the Home”- Firewise Construction Guidelines

Homeowners can make significant improvements to their wildfire risk through careful consideration of non-flammable construction measures.

“When considering improvements to reduce wildfire vulnerability, the key is to consider the home in relation to its immediate surroundings. The home’s vulnerability is determined by the exposure of its external materials to flames and firebrands during extreme wildfires. The higher the fire intensities near the home, the greater the need for nonflammable construction materials and a resistant building design.” – Jack Cohen, USDA-Forest Service.²⁴⁸

²⁴⁸ Firewise Guide to Landscape and Construction: download at: <http://www.firewise.org/wildfire-preparedness/be-firewise/home-and-landscape/defensible-space.aspx?sso=0>

- Roofing material with a Class A, B or C rating is fire resistant and will help keep the flame from spreading. Examples include:
 - Composition shingle
 - Metal
 - Clay
 - Cement tile
- Fire resistant building materials on exterior walls will reduce flammability. Examples include:
 - Cement
 - Plaster
 - Stucco
 - Masonry (concrete, brick or stone)
- Windows with double paned or tempered glass can reduce the risk of fracture or collapse during a wildfire. Skylights with glass can be more fire resistant than plastic or fiberglass.
- Enclosed eaves, fascias, soffits and vents with 1/8” metal screen can prevent embers entering the building.
- Overhangs and other attachments (for example decks and porches) should be boxed in and protected with noncombustible or fire resistant materials. Combustible materials should be removed from under decks and porches. Fences constructed of flammable materials like wood should not be attached directly to the house, if necessary metal or masonry barriers should be used.

Information on Firewise approaches to construction and “hardening the home” are available from numerous outlets.^{249 250 251}

²⁴⁹ Oregon State University Extension- Firewise Construction Checklist: http://extension.oregonstate.edu/lincoln/sites/default/files/odf_construction_checklist.pdf

²⁵⁰ Ashland Guidelines for Firewise Construction: <http://www.ashland.or.us/Page.asp?NavID=16829>

²⁵¹ Hardening your Home: <http://www.readyforwildfire.org/Hardening-Your-Home/>

6.1.3 Firewise Communities

In addition to the fire plan work conducted through the various committees, the Firewise USA Program now operates in multiple communities in the Rogue Basin (see Section 1.10.3). Below are examples of Firewise concepts used in the Rogue Valley to help reduce wildfire risk around homes:

- **Increase Wildfire Awareness**
 - Notify property owners that they live in a wildfire hazard zone.
 - Explain how wildfire behaves.
 - Explain how wildfire can affect the home and neighborhood.

- **Provide Education**
 - Improve understanding of the Home Ignition Zone concept.
 - Perform individual home assessments to identify mitigation needs.
 - Provide tailored information for homeowners through literature, workshops and pilot projects.

- **Make Improvements to Structures and landscape**
 - Encourage modifications to home, landscape, and neighborhood to lessen the risk of wildfire damage to life and property.
 - Provide measures property owners can take to lower risks including retrofits to property, access improvements, installation of signs, and defensible space pilot projects.
 - Provide a list of fire-resistant, climate-appropriate plants for home landscaping.
 - Provide information about funding opportunities for implementing fuels reduction projects on private and communal lands (Figure 6.3).



Figure 6.3. Fuels reduction funding coordinated by ODF and Firewise. Credit: ODF

- **Build Ownership**

- Encourage residents to take responsibility to maintain their home and neighborhood in a fire resistant manner.
- Establish a permanent Firewise Committee to perpetuate actions throughout a community²⁵².

Firewise Communities across the Rogue Valley have been successful at completing hundreds of acres of hazardous fuels reduction work on their properties and around their neighborhoods (Figure 6.4). In addition to wildfire protection, the Firewise Communities can also be a source for community emergency services, such as telephone trees, checking to make sure that physically challenged residents are taken care of, and working with local fire districts and local emergency managers and agencies to develop neighborhood evacuation plans to get residents out and allow emergency responders to gain access.



Figure 6.4. Roadside thinning operations carried out by ODF in Jackson County. Credit: ODF

²⁵² Firewise Local Action Plan: <http://www.firewise.org/usa-recognition-program/program-criteria/more-about-your-local-action-plan.aspx?sso=0>

The Firewise USA Recognition Program helps motivate homeowners to sustain their efforts through public recognitions and incentives.²⁵³ The Firewise USA Program provides a broad range of education resources to support homeowners in becoming Firewise, and the program is constantly evolving to align with available funding sources, and to stay current with the latest science and policy.

6.1.4 Existing Local Efforts

One of the goals of the RVIFP is to augment the efforts of communities that have existing wildfire planning efforts and provide support for those that do not. The existence of the RVIFP does not preclude any community from writing their own CWPP. Section 1.4 outlines the current status of community level planning in the Rogue Valley. Other communities have also engaged in fire planning at different levels, but do not have a written CWPP at this time. These communities include the Greensprings, Battle Mountain, Foothills Creek, and Dark Hollow areas.

Although many people are implementing wildfire protection and preparedness measures in the Rogue Valley, many do not; trying to increase the level of participation is crucial in combatting wildfire risk. Perceptions and knowledge about wildfire risk can drive hazard mitigation with research showing that residents who are knowledgeable about wildfire risk are more motivated to take actions.²⁵⁴ Local communities that have a close knit make-up and have united as a community to reduce fire risk are often more successful, with research showing that the mitigation actions of neighbors can influence actions by neighboring homeowners.²⁵⁵ Building community level focus on wildfire prevention is therefore a possible route to success. Continued development of community or neighborhood scale CWPPs is a recommendation of this RVIFP.

6.1.5 Emergency Preparedness

Most fire seasons in the Rogue Valley include a period of extreme fire danger. To help alleviate overextended suppression resources, property owners should take the responsibility of reducing fire hazards in and around their own homes and business properties. Many residents already are actively implementing fire mitigation measures to protect their property, however without more widespread reduction of fire hazards by property owners before a fire occurs, it may be impossible for firefighters to

²⁵³ Firewise Communities Recognition: <http://www.firewise.org/usa-recognition-program/benefits-to-becoming-firewise.aspx>

²⁵⁴ McCaffrey, S., M. Stidham, E. Toman, and B. Shindler. 2011. Outreach Programs, Peer Pressure, and Common Sense: What Motivates homeowners to Mitigate Wildfire Risk? *Environmental Management* 48(3):475-488.

²⁵⁵ Dickinson, K., H. Brenkert-Smith, P. Champ, and N. Flores. 2015. Catching Fire? Social Interactions, Beliefs, and Wildfire Risk Mitigation Behaviors. *Society & Natural Resources* 28(8):807-824.

safely defend some or all of the structures when wildfire threatens an area. A combination of awareness on the part of property owners and the community, public education, agency collaboration, and fuels treatments are necessary to fully reduce wildfire risk.

Integral to risk reduction in the WUI is community emergency preparedness, whereby residents are informed as to actions they can take in the event a wildfire strikes. Both Jackson and Josephine County Emergency Management organizations provide emergency preparedness information on their websites.^{256 257} Examples of preparedness actions are described below:

- Develop a family emergency plan and be sure everyone in your family knows how to implement it.
- Register with Citizen Alert, the local emergency notification system.²⁵⁸
- Register with your phone tree caretaker, if a phone tree has been established in your community.
- Practice your family emergency plan by conducting an emergency drill.
- Arrange for transportation out of affected area for non-drivers and animals.
- Designate a safe meeting place and a contact person for you and family members.
- Assemble a disaster supply kit for family and pets.
- Inventory your home contents; video or photograph property, and place video/photos in disaster supply kit.
- Prepare “water source here” signs if you have a water source on your property.

Community Emergency Response Teams (CERT)

In the event of an emergency, a key resource for the community is a Community Emergency Response Team (CERT). The CERT program educates participants about emergency preparedness and provides basic disaster response training to assist others when first



responders might not be immediately available to help. A number of CERT programs are active in the Rogue Valley. Trainings are offered throughout the year. More information is available on the Rogue Valley Emergency Management website.²⁵⁹

²⁵⁶ Jackson County Emergency Management: <http://jacksoncountyor.org/emergency>

²⁵⁷ Josephine County Emergency Management: <https://www.co.josephine.or.us/EM>

²⁵⁸ Citizen Alert registration: <https://member.everbridge.net/index/1332612387832182#/login>

²⁵⁹ Community Emergency Response Teams: <http://www.rvem.org/rogue-valley-cert.html>

Business Resilience

As was discussed in section 3.15.4, wildfire can have significant impacts on the local economy, especially on businesses that depend on the local surrounding forest environment. Developing resilient businesses is an important part of promoting fire adapted communities. Large wildfires could result in short to long term closures or restricted access to forest land on which many businesses depend. As such it is important that businesses have a plan to prepare for wildfire both during the event and during its aftermath. A number of resources are available to help businesses reduce the impact of potential wildfire, with materials available that could be used as a template during education and outreach efforts.²⁶⁰ Resources are aimed at pre-fire planning to mitigate impacts, as well as guides to help develop recovery strategies.

6.1.6 Evacuation

A key component of the Fire-Adapted Community concept is that residents know how to safely and effectively evacuate.²⁶¹ Jackson and Josephine counties' Emergency Management follows the State's three level evacuation process: Level 1- Be-Ready, Level 2- Be-Set, Level 3- Go.²⁶² Figure 6.5. is Evacuation Information provided by Rogue Valley Emergency Management (RVEM).²⁶³

²⁶⁰ Resources for business owners: <https://www.chumstickcoalition.org/residents-1>

²⁶¹ Before Wildfire Strikes! A Handbook for Homeowners and Communities in Southwest Oregon. 2015. Oregon State University Extension.

²⁶² The three level evacuation process: <http://www.co.josephine.or.us/Page.asp?NavID=1696>

²⁶³ Evacuation Guidance: <http://www.rvem.org/general-evacuation-information.html>

BE READY

Evacuation Plan

- ◆ Make a plan, and be sure everyone in your family understands it.
- ◆ Assign tasks to each family member for what to do during Level 1 (Ready), Level 2 (Set) and Level 3 (GO!) evacuations.
- ◆ Have an evacuation plan for your pets and livestock. *If it isn't safe for you, it's not safe for them.*
- ◆ Designate a meeting place – this could be a friend or family member's house, or an evacuation shelter.
- ◆ Choose an out-of-the-area contact person to relay information about your welfare to family and friends and to keep your phone lines open.

House Preparation

- ◆ Make sure house numbers are visible from the street.
- ◆ Make sure driveways are wide enough for emergency vehicles to enter (10-12 feet wide).
- ◆ Prepare your defensible space.

Emergency Kits - Keep them ready at all times in your home and vehicle.

- ◆ Include supplies for you and everyone who lives in your home or visits regularly.
- ◆ Include supplies for your pets.
- ◆ Include copies of important documents, phone contact lists, family photos, household inventory lists, and any portable valuables.
- ◆ Keep your vehicles filled with gas.

BE SET

- ◆ Keep pets and livestock ready to go in case you need to evacuate in a hurry.
- ◆ Be sure to have your photo ID or something showing your current address in case you need to access an evacuated area.
- ◆ Monitor local television and radio stations for updates.
- ◆ Move propane BBQ appliances away from structures (during wildfires).

GO!

- ◆ Leave house lights on and windows closed.
- ◆ Let your emergency contact and/or family members know where you are going.

Three Levels of Evacuation

In the event of an emergency in your area, you may be asked to evacuate. It's important to understand the different levels of evacuation and what they mean for you, your



Lone Mountain Fire 2009, O'Brien, OR

Entry to evacuated areas may be denied until conditions are safe.

Local TV and radio stations have been asked to broadcast periodic updates. Incident information is also available at:

www.jacksoncounty.org/emergency
www.co.josephine.or.us/em

Be Ready, Be Set, GO!

<p><small>Jackson County Emergency Management 5179 Crater Lake Hwy. Central Point, OR 97502 (541) 774-6790 EM@jacksoncounty.org</small></p>	<p><small>Josephine County Emergency Management 500 NW 6th St. Dept. 6 Grants Pass, OR 97526 (541) 474-5300 jhall@co.josephine.or.us</small></p>
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**Be Ready,
Be Set, GO!**

**Evacuation
Information**



*What you need to know
before it's time to go*

**Be Ready
Level 1 Evacuation**

BE PREPARED

Residents should be aware of the danger that exists in their area, monitor emergency services websites and local media outlets for information.



2005 flood—Riverside Inn, Grants Pass, OR

This is the time for preparation and precautionary movement of persons with special needs, mobile property and (under certain circumstances) pets and livestock. If conditions worsen, emergency services personnel may contact you via an emergency notification system.

All residents should be at this level of readiness at all times!

Cover photos: Debris slide on I-5, 2005. Photo courtesy of ODOT. Air Tanker #2 making drop on the Jeral Heights Fire-Medford, OR 2008. Photo by Tyler McCarty, ODF

**Be Set
Level 2 Evacuation**

**YOU MUST PREPARE TO LEAVE AT
A MOMENT'S NOTICE**

This level indicates there is significant danger to your area, and residents should either voluntarily relocate to a shelter or with family/friends outside of the affected area, or if choosing to remain, to be ready to evacuate at a moment's notice.

Residents MAY have time to gather necessary items, but doing so is at their own risk.

**THIS MAY BE THE ONLY NOTICE
THAT YOU RECEIVE**

Emergency services cannot guarantee that they will be able to notify you if conditions rapidly deteriorate. Area media services will be asked to broadcast periodic updates.

Sign up to receive EMERGENCY ALERTS about emergencies near your home, workplace, children's schools or other important places!

Jackson County: www.jacksoncounty.org/alert
 Josephine County: www.co.josephine.or.us/alert

**GO!
Level 3 Evacuation**

LEAVE IMMEDIATELY!

Danger to your area is current or imminent, and you should evacuate immediately. If you choose to ignore this advisement, you must understand that emergency services may not be available to assist you further.

DO NOT delay leaving to gather any belongings or make efforts to protect your home.

**THIS WILL BE THE LAST NOTICE
THAT YOU RECEIVE**



Bryson Way, Medford during December 2014 windstorm
Photo courtesy of EDRV NewsWatch 12

Figure 6.5. Evacuation Information provided by Rogue Valley Emergency Management (RVEM)

During an evacuation situation, residents should prepare to leave by carrying out the following:

- 1) *Evacuate, if possible, all family members and pets. Review your family evacuation plan and meeting place. Contact friends or relatives once you have reached safety.*
- 2) *Wear long cotton pants, long-sleeved shirts, and boots. Carry gloves, cotton hat, handkerchief, water, and goggles.*
- 3) *Place vehicles in the garage, pointing out, and roll up the windows. Be sure to park where you will not interfere with any emergency vehicle if you need to leave in a hurry. Place valuable papers and mementos in the car. Close garage door, leaving it unlocked. Disconnect electric door opener. Place patio furniture inside.*
- 4) *Fill bathtubs, sinks, trash cans, buckets, and other containers with water. Soak rags and towels for beating out embers and small fires.*
- 5) *Close all interior and exterior doors, windows and vents.*
- 6) *Close the fireplace damper and place a screen over the hearth.*
- 7) *Remove lightweight non-fire-resistant curtains. Close fire-resistant window coverings. Attach pre-cut plywood panels to the exterior side of windows and glass doors. Move furniture to the center of each room and leave the light on.*
- 8) *Turn off pilot lights. Shut off propane at the tank, or natural gas at the meter.*
- 9) *Prop a ladder against the house so that firefighters have easy access to the roof. Keep wood shake or shingle roofs moist. Place a sprinkler on the roof, but do not turn on until embers begin to fall on the roof.*
- 10) *Attach garden hoses to faucets and attach a nozzle set on spray.*
- 11) *If a fire should occur within the house, call 9-1-1. Then solicit help of neighbors to fight the fire until firefighters arrive. Go outside if you can't immediately put the fire out. Most importantly, STAY CALM!*
- 12) *Remember, prior planning pays off. Have a family evacuation plan in place, and update it annually!*

Residents can sign up to receive emergency alerts through the Citizen Alert Emergency Notification System through County Emergency Management. Other emergency notifications are provided through Jackson and Josephine county emergency management Facebook pages, and other local media outlets.

Preparedness for People with Access and Functional Needs

Anyone with a disability, or who lives with or assists a person with a disability or special need, should create a disaster plan to reduce the physical and emotional trauma caused by an emergency, and should sign up for the Disaster Registry.²⁶⁴

Animals

Many rural residents have horses and livestock, and pets are common in homes throughout both counties (Figure 6.6). Evacuation planning often neglects to describe how animals will be evacuated and where they will be taken. The loading of horses, for example, during a fire and smoke situation, and transport of stock vehicles down narrow roads under stressful situations, can be very difficult. Public education could emphasize the need to practice loading horses quickly and safely.



Figure 6.6. *Livestock owners must have a plan for evacuation of their animals in the event of a wildfire.*
Credit: Illinois Valley Fire District

²⁶⁴ Disaster Registry: http://www.rvcog.org/mn.asp?pg=sds_dr

It is the responsibility of the owner to plan for emergency evacuation of their animals, including transport and housing during the incident. Literature is available to help owners prepare for emergency evacuation of animals and livestock.²⁶⁵

6.2 ACTIONS TO PROMOTE FIRE ADAPTED COMMUNITIES

“Fire Adapted Communities are communities of place that can collectively plan for, mitigate or recover from, and adapt to changing wildfire events without losing function or sustaining significant loss of life and property.”²⁶⁶

As discussed in Section 7.1, the Rogue Valley Community has been engaged in a significant amount of wildfire outreach over the past decade and more, with varying success. An interesting compilation of opinion survey results from the region was provided by SOFRC in 2014, and has been referenced throughout this RVIFP.²⁶⁷ Social science research on wildfire has revealed many factors that can influence people’s ability to plan for and respond to wildfire, including perceived risk, willingness to collaborate, sense of place, presence of community initiatives, previous experience, financial capacity, willingness to work together, knowledge of local wildfire regimes, and many others.²⁶⁸

In 2015 two Rogue Valley communities were included in a broad social science study of 18 populations living in or near the Wildland Urban Interface (WUI).²⁶⁹ The premise of the study was that a WUI contains diverse sets of populations and communities with different constraints and motivations, and that these communities react differently to wildfire risk reduction and policy. The communities of Applegate and Cave Junction were chosen by the researchers and were placed on a spectrum of WUI communities based on various community characteristics (Figure 6.7). The Applegate community was categorized as a high amenity, high resource WUI community, while Cave Junction was categorized as a working landscape/resource dependent WUI community. The inclusion of these two Rogue Valley communities in the study allows us to draw some information from the findings that could inform future outreach in the Rogue Valley.

²⁶⁵ Saving the Whole Family, Disaster Preparedness Series: https://ebusiness.avma.org/files/productdownloads/STWF_English.pdf

²⁶⁶ Pavaglio TB, Moseley C, Carroll MS, Williams DR, Davis EJ, Paige FA. 2015a. Categorizing the social context of the Wildland Urban Interface: Adaptive capacity for wildfire and community “archetypes.” *Forest Science* 61: 298–310. (quote from page 299).

²⁶⁷ SOFRC- Contours of Support for Forest Restoration in Southwest Oregon: <http://sofrc.org/wp-content/uploads/2015/05/Illinois-Valley-Timber-Assessment.pdf>

²⁶⁸ MCCAFFREY, S., E. TOMAN, M. STIDHAM, AND B. SHINDLER. 2013. Social science research related to wildfire management: An overview of recent findings and future research needs. *Int. J. Wild. Fire* 22(1):15–24.

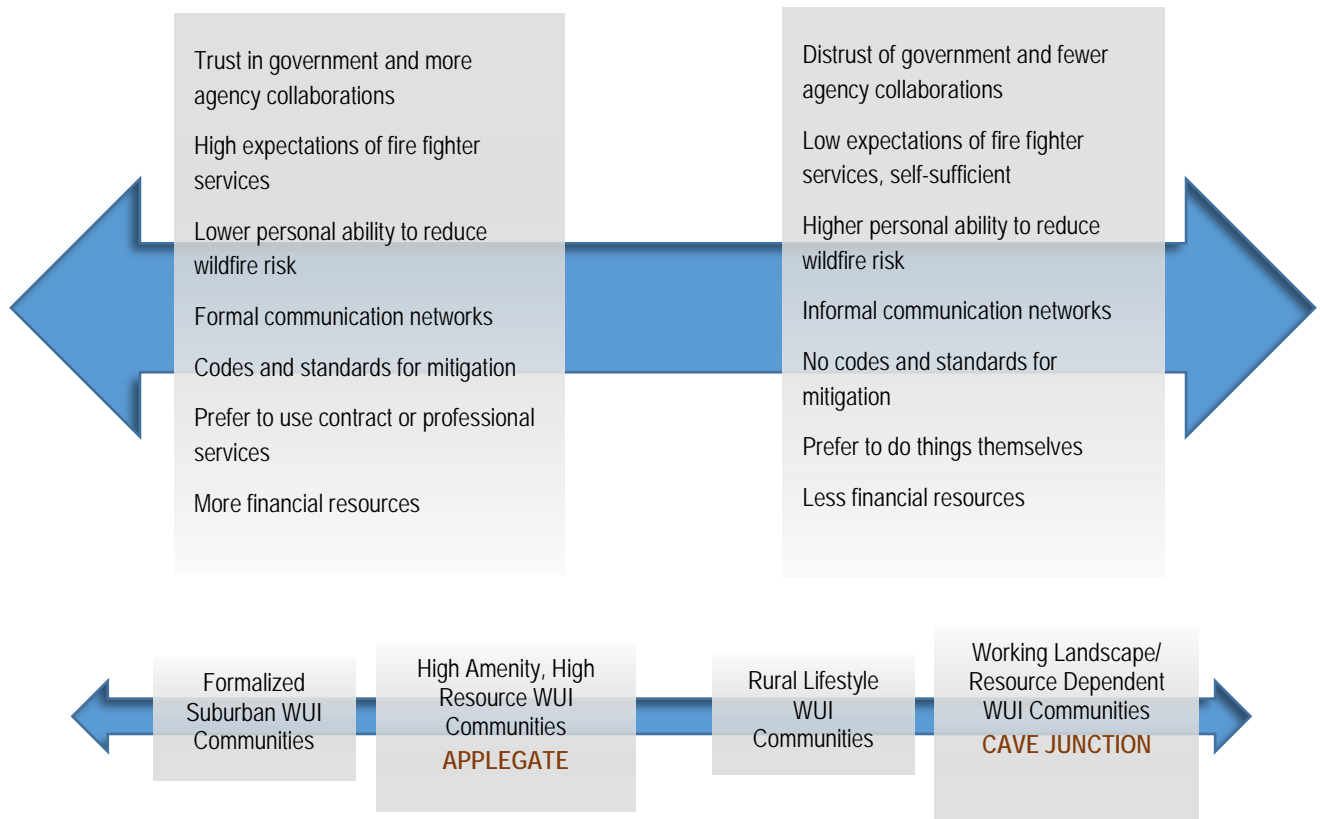


Figure 6.7. Continuums characterizing differences in characteristics among WUI archetypes. Adapted from study by Paveglio et al. (2015) which took 18 WUI communities from 7 western states and studied the varying characteristics of their populations, then grouped them into 4 WUI archetypes, listed above. The study included the Applegate and Cave Junction WUI communities.²⁷⁰

The study found that communities with different social contexts are likely to establish different strategies for planning, mitigating, and recovering from fire (Figure 6.8). For example, working landscape/resource dependent communities like Cave Junction had a preference for organizing efforts themselves, and were more likely to use information from trusted local sources (e.g. local fire departments) to organize their own practices in line with traditional skills and practices of landscape management. Communities like Applegate that are categorized as high amenity, high resource, were more likely to frame wildfire management as an effort to restore ecosystem health and to retain quality of recreational activities near their community, and had high expectations of fire fighter services. The study found that the scale of mitigation efforts also varied by community type. Fuels projects that were supported by high amenity, high resource WUI communities included things like region-wide fuel breaks that involved collective action by partners. On the other hand, working landscape, resource dependent

²⁷⁰ Paveglio 2015. Ibid.

communities supported more local, adjacent parcel projects, or individual property treatments. In keeping with these observations, the focus of fuels treatments differed for the Rogue Valley communities in the study. The Applegate community focused on landscape conservation for the upkeep of natural amenities that draw people to the area and to retain the rural character, while the Cave Junction community focused on harvest and forest-use as viable means to promote forest health.

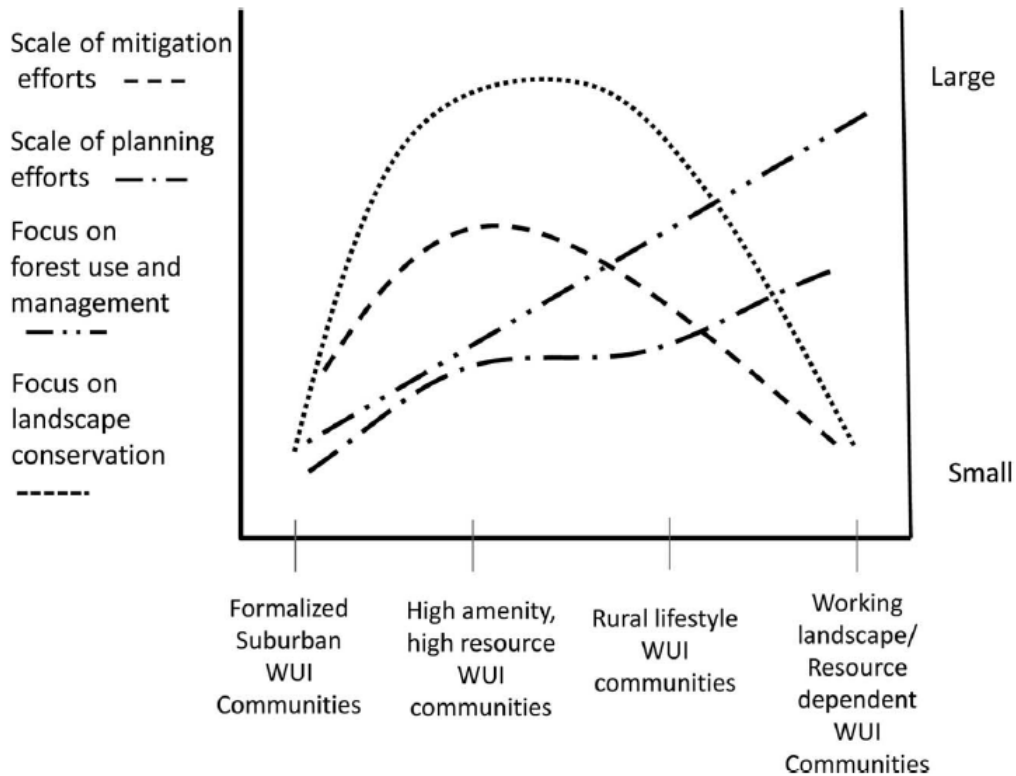


Figure 6.8. Relative approaches to fire mitigation planning among WUI archetypes. Taken from Pavaglio et al. (2015). Note in that study Applegate was categorized as a High Amenity, High Resource WUI Community and Cave Junction was categorized as a Working Landscape/Resource dependent WUI Community.

The main conclusions to be drawn from this study are that communities that have important characteristics in common also face similar challenges when it comes to wildfire risk and mitigation and therefore could draw from similar resources while adapting to that risk and becoming fire-adapted communities. If WUI communities in the Rogue Valley could be grouped into the four archetypes, then future community outreach and education could be better tailored to those varied characteristics and likely lead to greater success. For example, programs that foster grassroots organizing efforts with local leaders and use informal communication networks are more likely to be effective in communities like

Cave Junction or rural lifestyle communities, while WUI communities in suburban settings favor more formal communication, with programs led by firefighting or emergency management professionals.

Different communication strategies are needed to reach the varied population types across the Rogue Valley. If tailoring a message is too costly, the Paveglio study highlights that it is important to approach wildfire outreach and education broadly to account for the diversity inherent in WUI populations.

Finding an approach that resonates with everyone in the WUI is the key to success.

The Firewise USA recognition program and other similar fire prevention outreach programs provide extensive educational literature on fire prevention activities that property owners and communities can engage in to reduce their wildfire risk and hazard. These materials are often designed to provide some flexibility so that they are suitable for varied WUI populations.

6.3 RECOMMENDATIONS TO PROMOTE FIRE ADAPTED COMMUNITIES

Table 6.2 provides a list of strategic recommendations to continue to promote Fire Adapted Communities throughout both counties. It is important to note that being fire adapted requires ongoing maintenance and reflexive management as the goals of fire adaptation are constantly changing and the population itself changes over time as people move into or away from a community. For this reason, goals for education and outreach should be reviewed and adapted to determine their effectiveness, especially in light of the varied community types within the RVIFP boundary and the different outreach mechanisms that may be needed to resonate with each community.

These elements are placed within the Cohesive Strategy Framework in Chapter 1, Table 1.2.

Table 6.2. Recommendations to Promote Fire Adapted Communities

PROJECT DESCRIPTION	METHOD/TASKS	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Identify community-scale actions to improve wildfire preparedness.	<ul style="list-style-type: none"> Continue to promote development of local subdivision or neighborhood CWPPs or other community plans that provide solutions for: <ul style="list-style-type: none"> -fire resistant building materials and defensible space -concentrations of hazardous fuels adjacent to values at risk -evacuation concerns and limited safe areas to shelter in place -poor emergency access like narrow driveways, insufficient turnaround space, one-way in and out -emergency response capability and unprotected areas -insufficient water supply Consider tailored outreach to communities based on findings of 2015 Paveglio paper Encourage regional collaboration on the Be Ready, Be Set, Go! Evacuation education and marketing. 	5 years	1	Monitoring: <ul style="list-style-type: none"> Record number of local/municipal CWPPs/other community plans. Sustainability: <ul style="list-style-type: none"> During five year review of plan, review status of community-scale planning and identify priority communities to be targeted for outreach. 	RVIFP Coordinator led project. SOFRC ODF
Promote property owner responsibility for wildfire preparedness through outreach and education.	<ul style="list-style-type: none"> Continue to provide information to individuals and property owners for creating defensible space and reducing the susceptibility to structures to wildfires by identifying websites and other sources through the RVIFP Story Map. Create a central repository for all education and outreach materials for the Rogue Valley. Continue to promote the Firewise USA Program throughout the Rogue Valley and seek diverse funding to support the program over the long term. 	Ongoing	1	Monitoring: <ul style="list-style-type: none"> Record number of individual & property owner contacts. Sustainability: <ul style="list-style-type: none"> Information to be reviewed and revised annually and updated on the Story Map site and on county websites. Updates to be incorporated into written RVIFP during five year update. 	RVIFP Coordinator led project. RVFPC SOFRC ODF
Continue to promote forest resiliency as a key element for wildfire preparedness in the WUI.	<ul style="list-style-type: none"> Provide information to the public about Forest Resiliency, Fire Adapted Community Concepts and Policy and Budget through the use of existing FAC Learning Networks and other proven networks like the Southern Oregon Forest Restoration Collaborative. 	Ongoing	1	Monitoring: <ul style="list-style-type: none"> Record number of public events attended; Record number of groups/agencies participating in promoting awareness; Record survey responses; Record media coverage, letters to editor. 	RVIFP Coordinator led project. SOFRC ODF
Build on existing efforts that promote wildfire awareness in the public domain; maximize outreach by targeting broad interest groups.	<ul style="list-style-type: none"> Create and maintain an updated calendar of public events in Rogue Valley, and identify opportunities for providing fire prevention education. Encourage and provide fire prevention messages at local community celebrations and events, including the ecological benefits of fire and the impacts, such as smoke management. 	Annually Pre-fire season	2	Monitoring: <ul style="list-style-type: none"> Could be an agenda item at relevant committee meetings to gather upcoming events into a central calendar. Record number of public events attended; and number of groups/agencies participating in promoting awareness. Record (when possible) audience numbers at an event. Sustainability: <ul style="list-style-type: none"> Identify under-represented groups or demographics and revise focus to incorporate these groups. Consider findings of the Paveglio paper to inform outreach types and tailor message or approach accordingly. 	RVIFP Coordinator led project. Multi-agency input required. SOFRC RVFPC

PROJECT DESCRIPTION	METHOD/TASKS	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Ensure a process for two-way communication between agencies and the community.	<ul style="list-style-type: none"> Identify and seek participation from interest groups and agencies to assist in communication efforts. Set-up a RVIFP social media page to encourage communication, and to alert the community of upcoming events. Promote the RVIFP Story Map as an accessible media through which to inform the public. 	On-going	1	Monitoring: <ul style="list-style-type: none"> Record number of public events attended; Number of groups/agencies participating in promoting awareness. 	RVIFP Coordinator led project. Multi-agency input required. Agency Information Officers.
Strengthen local and regional regulations for building construction in the WUI	<ul style="list-style-type: none"> Work with county planning on enforcement of WUI building codes. 	On-going	2	Monitoring: <ul style="list-style-type: none"> Reports of code enforcement violations. 	County Planning Departments
Improve preparedness and resilience of local businesses and organizations so that they are better able to survive wildfire and its aftermath.	<ul style="list-style-type: none"> Reach out to local small and large business with outreach materials that provide information on improving wildfire preparedness, before, during and after wildfire. 	2 years	1	Monitoring: <ul style="list-style-type: none"> Number of businesses reached. 	RVIFP Coordinator led project. Multi-agency input required. Agency Information Officers.

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7 RVIFP GOAL 3- WILDFIRE RESPONSE

Goal 3 of the CWS/WRAP is:

Wildfire Response: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions:

“A balanced wildfire response requires integrated pre-fire planning with effective, efficient, and coordinated emergency response. Pre-fire planning helps tailor responses to wildfires across jurisdictions and landscape units that have different uses and management objectives. Improved prediction and understanding of weather, burning conditions, and various contingencies during wildfire events can improve firefighting effectiveness, thereby reducing losses and minimizing risks to firefighter and public health and safety. Wildfire response capability will consider the responsibilities identified in the Federal Response Framework. Local fire districts and municipalities with statutory responsibility for wildland fire response are not fully represented throughout the existing wildland fire governance structure, particularly at the NWCG, NMAC, and GACC levels”. Western Regional Action Plan (2013), page 15.

This chapter describes fire response capabilities throughout the Rogue Valley and provides recommended actions that jurisdictions could undertake to improve wildfire response.

7.1 FIRE RESPONSE AND SUPPRESSION CAPABILITIES

The Rogue Valley benefits from a well-coordinated fire response force from multiple agencies. Relationships among cooperators are long established, solid, and well-integrated. Good communication is at the forefront of this cooperation, which according to responders, results in seamless transitions on incidents. Wildfire response in the Rogue Valley also aligns well with the intent of the Cohesive Strategy. Contracts, agreements, and processes are in place that provide for effective and efficient fire response.

7.1.1 Wildfire Response

Wildfire suppression in the Rogue Valley falls under the responsibility of multiple fire agencies at various levels of government. At the federal level, the USFS (Rogue River-Siskiyou National Forest) maintains firefighting crews and equipment on staff and can hire contract resources during a fire to augment federal resources. Aerial resources include the Rogue-Siskiyou National Forest Siskiyou Rappel Crew

stationed in Merlin; an exclusive use air attack platform based in Medford; and various additional helicopters and fixed-wing aircraft for aerial surveillance and suppression of fires that are brought in as needed (Figure 7.1 and Figure 7.2).



Figure 7.1. Helicopters use local water bodies such as the Rogue River to fill their buckets to provide water for aerial suppression. Credit: ODF.

The Medford District BLM contracts wildfire protection duties to ODF, but also maintains a staff of approximately 140-160 firefighters trained in firefighting and the Incident Command System (ICS; Command and General Staff). BLM employees can be called on by ODF and the USFS to work on a fire in

a variety of roles. The BLM contract with ODF is for direct suppression activities and overhead management of suppression, although there are BLM overhead-trained personnel who often manage a fire to free up ODF personnel for other fires or initial attack responsibilities. The BLM district manager maintains land management responsibility and BLM representatives serve on multi-agency coordinating groups and as part of unified command. A representative from BLM, including a resource advisor, is appointed to each fire to assist with land management issues related to the fire. The BLM jointly participates in agreements for aerial firefighting.

ODF is the agency responsible for wildfire protection on private, county, state, and BLM lands in the Rogue Valley. When fires burn beyond initial attack, ODF is geared up to obtain fire overhead teams, bulldozers, hand crews, fire engines, helicopters, retardant planes, and any other fire-fighting resources necessary to control wildfires.

Cooperation with the rural fire agencies allows for effective initial attack on many fires in the interface area because any fire agency can take initial attack actions to stop the spread of wildland fires. This cooperation is promoted by working under the incident command system, which allows for a coordinated, structured effort between fire agencies from initial attack through extended attack. ODF's priorities are life, resources and property. ODF is not trained, funded or equipped to fight structure fires, however they are able to assist structural fire crews in prepping the area around a structure to minimize potential damage from advancing wildfire.

Aviation Resources

Aviation management includes all activities associated with providing aircraft support services for natural resource protection and management functions.²⁷¹

A key fire-fighting resource maintained in the Rogue Valley is the Medford Airtanker Base. The base provides strong interagency support for wildland fire suppression in southwestern Oregon and northern California, with partners including the USFS, BLM, ODF and five counties. Up to three helicopters and aircraft used for reconnaissance and fire suppression activities are also staffed annually by ODF SW and are located throughout the Rogue Valley.

²⁷¹ Southwest Oregon Interagency Fire Management Plan (2014): https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3813539.pdf

The base is funded and operated through State of Oregon severity funding, USFS funds, county Title II grant funding, and by operational funds dedicated during a wildfire incident. ODF provides staffing with trained seasonal fire-fighters, and the USFS provides administration and program oversight.



Figure 7.2 DC-10- Very Large Air Tanker (VLAT)

The large air-tanker program provides aviation resources for suppression of wildfires on federally-managed and ODF protected lands. Without the base, the nearest aviation resources are located some distance from the Rogue Valley, in Redmond OR, Klamath Falls OR, or Redding CA, resulting in longer flight times and longer turn-around times for refueling and restocking retardant. The Medford base also

has the capacity to house the DC-10- Very Large Air Tankers (VLATs) that are highly valued for suppression because of their significant retardant capacity (over 8,000 gallons), covering a swath up to three hundred feet wide and one mile long during one drop, which is four times the coverage of other tankers currently in use (Figure 7.2).²⁷² The VLATs have been stationed at the base since 2014 and used during every fire season.

Other aerial resources at the tanker base include Large Air Tankers (LATs) that have a retardant capacity of 2,000 to 4,000 gallons; Single Engine Air Tankers (SEATs) that have a smaller retardant capacity (800 gallons), but can operate in areas where large air tankers cannot; and other aerial support such as air attack planes that provide coordination of aerial resources and lead planes that guide air tankers to their drop zone.

The tanker base is an interagency resource that is valued by fire responders and by the public. The long-term sustainability of the base is a concern of fire managers who depend on the accessibility of these aerial suppression resources for initial attack of wildfires and aggressive suppression tactics to keep fires small and thereby limit impacts to communities in the WUI.

Fire Lookouts and Fire Detection Camera System

A critical element of wildfire response in the Rogue Valley is timely fire detection. Historically the Rogue Valley had over 70 lookout sites within the 2-county area. These lookouts were staffed by ODF and USFS, but many of the USFS lookouts are no longer being staffed due to aging infrastructure and staff safety concerns. With fewer staffed lookout locations, the detection system throughout the valley is compromised. To expand detection, ODF and the USFS have been installing wildfire detection cameras in high risk areas throughout the valley. A fully staffed office supports the camera operation. Figure 7.3 shows the locations of these cameras and the sites that will be staffed for the 2017 fire season.

²⁷² Very Large Air Tanker: <http://www.redzone.co/2015/11/13/the-dc-10-very-large-air-tanker-vlat/>

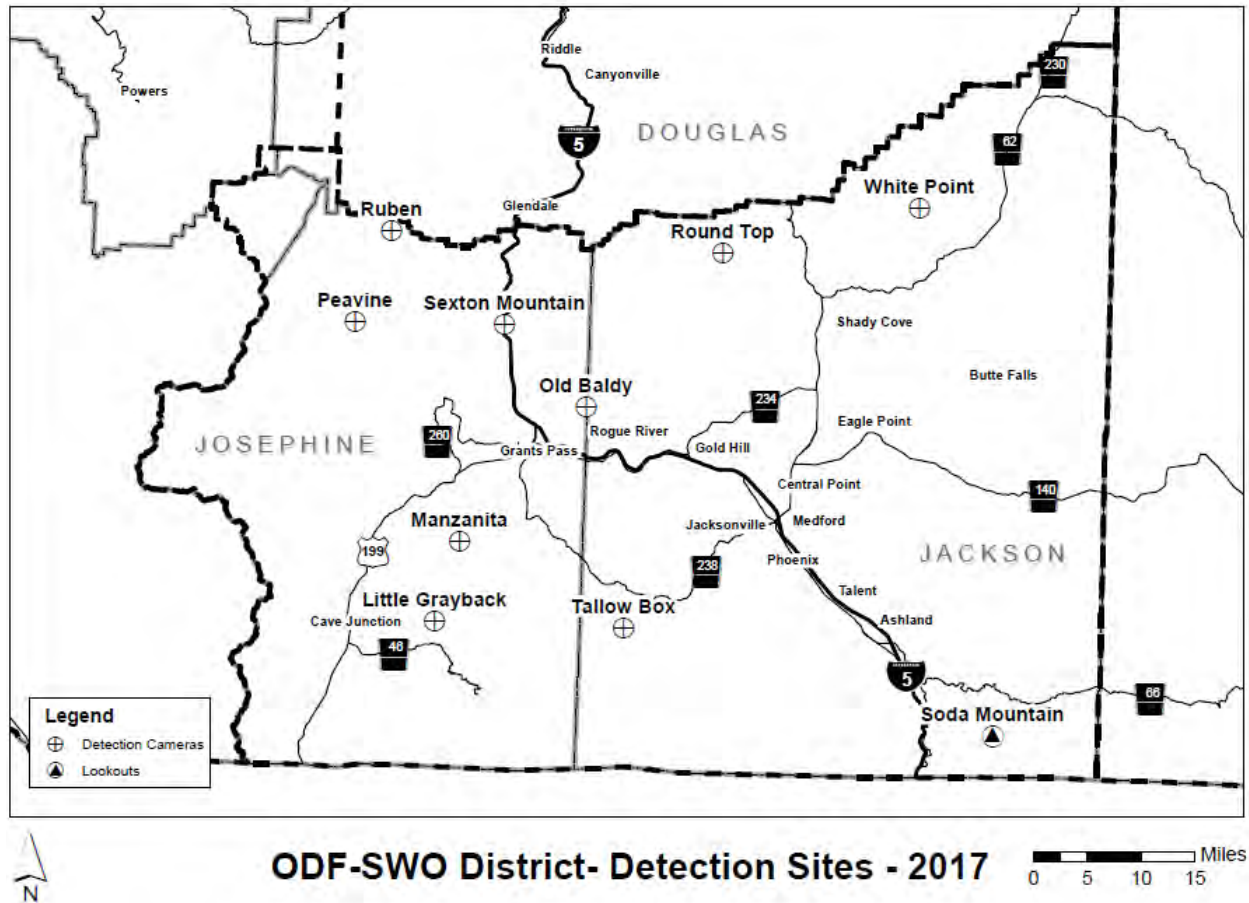


Figure 7.3. Locations of Oregon Department of Forestry- Southwest Oregon District- staffed lookouts and detection cameras in the RVIFP area.

Fire detection cameras are providing an economical alternative to staffed lookouts, which have been declining nationwide due to budget cuts. Detection cameras also provide the following benefits for wildfire response:

- Significant reduction in the time between fire ignition, discovery, and dispatch, which results in smaller fires, with lower suppression costs and fewer impacts to communities.
- Reduced staffing costs since eight cameras can be monitored by a single operator and automatic alerts combat human error.
- 24/7 protection through the use of infrared and near-infrared technology.
- Assistance with real-time fire-fighting as information can be used to gather critical weather information, and can provide observations on fire growth and changes in situations, all of which assist with coordinating fire-fighter response improving safety, and reducing property damage.

- Multiple applications, such as providing surveillance against theft, arson, poaching and other unlawful activities.

7.1.2 Structural Response

Seventeen city fire departments and rural fire districts provide structural fire protection within Jackson and Josephine counties. Additionally, private fire service companies provide fire services for a 330-square-mile area outside fire district taxing boundaries in Josephine County. This area is referred to as “structurally unprotected” land, or the “unprotected area.” Homes in these areas are outside of structural city and rural fire protection districts. While many of these homes have contract fire protection, not all of these contract services meet safety standards, there is no fire agency with authority to enforce fire prevention codes, and responsibility for mobilization of statewide resources falls on county government.

Rogue Valley Fire Chiefs Association

The Rogue Valley Fire Chiefs Association (RVFCA) is an integral organization for fire responders in the Rogue Valley. The association provides a forum for all cooperators to meet, plan, and review fire response capabilities in the valley, including addressing any issues that may arise. The association is open to any fire and emergency service official in Jackson or Josephine counties as well as representatives of other associated organizations, including but not limited to the Rogue Interagency Training Association, Rogue Valley Fire Prevention Cooperative, Jackson and Josephine county 911 Public Safety Answering Points (PSAP)/Dispatch Centers, Jackson and Josephine county emergency management, Oregon State Police, and the Oregon State Fire Marshal. The federal partners are also closely integrated into the RVFCA as well as ODF, providing a conduit back to the federal agencies. The professional relationships that are built through the membership of the RVFCA have resulted in a significant degree of trust and respect between members that is unique to this region.



Fire Defense Board

Each county in Oregon has a nominated Fire Chief who sits on the state Fire Defense Board and serves as a liaison to the State Fire Marshal. Jackson and Josephine County’s designated Fire Chiefs can act for each other on the board. As a result, these Fire Chiefs have become well-acquainted with operations

throughout the entire Rogue Valley and not just within their jurisdiction, further improving integration of emergency resources across county lines.

In addition to the County Fire Defense Board Chiefs (FDBC), other nominated chief officers of the RVFCA can act as the FDBC assisting with the coverage of the position as needed.

Rogue Valley Incident Management Team

The RVFCA is the sponsoring organization for the Rogue Valley Incident Management Team (RVIMT). The RVIMT is a pool of qualified personnel operating and responding under the terms of the RVFCA Mutual and Automatic Aid Agreement. The RVIMT is intended to augment local incident managers commensurate with incident needs, and, if the incident complexity changes, to prepare the incident for transition to the appropriate level of management. Team members conduct activities under the general provisions of the National Incident Management System (NIMS).

During development of the RVIFP, cooperators suggested that the RVIMT is currently not used to its full extent and could be better applied to provide needed expertise and oversight for county staff who have not received the same level of training in the Incident Command System (ICS). This is especially true for All-Hazard Incidents where non-fire personnel often lack experience in incident management because, unlike wildfire incidents that are frequently executed, all-hazard incidents are infrequent in the valley; therefore, staff have minimal experience operating in the ICS. Qualified incident management personnel from fire agencies could provide training and oversight to all-hazards staff involved in putting together an Emergency Operations Center. Opportunities for increased all-hazards training could also be pursued for Rogue Valley responders.

Multi-Agency Coordinating Group

It is the policy of the RVFCA to make available to local fire managers the use of a Multi-Agency Coordinating Group (MAC Group) to facilitate the dispatch of limited resources to multiple incidents. This may be necessary when multiple incidents are in close proximity or in overlapping jurisdictions. The MAC Group performs the following duties:

- Prioritizes incidents as needed.
- Assists the Dispatch Centers in assigning an incident to a single jurisdiction, ensuring the best use of resources.
- Keeps track of resource commitment and availability from all agencies involved.

- Handles requests to move resources between jurisdictions.
- Facilitates the coordination of incident jurisdictions between agencies.

Structural and Wildfire Protection Task Force

During a wildfire incident in Jackson or Josephine counties, incident commanders can call on a pre-programmed special task force that mobilizes fire engines and personnel from fire departments in the two counties. This agreement between the fire departments allows for an increased ability to protect homes or other structures during a wildfire, far beyond what local fire departments could accomplish without the task force.

Rogue Interagency Training Association

Rogue Interagency Training Association (RITA) is a non-profit 501(c)(3) organization, comprised of Public Safety Training Officers in Jackson and Josephine counties. RITA's mission is to provide high quality standardized training to the Southern Oregon Region, using local talent when practical, and minimizing training cost to local fire departments and individuals.

RITA supports the Rogue Valley Fire Chiefs Association, as well as Southern Oregon fire and EMS agencies.

7.1.3 County Emergency Management

County Emergency Operations Plans

Emergency Operations Plans (EOPs) are in place for both Jackson and Josephine counties. They provide a framework to guide efforts to prepare for, mitigate against, respond to, and recover from major emergencies or disasters. These plans describe the roles and responsibilities of the departments and certain other agencies during major emergencies or disasters. The EOP sets forth a strategy and operating guidelines using the NIMS Incident Command System (ICS) adopted by the counties for managing response and recovery activities during emergencies and disasters. City and county Emergency Operations/Coordination Centers (EOC/ECCs) can be activated to provide support and coordination when an incident escalates.

County Resources

Jackson and Josephine counties emergency management organizations provide overall coordination and support for activities caused by a wildfire, such as the evacuation and sheltering of people, public information needs, traffic control, and security for evacuated areas.

Resources critical for supporting a WUI wildfire typically are coordinated through county emergency management organizations. These include paid and volunteer resources from the Sheriff's Office, search and rescue, American Red Cross, and animal disaster response resources. In addition, several fire districts have volunteer support groups, including Community Emergency Response Teams (CERTs) that provide logistical support during extended attack situations.

The emergency management communities in Southwest Oregon are extremely well-coordinated, meaning that (facilitated by the existence of a two county Intergovernmental Agreement) emergency managers from adjacent counties can provide cover for each other in the event that local resources are strained or unavailable.

The RVIFP Executive Committee structure can be used to coordinate Emergency Management Tasks related to the RVIFP, and delegate as appropriate.

7.1.4 Coordination and Resource Allocation

National Interagency Coordination Center

The National Interagency Coordination Center (NICC), located in Boise, Idaho, is the focal point for coordinating mobilization of resources for wildland fire and other incidents throughout the United States. In addition to national coordination, NICC also provides a series of products for use by the wildland fire community, including Intelligence and Predictive Services related-products for wildland fire and incident management decision-making. The United States is divided into ten Geographic Area Coordination Centers; Oregon falls into the Northwest Coordination Center (NWCC) Geographic Area.²⁷³ The Northwest Coordination Center provides daily situation reports for wildfire throughout the year as well as national and northwest preparedness levels.

²⁷³ Northwest Coordination Center: <https://gacc.nifc.gov/nwcc/>

Preparedness Levels

The NICC and individual geographic areas (i.e., the NWCC) determine preparedness levels on a scale from 1 to 5 that describe the level of readiness to respond to wildfire. The Preparedness Level is designated for the current day and forecasted for 3-day, 10-day, and 30-day time periods. A preparedness level is based on:

- Modeled outputs of number of ignitions, probability of large fires, numbers of large fires, and potential weather forecast over 10 days.
- Modeled outputs of fire season severity and weather factors such as humidity and fuel conditions.
- Forecasted 30-day climatology and seasonal changes.
- Availability of firefighting resources—crews, aircraft and equipment.
- Wildfire activity in other geographic areas and commitment of resources in other geographic areas.
- Forecasted weather.
- Social/political considerations.

Based on the parameters above, preparedness levels from 1-5 are determined (below).

PL 1: 0-1 active large fires

All resources can be generally exporting as they are available OR there is no significant demand anywhere.

PL 2: 2-4 active large fires

GACC (Geographic Area Coordination Center) resources effectively manage observed/expected activity, while leaving a resource surplus available for export OR low levels of activity observed/expected and heavy export of NW (Northwest) resources outside the GACC.

PL 3: 5-9 active large fires

Critical resources must be imported to ameliorate competition between incidents/forecasted incidents and to facilitate preparedness. Export of non-critical resources continues. Nationally, resources continue to be available.

PL 4: 10-14 active large fires

Heavy commitment of NW resources. Significant import of available resources from outside the NW is necessary to meet incident demands and maintain preparedness. Competition between GACCs affects timing and magnitude of resource mobilization.

PL 5: > 14 active large fires

Full commitment of NW resources imminent. Nationally, competition for resources significantly restricts resource imports. Other emergency measures are necessary to sustain incident management and GACC Preparedness.

Source: Northwest Coordination Center Preparedness Plan

Pacific Northwest Multi-Agency Coordinating (MAC) Group

The Northwest MAC Group works to provide adequate firefighting resources to meet current and anticipated needs in the Northwest Region. The MAC Group decides where to allocate resources most effectively during periods of shortage.²⁷⁴ The MAC:

- prioritizes incidents;
- allocates or reallocates firefighting personnel and equipment;
- facilitates federal and state disaster response;
- informs media and agency heads; and
- resolves issues.

Southwest Oregon Coordinating Group

The Southwest Oregon Coordinating Group (SWOCG) actively coordinates and collaborates throughout the year on wildfire issues in the southwestern Oregon region. SWOCG handles various topics, including management of initial and extended attack fires; sub-geographic multi-agency coordination (mini-MAC); dispatch services; prescribed fire and fuels treatment; radio frequency management; fire danger and restrictions/closures; interagency training; and aviation coordination. The primary members of the SWOCG include the ODF-District Forester and Assistant District Foresters; USFS Fire Staff and Deputy Fire Staff; and BLM Fire Management Officer (FMO) and Assistant FMO. Other ad hoc members are recruited on an as-needed basis, including federal agency line officers, fire staff, and line officer representatives from adjoining USFS, and BLM Districts. SWOCG meets quarterly, at a minimum, and often daily during periods of high fire activity. The SWOCG is a tenured, well-integrated interagency group with a positive reputation for successful problem-solving through transparency and High Reliability Organization (HRO) principles.

State of Oregon Conflagration Act

The Conflagration Act allows the State Fire Marshal to mobilize firefighters and equipment from around the state to respond to an incident that needs additional resources. The act also provides for the funding of resources through state funds. The Conflagration Act is only used for fires that involve or threaten life and structures.

²⁷⁴ Northwest MAC: https://gacc.nifc.gov/nwcc/admin/nw_mac.aspx

The Fire Service Mobilization Plan

The Fire Service Mobilization Plan is a guide for Oregon Office of the State Fire Marshal personnel and emergency responders during times of emergency.²⁷⁵ The plan establishes operating procedures for the most practical use of state firefighting resources for emergencies that are beyond the capabilities of local fire service resources. It assumes the prior existence of mutual aid agreements, which organize district and regional firefighting forces to cope with local emergencies.

Preparedness

Resources for wildfire can become scarce during an active fire season, especially when the Northwest Region is competing for resources with other geographic areas experiencing severe wildfire conditions. For this reason, it is extremely important that the region optimize preparedness by staying apprised of changing conditions and mobilizing as many local resources as possible. During high preparedness levels, agency managers will pre-position resources so they can respond rapidly to any fire starts reported throughout the area. Agencies also depend heavily on the network of fire detection cameras and manned lookouts operated by ODF and USFS to rapidly locate and suppress fire starts.

On a number of occasions, the Rogue Valley has experienced fire seasons with more than 14 fires at one time; therefore, fire preparedness levels of 4 or 5 are common. It is important that the public is well-informed of preparedness levels so they can remain vigilant of when a fire starts and practice wildfire prevention around homes or while recreating on public lands. It is also important that Rogue Valley residents recognize that resources for wildfire may be limited during a busy fire season, so they do not rely too heavily on over-extended responders.

Individual responsibility is paramount during an active fire season and an appreciation of the conditions and limitations of agency fire crews can reduce frustration. During a preparedness level 4 or 5, local resources are often fully committed to existing fires, and outside resources are ordered in by the coordination center. There may be a delay in those resources arriving or they may be directed to other fires that are deemed of higher priority due to imminent threat to life and property or other values at risk. Fire prioritization and placement of resources is a complicated and politically-charged process, and often a fire can be perceived as receiving little suppression power compared to fires elsewhere in an

²⁷⁵ Oregon Fire Service Mobilization Plan (2016): https://www.oregon.gov/osp/SFM/docs/2016_MobPlan.pdf

area or region. Agency managers have to weigh a large number of factors when prioritizing the allocation of resources including:

- firefighter and public safety;
- proximity of fire to homes and structures;
- proximity of fire to values at risk- for example watersheds providing municipal water supply;
- availability of crews and equipment; and
- appropriate suppression strategy (for example, direct attack may not be suitable under some conditions due to risk to firefighter safety, or suppression may need to be done indirectly or with the use of aerial resources such as tankers.

Ultimately, fire managers look to engage those fires where they have the highest probability of being successful, while limiting costs, and where risks to life and safety can be minimized.

7.1.5 Mutual Aid

The wildland fire community is well-known for its development of mutual aid agreements at the federal, state, and local levels. Such automatic aid agreements allow whoever is closer to respond to an incident as quickly as possible, regardless of jurisdiction. Such agreements may also describe how reimbursement will be conducted. State resources responding to wildfires on federal lands may have their associated costs reimbursed by the responsible federal agency, and the reverse is true for federal resources suppressing a wildfire on state lands.

The RVFCA Mutual/Automatic Aid Agreement for Jackson and Josephine Counties provides a mutual and automatic assistance plan to assist agencies in case a fire grows beyond the capacity of a single agency's control. The agreement complies with the Oregon Conflagration Act. Multiple departments are part of the agreement, with each agreeing to furnish firefighting equipment and personnel upon request, when available, to any of the other signees when such assistance is necessary and appropriate. The agreement is revised periodically to incorporate additional agencies and departments.

ODF has mutual aid agreements with all public fire service providers, and maintains close cooperation with the USFS, BLM, adjoining ODF units, and industrial forestry landowners. ODF works closely with battalion chiefs and the BLM, therefore operating more at the public and local level.

Federal agencies closely follow Standard Operating Procedures (SOPs) when responding to an incident, including “Unified Command,” which guides coordination with other agencies. Land management strategies may vary for different agencies, but, according to cooperators, complex situations usually occur in forested areas, and less often in the WUI, where operation plans, MOUs, and the function of the RVFCA helps provide effective coordination of multiple agencies (Figure 7.4).



Figure 7.4. Crews from ODF, USFS and BLM frequently coordinate wildfire suppression on fires like this one- the 2011 Little Butte Fire, near Fish Lake. Credit: ODF.

California and Oregon Mutual Aid

Due to the Rogue Valley’s proximity to the Oregon-California border, fire cooperators in the valley hold agreements with entities in California. For example, the Rogue River-Siskiyou National Forest has agreements with CALFIRE and other California agencies. These entities, including USFS, ODF, NPS, and CALFIRE, hold regular border meetings to enact pre-season preparedness exercises, discuss communications, practice scenarios, and re-apply lessons learned.

Mutual aid in Unprotected Areas

ODF is a signatory of the RVFCA Mutual Aid Agreement and therefore can receive aid for fire protection services. This agreement could be implemented to provide assistance by structural fire protection agencies to ODF in un-protected areas of the Rogue Valley. Unprotected lands are described in this agreement as areas protected by ODF, but outside the jurisdictional boundaries of a structural fire protection agency. In areas that are more than 1/8 mile from ODF jurisdiction, ODF would still respond to minimize potential spread of fire into ODF lands.

For many years, Josephine County Commissioners and responders have been meeting to resolve the issue of un-protected lands in Josephine County. This area includes approximately half of the county's citizens who live outside the incorporated cities of Cave Junction and Grants Pass. Residents in these areas can choose to enter into contract agreement for fire protection with private fire services, which have little to no regulation. There Josephine County Board of Commissioners is the Authority Having Jurisdiction on these lands; however they don't have an on-scene presence during fire incidents. This can lead to conflicts between service providers responding to a fire or other emergency, as none of the responders at the scene are statutorily "in charge;" this issue needs to be resolved. The goal of the Josephine County Board of County Commissioners is that all residents will be subscribing to a fire service, with minimum service standards and minimal to no conflict between providers. Although there has been much debate and a limited amount of formal legal research on the matter, no definitive action towards this goal has taken place to date.

7.2 POST FIRE RESPONSE AND REHABILITATION

An often overlooked component of wildfire response, is the response needed following a wildfire. Having a plan that outlines steps for agencies, municipalities and the counties to follow would streamline post fire recovery efforts and reduce the inherent stress to the community.

There are many facets to post fire recovery, including but not limited to:

- Ensuring public health and safety- prompt removal of downed and hazard trees, addressing watershed damage, mitigating potential flooding.
- Rebuilding communities and assessing economic needs- securing the financial resources necessary for communities to rebuild homes, business and infrastructure.

- Restoring the damaged landscape- restoration of watersheds, soil stabilization, and tree planting.
- Reducing fire risk in the future- identifying hazard areas and implementing mitigation.

Recovery of the forested landscape is often more straightforward than recovery of the human environment. Assessments of the burned landscape are often well coordinated through the use of inter-agency crews who are mobilized immediately after a fire to assess the post fire environment and make recommendations for rehabilitation efforts. These crews are called Burned Area Emergency Rehabilitation (BAER) Teams and their main focus is to assess the severity of the fire effects and work to mitigate the effects of post-fire flooding and erosion. Their actions include aerial seeding and mulching of the burn area, contour felling of trees to reduce erosion, installation of erosion barriers like wattles or sediment traps (Figure 7.5) on steep slopes, and removal of hazard trees along roads and trails. They may also install structures within streams and drainages to trap debris, preventing movement of debris and sediment downstream.



Figure 7.5. BAER installation of a sediment trap in a steep, high severity burn area. Credit: USFS.

For the community impacted by fire however, there is often very little planning at the local level, to guide their return after the fire. Residents impacted by the fire need assistance making insurance claims, finding temporary accommodation for themselves, pets and livestock, rebuilding or repairing damaged property, removing debris and burned trees, stabilizing the land for construction, mitigating potential flood damage, repairing infrastructure, reconnecting to utilities and mitigating impacts to health. Often the physical impacts can be mitigated over time but the emotional impacts of the loss and change to their surroundings are more long lasting and require support and compassion from the community (Figure 7.6).



Figure 7.6. Aftermath of total loss from a 2016 wildfire in the Rogue Valley. Credit: Victoria Amato

Post-fire forest management can often require balancing competing social–ecological resource interests and deciding whether to accept short-term ecological impacts to achieve management objectives.²⁷⁶ For example, salvage logging of killed trees following wildfire can provide economic benefits to communities²⁷⁷, reduce volumes of surface woody fuels²⁷⁸, increase forest regeneration through artificial regeneration²⁷⁹, and promote long-term carbon sequestration in forest products.²⁸⁰ However, standing and fallen fire killed trees can also provide habitat for a wide variety of organisms (Figure 7.7), modify soil and surface microclimates for tree seedlings and understory vegetation and influence soil carbon and nutrient cycling processes.^{281 282 283}

²⁷⁶ Peterson, D.W. and E.K. Dodson. 2016. Post-fire logging produces persistent impacts on understory vegetation in northeastern Oregon, USA. *Forest Ecology and Management*. 370, 56–64. https://www.fs.fed.us/rm/pubs_journals/2016/rmrs_2016_peterson_d002.pdf

²⁷⁷ Lowell, E.C., Rapp, V.A., Haynes, R.W., Cray, C., 2010. Effects of fire, insect, and pathogen damage on wood quality of dead and dying western conifers. Gen. Tech. Rep. PNW-GTR-816. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR, p. 73.

²⁷⁸ Peterson, D.W., Dodson, E.K., Harrod, R.J., 2015. Post-fire logging reduces surface woody fuels up to four decades following wildfire. *Forest Ecol. Manage.* 338, 84–91.

²⁷⁹ Newton, M., Fitzgerald, S., Rose, R.R., Adams, P.W., Tesch, S.D., Sessions, J., Atzet, T., Powers, R.F., Skinner, C., 2006. Comment on “Post-wildfire logging hinders regeneration and increases fire risk”. *Science* 313, 615a

²⁸⁰ Stockman, K.D., Anderson, N.M., Skog, K.E., Healey, S.P., Loeffler, D.R., Jones, G., Morrison, J.T., 2012. Estimates of carbon stored in harvested wood products from the United States forest service northern region, 1906–2010. *Carbon Balance Manage.* 7, 1,

²⁸¹ Harmon, M.E., Franklin, J.F., Swanson, F.J., Sollins, P., Gregory, S.V., Lattin, J.D., Anderson, N.H., Cline, S.P., Aumen, N.G., Sedell, J.R., Lienkaemper, G.W., Cromack Jr., K., Cummins, K.W., 1986. Ecology of coarse woody debris in temperate ecosystems. *Adv. Ecol. Res.* 15, 133–302.

²⁸² Brown, J.K., Reinhardt, E.D., Kramer, K.A., 2003. Coarse woody debris: managing benefits and fire hazard in the recovering forest. Gen. Tech. Rep. RMRS-GTR-105. USDA Forest Service, Rocky Mountain Research Station, Ogden, UT, p. 16

²⁸³ Marañón-Jiménez, S., Castro, J., Querejeta, J.I., Fernández-Ondoño, E., Allen, C.D., 2013. Post-fire wood management alters water stress, growth, and performance of pine regeneration in a Mediterranean ecosystem. *Forest Ecol. Manage.* 308, 231–239.



Figure 7.7. *Photograph showing the contrasting post-fire land management decisions on BLM lands (to the left of the picture) and on private lands (to the right). BLM land managers retained burned snags while private land owners salvaged trees post fire. Credit: Victoria Amato.*

An evaluation of the pros and cons of post fire salvage is beyond the scope of a CWPP, however this RVIFP recommends that post-fire recovery and rehabilitation (backed by scientific literature) be a component of plan updates in order to provide a more structured process for post fire recovery, in the event of a large wildfire.

7.3 FEDERAL AND STATE FIRE MANAGEMENT PLANNING

7.3.1 The Southwest Oregon Fire Management Plan

The Southwest Oregon Fire Management Plan (SWOFMP) was completed in 2004 and last revised in 2014.²⁸⁴ Although the SWOFMP has been a central planning tool for coordinated fire management in the Rogue Valley since its inception, prompted by National federal direction (to transition fire management planning to spatial fire planning), agencies in the Rogue Valley, are discontinuing its use in 2017. Federal Wildland Fire Policy of 1995 and the 2001 Revision require federal agencies to describe fire management activities for every burnable acre of federal land, while recognizing the ecological importance of fire on these landscapes. With the discontinuation of the SWOFMP, federal agencies in

²⁸⁴ Southwest Oregon Fire Management Plan, 2014: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3813539.pdf

the Rogue Valley are now developing individual Fire Management Plans (FMPs) for lands under their jurisdiction.

7.3.2 Wildland Fire Decision Support

In addition to proactive forest restoration, all federal agencies are required to use the Wildland Fire Decision Support system (WFDSS) and the Interagency Fuels Treatment Decision Support System (IFTDDS) to help with wildfire decision making. These programs help direct resources to where they are most effective and to strategically plan not only fire response to unexpected wildfires, but to more effectively plan fuel treatment and forest restoration efforts. Such tools help decision makers to prioritize allocation of resources to best protect communities and values at risk from wildfire, reducing overall suppression costs by using a scientifically informed approach to suppression and optimizing the allocation of the limited time and money available for preventative fuel treatments.

7.3.3 BLM Southwestern Oregon Resource Management Plan (RMP)

The Southwestern Oregon RMP was completed in August 2016.²⁸⁵ One of the primary purposes of the RMP is to restore fire-adapted ecosystems (Figure 7.8). The RMP includes management direction to improve landscape resilience by reducing fire risk and hazard on BLM-administered lands within the WUI and adjacent to highly valued resources and assets. The RMP also calls for management of fuels and wildfire response consistent with the National Cohesive Strategy, aligning with the goals of the RVIFP and the RBS. The BLM is currently developing a Fire Management Plan based on the RMP, and is incorporating much of the direction from the SWOFMP. The new FMP will be in a hard copy format, though will likely incorporate spatial elements in the future.

²⁸⁵ Southwestern Oregon BLM Resource Management Plan :
https://www.blm.gov/or/plans/rmpswesternoregon/files/rod/SWO_ROD_RMP.pdf



Figure 7.8. *Prescribed fire in ponderosa pine, a fire-adapted species dependent upon frequent low-intensity fire. Credit: BLM.*

7.3.4 Rogue River-Siskiyou National Forest Fire Management Plan

The Rogue River- Siskiyou National Forest has transitioned their fire management planning to a spatial platform to increase the usability of their FMP for operations and decision support. The FMP is housed within the Wildland Fire Decision Support System (WFDSS) with an electronic reference library for previous hard copy references. The information from the SWOFMP has essentially been transferred into the spatial format.²⁸⁶

7.3.5 Oregon Caves National Monument and Preserve Fire Management Plan

Oregon Caves National Monument and Preserve developed a Fire Management Plan in 2004. The existing plan is under revision to incorporate forested acres (Figure 7.9) that were acquired from the USFS when the preserve expanded. The existing FMP allows for prescribed fire and mechanical treatment. The revised FMP will use spatial fire management planning to align fire management with decision-making tools such as the WFDSS.

²⁸⁶ WFDSS Spatial Fire Planning Guide: http://wfdss.usgs.gov/wfdss/pdfs/WFDSS_SFP_Guide.pdf



Figure 7.9. Forest surrounding Oregon Caves National Monument. Credit NPS.

7.3.6 Oregon Department of Forestry Fire Management Plan

Oregon Department of Forestry operates with a stand-alone Fire Management Plan for lands under their jurisdiction. The Department was also a signatory to the SWOFMP. ODF's firefighting policy is for full suppression of all wildfires. ODF protects working forest lands that produce revenue and support jobs; therefore their mission is to prevent fire damage to the timber resource that is an essential element of the local economy.²⁸⁷

7.4 RECOMMENDATIONS FOR IMPROVING WILDFIRE RESPONSE

Educating the public to reduce its dependence on fire departments for fire protection is essential, because these resources are often stretched thin during fire season, and many residences are located at some distance from emergency response. Table 7.1 provides strategic-level recommendations for improving wildfire response and preparedness.

These elements are placed within the Cohesive Strategy Framework in Chapter 1, Table 1.2.

²⁸⁷ ODF Fire Policy: <http://www.oregon.gov/ODF/Fire/Pages/default.aspx>

Table 7.1. Recommendations for Improving Suppression Capabilities

PROJECT DESCRIPTION	METHOD	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Install a robust fire detection system across all jurisdictions.	<ul style="list-style-type: none"> Seek funding for installation of additional wildfire detection cameras to expand the current detection system operated by ODF and USFS. Determine blank spots in the current system where wildfire activity could prevail; prioritize installation to serve those areas. 	2 years	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of cameras installed. Percent landscape coverage and reduction in blind spots. Suppression statistics to monitor improvements in fire response times. Cost analysis of rapid suppression. <p>Sustainability:</p> <ul style="list-style-type: none"> Stay apprised of grant opportunities to support the program. Provide a unified voice from all cooperators to support funding. Use opportunities to promote the program to the public and emphasize the benefits to the community of rapid detection and suppression of fires that may impact WUI communities. 	<p>Private companies provide robotic technology i.e.: EVS Enviro Vision Solutions: http://www.evsolutions.biz/Products/ForestWatch/Whyautomateddetection Insight Robotics http://www.insightrobotics.com/solutions/wildfire-detection Wildland Detection Systems http://www.wildlandsystems.com/ Fire Alert MK1 http://vigilys.com/technology/firealert/FEMA's Hazard Mitigation Grant Program</p>
Support long-term sustainability of the Medford Large Air Tanker Base.	<ul style="list-style-type: none"> Develop support for Air Tanker Base by promoting benefits of the program to the community, county executives, and state and federal decision makers through structured outreach and a unified voice. Use the strength of unity already inherent in the RVFCA to advocate for long-term support for the base. 	Immediate (2017)	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of outreach efforts to decision makers. Years of funding secured. Diversity of funding secured. <p>Sustainability:</p> <ul style="list-style-type: none"> Annual review of funding to ensure long-term subsistence. 	<p>USFS ODF Jackson and Josephine Counties</p>
Continue to pursue solutions to resolve inadequate suppression capabilities and support fire mitigation measures in unprotected areas.	<ul style="list-style-type: none"> Continue to pursue development of a Fire District where all residents are subscribing to a fire service with minimum service standards and no conflict between providers. Develop county-wide standard operating protocols (SOPs) for private fire services. Develop enforcement mechanisms for private fire services. Seek solutions to concerns of no authority having jurisdiction within the unprotected area. Continue forest land classification to increase ODF jurisdiction to reduce unprotected forested lands. 	1 year	1	<p>Monitoring:</p> <ul style="list-style-type: none"> % decrease in acreage of unprotected lands. Establishment of standards for private fire services. <p>Sustainability:</p> <ul style="list-style-type: none"> Recurring agenda item for Fire Defense Board (FDB) meetings. Engagement of county commissioners. Seek support of local community or neighborhood leaders who can ensure issue remains current in public realm. 	<p>FDB Firewise Communities ODF Josephine County Board of Commissioners</p>

PROJECT DESCRIPTION	METHOD	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Assess evacuation throughout the Rogue Valley to identify WUI communities at risk of entrapment.	<ul style="list-style-type: none"> Convene an interagency committee to review evacuation protocols for WUI communities in the Rogue Valley and identify the most at risk communities to target. If necessary, seek funding to support development of comprehensive evacuation planning process for Jackson and Josephine counties. Identify all communities with single access road systems. Assess response times and evacuation times using modelling and sand-table exercises, carry out mock evacuations and develop after-action reviews. Engage community members. Pursue solutions to access concerns, such as local-level evacuation planning, fuel treatments along evacuation routes, development of alternative routes, road improvements, signage, education, and outreach to inform community members of their responsibilities. 	5 years	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of community evacuation plans developed. Grant dollars spent on evacuation solutions. Degree to which community perceptions are changed regarding their life safety and ability to evacuate. <p>Sustainability:</p> <ul style="list-style-type: none"> Use after-action reviews to adjust evacuation protocols and implement lessons learned. Reconvene interagency committee annually to review evacuation and adjust prioritization as issues arise. 	RVFCA RVFPC Firewise Jackson and Josephine County Emergency Management
Use Multi-Agency Coordinating (MAC) Groups at sub-geographic (mini MAC) levels.	<ul style="list-style-type: none"> Continue to promote use of MAC Groups at the sub-geographic level or virtual level to improve coordination of resources during a multi-fire event. Introduce more shadowing of MAC groups for Incident Management training opportunities, especially training opportunities for all-hazard teams. 	ongoing	2	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of mini MACs formed during fire season. Number of personnel shadowing MAC groups. <p>Sustainability:</p> <ul style="list-style-type: none"> High levels of agency support and involvement in MAC groups should ensure they are self-sustaining in the long term as more personnel are trained and familiar with the process. 	SWOCC USFS BLM ODF RVFCA
Strengthen the participation of RV Incident Management Team (IMT) in all-hazard incidents to increase training opportunities in ICS.	<ul style="list-style-type: none"> Use a work shadowing model so that IMT members can train Emergency Operation Center staff in Incident Command System protocols. 	2017	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of training opportunities. Number of staff involved in shadowing. <p>Sustainability:</p> <ul style="list-style-type: none"> Build commitment from RVIMT to optimize opportunities for ICS training. 	RVIMT RVFCA ODF USFS Jackson and Josephine County

PROJECT DESCRIPTION	METHOD	TIMELINE FOR ACTION	PRIORITY (1,2,3)	MONITORING/SUSTAINABILITY	RESOURCES/FUNDING SOURCES AVAILABLE
Increase media coverage of fire resource allocation prior to and during fire season.	<ul style="list-style-type: none"> Increased use of Public Information Officers (PIOs) to educate the public on resource allocation and prioritization during periods of multiple fire starts. Convey that resources are prioritized based on values at risk, and therefore some wilderness fires may be less aggressively suppressed if a WUI fire poses more of an imminent threat to life and property and draws resources away from wilderness areas. Increase public familiarity of the various levels of preparedness. See Section 7.1.4. Providing better education of the public prior to and during fire season on the resource constraints faced by agency fire managers (including real dollar amounts) may alleviate public concern regarding visible fire response (or lack thereof) and increase public support of fire agencies at the municipal, county, state and federal levels. 	2018	1	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of outreach opportunities to promote message. Number of media outlets reached. Documentation of public input to agencies via letters, phone calls etc. <p>Sustainability:</p> <ul style="list-style-type: none"> Continued education of the public and transparency regarding budgets should build support for agency fire programs and continue to alleviate a negative public response to perceived discrepancies in resource use. 	Media outlets Agency PIO's ODF USFS BLM
Seek alternatives to address depleting agency budgets and resources.	<ul style="list-style-type: none"> Increase opportunities for use of county correction crews for wildfire suppression, and for year-round enrollment, for example hazardous fuel treatment projects in WUI areas, or invasive species control to reduce fire hazard. Advocate for appropriate agency staffing and funding. 	2018	2	<p>Monitoring:</p> <ul style="list-style-type: none"> Number of correction crews with year round funding. Number of acres treated. <p>Sustainability:</p> <ul style="list-style-type: none"> Increase interagency support for the correction crew program to increase potential projects and funding pools. 	Jackson and Josephine County ODF USFS
Incorporate post fire recovery and rehabilitation plans into RVIFP 5 year update.	<ul style="list-style-type: none"> Develop recovery and rehabilitation plans focused on the community and built environment and the forested and natural environment. Utilize BAER program protocols for rehabilitation of the natural environment. Utilize scientific/forest health rehabilitation information to inform actions. Utilize available tools from FEMA. Utilize OSU Extension Service Publications. 	5 years	3	<p>Monitoring:</p> <ul style="list-style-type: none"> Successful completion of post-fire plan at the County level. Successful completion of community plans. <p>Sustainability:</p> <ul style="list-style-type: none"> Review post-fire recovery plans every year and update during 5 year update schedule. Utilize lessons learned from any wildfire event during the planning cycle. 	FEMA- https://www.fema.gov/media-library/assets/documents/12266 BAER- https://www.fs.fed.us/biology/watershed/burnareas/ OSU and academic literature- http://extension.oregonstate.edu/deschutes/sites/default/files/documents/WildfireRecoveryOSUExtension06.pdf And http://extension.oregonstate.edu/sites/default/files/community_pgs/wildfire_after_the_burn_2011.pdf

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8 MONITORING AND EVALUATION STRATEGY

8.1 PROJECT IMPLEMENTATION

The ultimate success of this RVIFP hinges on continued collaboration by all stakeholders, particularly those whose lands are identified in this CWPP as high priority for mitigation treatments. This effort involves laying out project areas; and identifying resources required, treatment methods, timetables, and grant funding necessary to meet project objectives.

Individual property owners will be responsible for educating themselves and taking whatever action is necessary to ensure that appropriate cleared areas are created around values at risk. Subdivision homeowner associations have the opportunity to work with local, state, and federal agencies to identify effective mitigation treatment strategies. For purposes of this plan, the counties would be responsible for educating parties on codes and regulations in place, as well as any that may be proposed. Federal agencies party to the core team (USFS, BLM) will provide necessary support in areas such as suppression assets, project funds, technical expertise, and training and educational materials as required by the National Fire Plan. In cases of emergencies FEMA would be solicited for post-catastrophic fire recovery assistance. Each of the projects addressed in previous chapters that may require appropriate NEPA documentation should be initiated well ahead of planned implementation.

The type and amount of funding made available to local fire departments will have a definite effect on the ability of those departments to adequately plan and carry out the work on the ground. Some possible/potential sources of grant funding for implementation are found in Appendix E.

A related task would be development of a strategy for communicating proposed and completed work results to relevant county executives and decision makers, as outlined in Table 5.7 in Chapter 5 and Table 1.2 in Chapter 1. A key consideration is the manner in which project results from quantifiable monitoring data is communicated in understandable terms to affected communities. Successful long-term hazard mitigation work also involves the periodic re-entry of implementation projects previously accomplished, and monitoring data that tracks and evaluates the degree to which objectives are met.

8.1.1 RVIFP Coordinator

The implementation and coordination of projects and monitoring activities described in this section and throughout this document requires a well-structured, organized approach. Over the last decade, the Jackson and Josephine county fire plans were coordinated by the offices of emergency management

through fire plan contractors, paid for by Title III grants, administered by local county government who were the central driving force of plan development. Title III funds are no longer available to support Fire Plan coordination, so the long term sustainability of the RVIFP will require alternative funding sources and a significant commitment by stakeholders and coordination by agencies.

A recommendation that could provide for coordinating the collection, analysis, evaluation, and record-keeping of data as well as coordinating the implementation of fire mitigation activities would be to hire a grant-funded forester, ecologist, monitoring team leader or equivalent- a RVIFP Coordinator. Agencies could contribute monitoring/research funds to help support the Coordinator position, or alternative funding would need to be pursued to facilitate hiring. If funding is available the Coordinator position could be modelled on “Project Wildfire,” which was a program developed in central Oregon.²⁸⁸

The aforementioned RVIFP coordinator position would serve as both a liaison position between the steering committee partners and decision makers, and would allow executives to be informed about important priority mitigation projects while agency staff are relieved from attending multiple meetings with overlapping missions. This position would also be responsible for preparing an annual report for the steering committee, should such a report be deemed necessary every year.

The Coordinator could stay apprised of funding opportunities throughout the year and liaise with agency staff in order to match funds with planned projects. Agencies could also disseminate assessment and monitoring data developed by the Coordinator, for ongoing public outreach and education programs. As has been shown by past fire plan successes, a RVIFP Coordinator could provide the oversight necessary for successfully planning and implementing CWPP projects, as well as the adaptive management needed to ensure long-term sustainability of the CWPP.

Many of the recommendations outlined in the tables in Chapters 5, 6 and 7 identify the RVIFP Coordinator as leading implementation of recommended projects. This highlights the critical nature of this position. In the absence of a full time Coordinator, agency staff and committees would need to take on the role of coordinating the recommended actions in this RVIFP.

²⁸⁸ Project Wildfire: http://www.projectwildfire.org/?page_id=44

8.2 EFFECTIVENESS MONITORING/SUSTAINABILITY

The long-term sustainability of the RVIFP has been a central concern of fire plan partners for the last decade. A central objective of this plan is to stay broad, flexible, and responsive to emerging funding and opportunities. Additionally, the intent of the plan is to build off of the history of what worked and did not work during previous fire plan efforts in both counties, to support collaboration as a routine management approach, and to refocus priorities.

CWPP effectiveness has been the subject of several academic studies, and, as a result, a series of Best Management Practices (BMPs) have been developed for ensuring the long term sustainability of the documents.²⁸⁹ ²⁹⁰ A comprehensive list, derived from a variety of communities that have already implemented CWPP's, can be found on the web.²⁹¹ A sample of those BMPs include:

- Framing, or the different ways that people viewed the wildfire management issue, was critical. Common frames that motivated people to participate in CWPPs included forest health, emergency response, land use planning, and property owner responsibility. Frames determined who would be involved and why, and CWPPs that used multiple frames (often evolving as planning proceeded) were more successful in generating participation and in getting to the implementation phase.
- The geographic scale of the CWPP was also critical, and ranged in the case studies from development subdivisions to towns, multiple towns, and counties. Ultimately, it was discovered that the best scale was that which fostered the ability to get something done.
- Sustainability of the plan in practical terms was best accomplished through: a) institutionalizing the CWPP within a well-functioning organization, particularly government; b) nesting the plan within larger planning efforts; and c) achieving early success in project implementation.²⁹²

Previous fire planning work in Jackson and Josephine counties has shown that the experience in southern Oregon is similar to these findings. The notion of diverse framing, as described in the first item, was highly valued and used in southern Oregon. Fire plan partners responded to diverse community and

²⁸⁹ Forest Guild (2015). CWPP Effectiveness (http://forestguild.org/publications/research/2015/WUI_effectiveness.pdf)

²⁹⁰ Ascher, T.J., R.S. Wilson, and E. Toman. "The importance of affect, perceived risk and perceived benefit in understanding support for fuels management among wildland–urban interface residents." *International journal of wildland fire* 22.3 (2013): 267-276.)

²⁹¹ CWPP BMPs: https://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs89.pdf

²⁹² Williams et al. 2012: WILLIAMS, D.R., P.J. JAKES, S. BURNS, A.S. CHENG, K.C. NELSON, V. STURTEVANT, R.F. BRUMMEL, E. STAYCHOCK, AND S.G. SOUTER. 2012. Community wildfire protection planning: The importance of framing, scale, and building sustainable capacity. *J. For.* 110(8):415–420.

institutional interests and thereby developed broad-based support. The importance of broad framing is highlighted in the recommendation in Chapter 6 of this plan (Table 6.2 and Table 1.2), to outreach to broad interest groups using various methods.

Landowner interest in fire prevention and fuels reduction has helped develop small-scale partnerships in related projects. The long fire planning history in the Rogue Valley has helped rural fire districts focus on and develop outreach programs that have educated and involved residents in defensible space activities. Continuation of this outreach should be encouraged, as recommended under several measures in Chapter 6 (Table 6.2 and Table 1.2). Similarly emergency coordination has been improved at a variety of levels in the Rogue Valley as a result of previous planning work. The continuation of this well integrated fire response force is recommended through actions identified in Chapter 7 (Table 7.1 and in Table 1.2).

Fire planning encourages wide collaboration with community groups oriented to forest health, and this collaboration has been useful in advancing landscape application of forest health approaches that simultaneously reduced fire hazards. The importance of forest health is emphasized in this document through the promotion of the RBS as the key process to utilize for fuel treatment prioritization, as recommended in Chapter 5 (Table 5.7 and in Table 1.2), and by identifying the importance of outreach to increase public awareness of forest resiliency, recommended in Chapter 6 (Table 6.2. and in Table 1.2). Finally, collaboration with federal land management agencies has helped to provide internal support to finance fuels reduction projects that are well-supported by the local community. Continuation of forest stewardship projects and grass roots planning is highlighted in Chapter 5 (Table 5.7 and in Table 1.2).

Landscape-scale application of previous fire planning efforts has been valuable at the county level for purposes of education, fund-raising, and priority-setting, but has been too broad for prioritizing fuel treatment projects. Watershed and neighborhood scales were most useful for project development. Successful projects depend on communication links to residents close to the land, and coordination with local CWPPs and Firewise groups. Geographic scale was important in developing multiple strategies for implementation that included small, neighborhood projects through Firewise, as well as federal fuels treatment projects covering many hundreds of acres. This RVIFP identified the importance of community or local level planning in a recommendation outlined in Chapter 6, Table 6.2.

8.2.1 Monitoring

This section provides a tabular suite of *recommended* monitoring strategies intended to help track progress, evaluate work accomplished, and assist planners in adaptive management. Strategies outlined in this section take into account several variables:

- Do the priorities identified for treatment reflect the plan’s goals? For example, do projects for fuels reduction along public roads meet objectives for safe evacuation routes in identified high risk areas? Monitoring protocols can help address this question.
- Can there be ecological consequences associated with fuels work? We may be concerned, for example, about soil movement or invasive species encroachment post-treatment. On federal lands NEPA will be required prior to any fuel treatments. Post treatment, relatively cost-effective monitoring may help clarify impacts and inform future projects.
- Vegetation will grow back. Thus, fuel break maintenance and fuels modification in both the home ignition zone and at the landscape scale all require periodic assessment. Monitoring these changes can help decision-makers identify appropriate treatment intervals.
- What can a monitoring plan do to assist decision-makers in assessing the extent to which the CWPP prevention and outreach program objectives are being met? Tracking program benefits in a qualitative way can increase understanding and support from communities.

Table 5.6, Table 6.2 and Table 7.1 outline monitoring strategies, both quantifiable and non-quantifiable, for assessing the progress of each recommended projects under this RVIFP. It must be emphasized that these strategies are: 1) not exhaustive (new strategies and protocols can evolve as the RVIFP is revised), and 2) dependent on available funds and personnel.

The RVIFP also identifies recommendations designed to meet fuel treatment implementation objectives that may range from low complexity homeowner defensible space to landscape-scale stewardship contracts. Table 8.1 lists recommended ecological monitoring indicators by level of treatment intensity that serve to: 1) evaluate effectiveness, 2) improve future maintenance entries, 3) facilitate adaptive management, and 4) communicate results to stakeholders and the public.

Table 8.1. Recommended ecological monitoring indicators by level of implementation intensity. Note: many monitoring indicators shown here were generally guided by elements contained in the Ashland Forest Resiliency Stewardship Project Monitoring Plan (2013).

MONITORING INTENSITY LEVEL	IMPLEMENTATION/PROJECT TYPE (EXAMPLE)	RECOMMENDED INDICATORS
Level 1: Minimum	Homeowner/individual property fuels reduction	Pre & Post Photos; qualitative description of outcome
Level 2: Moderate	Small scale treatments & debris removal on private or agency lands	Acres treated, treatment type(s) GPS recorded photo points (rebar, pipe), pre & post treatment, same season. Consider data collection of percent canopy cover change & other prescription parameters; conduct qualitative monitoring (i.e., walk-through) of general project trends
Level 3: High	Complex treatment prescription on larger scale than level 2; possible multi-agency and/or multiple ownerships	Consider Level 2 indicators plus: Common Stand Exam (CSE) protocols (i.e., species & density, diameter at breast height (dbh), height, live/dead, height crown base, crown closure, % surface cover by type, Brown's fuels transects, Fire Behavior fuel model, basal area, etc.); mistletoe infestation level, wildlife abundance, legacy tree retention, fire effects plots, insect mortality
Level 4: Intense	Landscape level treatments (multi-agency, multi-ownerships); prescription includes complex ecological parameters, future monitoring funded	Level 3 indicators plus: aerial photos pre & post treatment, specialized ecology plots, invasive species, changes in fuel model(s), riparian/aquatic habitats, additional indicators identified by stakeholders

All data collected should be formatted, copied, and archived in a specific location (possibly with The Nature Conservancy), that can provide general access while ensuring adequate security. The data should be maintained by the RVIFP Coordinator if funding is secured for that position. Funding often can become a limiting factor for any monitoring effort, particularly post-treatment and re-entry maintenance treatments. Budget development over the life of a project must involve multi-party participants and stakeholders not only for data interpretation, evaluation and reporting, but also for identifying funding sources.

8.3 TIMELINE FOR CWPP UPDATES

The CWPP, as an evolving document, will be reviewed annually and formally updated/revised every five years by the Executive Committee or RVIFP Coordinator if funding is secured for the position.

The Executive Committee should decide the most effective way to accomplish this task, given the varying interests represented and personnel time constraints. Examples may include canvassing each member for input, generating new or revised lists including, but not limited to: re-prioritizing hazard mitigation and/or re-entry maintenance projects, budgets, revising prescriptions, safety issues, policy & fire code changes, fire management operations, new fuels projects, and other modifications to the existing CWPP.

The RVIFP review could include a meeting open to the public and affected CWPP jurisdictions. Recommendations would be presented, input solicited, and results in the form of documented changes will be attached as amendments.

Annual reviews and providing for engagement of additional entities will allow the RVIFP to serve a wider network of land management agencies and will provide opportunities for increased collaboration across each county. The Executive Committee or RVIFP Coordinator should continue to reach out to interested stakeholders and invite them to participate in CWPP reviews.

8.4 CONCLUSION

Wildfires will continue to impact WUI communities in the Rogue Valley and across the U.S., however multiple studies have shown that there are measures that can be taken to improve the resiliency of WUI communities to wildfire impacts. The Rogue Valley community has become a leader in wildfire planning with many years of successful planning helping to reduce the overall risk to communities- there is still work to be done.

It is clear that the existing conditions in the Rogue Valley make this region susceptible to catastrophic wildfire. Overstocked forests, drought prone vegetation, insect and disease concerns, climate change, topographic conditions, complicated patterns of land ownership and an extensive and growing wildland urban interface are all contributing to the volatile fire environment in the Valley. However, this Rogue Valley community has a head start on many others when it comes to fire planning, having been actively engaged in wildfire prevention and preparedness for a decade. Land managers have already developed forest strategies that help to mitigate the wildfire threat. Utilization of the Rogue Basin Cohesive Forest Restoration Strategy (RBS) will direct landscape fuel treatment projects aimed at improving forest health, optimizing reduction of wildfire risk while also improving habitat conditions for sensitive wildlife species and addressing the need for a steady supply of timber to support the economic stability of the timber industry, a critical economy on which many Valley residents depend.

Decision makers at the County level are already keeping pace with policy decisions at the State and Federal levels, aligning planning and management with concepts of fire adaptation and forest resiliency as outlined in the National Cohesive Strategy. This will continue to place both counties in a beneficial position when it comes to applying for grants for implementing projects outlined in this RVIFP. The Counties and land managers understand that federal and state funding is dwindling and in order to keep pace with growing timber volumes on public and private lands, other active fuels and restoration

management actions are needed. Having evolved with timber management and having an awareness of extreme wildfire risk, most Rogue Valley communities support fuels reduction and restoration efforts that are well planned and balanced with protection of natural resources and other community values.

The ultimate goal of wildfire planning in the Rogue Valley is the creation of a fire adapted community where the human population can live in combination with inevitable wildfire, but where negative impacts to the community (such as loss of life and property, health impacts from prolonged smoke, economic losses and negative impacts to natural and cultural resources) can be minimized. The end goal is to enhance forest resiliency through appropriate forms of forest management, so that fire can be returned to its natural range of variability within these fire prone ecosystems.

Although much work still needs to be done, the RBS and the support of land managers and decision makers to develop a fire adapted community in the Rogue Valley, makes for a brighter future for this at-risk population.

9 GLOSSARY AND LIST OF ACRONYMS

Aerial Observer- person specifically assigned to discover, locate, and report wildland fires from an aircraft and to observe and describe conditions at the fire scene.

Aerial Reconnaissance- Use of aircraft for detecting and observing fire behavior, values-at-risk, suppression activity, and other critical factors to facilitate command decisions on strategy and tactics needed for fire suppression.

After Action Review- A structured review or de-brief process of an event, focused on performance standards, that enables participants to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses.

Agency- An administrative division of a government with a specific function, or a non-governmental organization (e.g., private contractor, business, etc.) that offers a particular kind of assistance. A federal, tribal, state or local agency that has direct fire management or land management responsibilities or that has programs and activities that support fire management activities.

Agency dispatch- the agency or jurisdictional facility from which resources are allocated to incidents.

Air Attack Base- Permanent facility at which aircraft are stationed for use in air attack operations.

Air Attack- The deployment of fixed-wing or rotary aircraft on a wildland fire, to drop retardant or extinguishing agents, shuttle and deploy crews and supplies, or perform aerial reconnaissance of the overall fire situation.

Air Quality-The composition of air with respect to quantities of pollution therein; used most frequently in connection with ""standards"" of maximum acceptable pollutant concentrations.

Air Tanker-Fixed-wing aircraft certified by FAA as being capable of transport and delivery of fire retardant solutions.

All Hazard Incident- An incident, natural or human-caused, that requires an organized response by a public, private, and/or governmental entity to protect life, public health and safety, values to be protected, and to minimize any disruption of governmental, social, and economic services.

Allocated resources- resources dispatched to an incident, that have not yet checked in.

Apparatus- A motor-driven vehicle, or group of vehicles, designed and constructed for the purpose of fighting fires.

Area Command- An organization established to: 1) oversee the management of multiple incidents that are each being handled by an incident management team (IMT) organization; or 2) to oversee the management of a very large incident that has multiple IMTs assigned to it.

Authority Having Jurisdiction- An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

BAER- Burned Area Emergency Response- an interagency team tasked with the assessment of burned areas and implementation of mitigation measures to protect watersheds.

BIA – Bureau of Indian Affairs

BLM- Bureau of Land Management

CAR- Communities at Risk- a geographic area within and surrounding permanent dwellings (at least 1 home per 40 acres) with basic infrastructure and services, under a common fire protection jurisdiction, government, or tribal trust or allotment, for which there is a significant threat due to wildfire.

CERT- Community Emergency Response Team

Collaboration- to work jointly with others or together to produce or create something.

Cooperation- the process of working together to the same end.

Coordination- the organization of the different elements of a complex activity so as to enable them to work together effectively.

Cover- The proportion of ground covered by the aerial parts of individuals of a species, usually expressed as a percentage.

Crown Fire- Fire that burns in the crowns of trees and shrubs. Usually ignited by a surface fire.

CWMA- Cooperative Weed Management Area

CWPP- Community Wildfire Protection Plan

CWS- Cohesive Wildfire Strategy

DART- Disaster Animal Response Team

Dbh- Diameter at breast height- Tree diameter measured at 4.5 feet above the ground.

DLCD- Oregon Department of Land Conservation and Development

DOI- Department of Interior

EA- Environmental Assessment

EC- Executive Committee- signatories to the RVIFP representing County governments, fire response and State Forest agency.

ECC- Emergency Coordination Center

EIS- Environmental Impact Statement

EM- Emergency Management

EMB- Emergency Management Board

EOC- Emergency Operation Center- a central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, or disaster management functions at a strategic level during an emergency.

EOP- Emergency Operations Plan- a plan which describes how an entity will respond to and recover from all hazards.

Extreme Fire Behavior- Fire behavior characteristics that ordinarily preclude methods of direct control action.

FAC- Fire Adapted Community

FACnet- Fire Adapted Communities Learning Network

FAQ- Frequently Asked Question

FAST- Functional Assessments Service Teams

FEMA- Federal Emergency Management Agency

Fire Exclusion- The policy of suppressing all wildland fires in an area.

Fire Frequency- Number of fires per unit time in a specified area.

Fire Intensity- A general term relating to the heat energy released in a fire.

Fireline Intensity- The rate of heat release per unit time per unit length of fire front.

Fire Management- All activities related to the management of wildland fires, including fire prevention, fire suppression, and use of prescribed fire.

Fire Management Plan- A plan that identifies and integrates all wildland fire management and related activities within the context of approved land/resource management plans.

Fire Severity- The degree of environmental change caused by fire.

FLAME - Federal Land Assistance, Management and Enhancement Act of 2009.

Flame length- The length of flames in a fire front measured along the slant of the flame, from the midpoint of its base to its tip.

FMO- Fire Management Officer

FMP- Fire Management Plan

FR- Fire Regime- Describes patterns of fire ignition, seasonality, frequency, type (crown, surface, or ground fire), severity, intensity, and spatial continuity (pattern and size) in a particular area or ecosystem.

FRCC- Fire Regime Condition Class- a standardized, interagency index to measure the departure of current conditions from reference or historical conditions.

Fuel- Fuel is comprised of living and dead vegetation that can be ignited.

Fuel Loading- The weight per unit area of fuel, often expressed in tons/acre or tonnes/hectare.

Fuel moisture- Percent or fraction of oven dry weight of fuel.

GACC- Geographic Area Coordination Center

GIS- Geographic Information Systems

Habitat type- A land or aquatic unit capable of producing similar plant communities at successional climax.

Herbaceous- A class of vegetation dominated by nonwoody plants (herbs).

High-severity fire- May refer to either high soil burn severity, high vegetation burn severity, or replacement-severity fire.

HFI – Healthy Forest Initiative

HFRA- Healthy Forests Restoration Act

ICS- Incident Command System

IGA- Intergovernmental Agreement

IMT- Incident Management Team

Invasive Species- A species that can establish, persist, and spread in an area.

IVFD- Illinois Valley Rural Fire Protection District

IVMP- Integrated Vegetation Management Project

JJLCG- Jackson-Josephine Local Coordinating Group

LAT- Large Air Tanker

LDO- Land Development Ordinances

Low severity fire- General pattern in which most fires are of low severity and do not substantially change the aboveground vegetation structure.

MACG- Multi-Agency Coordinating Group

Management of fire to meet resource objectives- Management of either wildfire or prescribed fire to meet resource objectives specified in land or resource management plans.

Mean fire-return interval- Average of all fire-return intervals determined, in years, for a specified area during a specified time period.

Mixed severity fire- General pattern in which fires tend to be of mixed severity, cause selective mortality in the upper canopy layer (depending on different species' susceptibility to fire), or vary in time or space between low-severity and stand-replacement.

MOU- Memorandum of Understanding

Natural- Ecosystems, plant communities, or processes that still function as they did in pre-Columbian times.

NFP- National Fire Plan

NHMP- Natural Hazard Mitigation Plan

NICC- National Interagency Coordination Center

NIFC- National Interagency Fire Center

NOAA- National Oceanic and Atmospheric Administration

NPS- National Park Service

NRCS- Natural Resource Conservation Service

NRDC- Natural Resource Defense Council

NW- Northwest

NWCC- Northwest Coordination Center

NWCG- National Wildfire Coordinating Group

NWFP- Northwest Forest Plan

O&E- Outreach and Education

OEM- Office of Emergency Management

ODF- Oregon Department of Forestry

ODOT- Oregon Department of Transportation

OSP- Oregon State Police

OSU- Oregon State University

PNWCG- Pacific Northwest Coordinating Group

Prescribed fire- Any fire intentionally ignited by management in accordance with applicable laws, policies, and regulations to meet specific objectives.

RBS-Rogue Basin Cohesive Forest Restoration Strategy

Restoration- Restoration of biophysical capacity by returning sites to previous, desired conditions

RITA- Rogue Interagency Training Association

RVEM- Rogue Valley Emergency Management

RVCOG- Rogue Valley Council of Governments

RVFCA- Rogue Valley Fire Chiefs' Association

RVFPC- Rogue Valley Fire Protection Cooperative

RVIFP- Rogue Valley Integrated Community Wildfire Protection Plan

SEAT- Single Engine Air Tanker

SOFRC- Southern Oregon Forest Restoration Collaborative

SOP- Standard Operating Procedure

START- Simple triage and rapid treatment/transport

Stand replacement fire- Fire that kills all or most of the living upper canopy layer (in a forest or woodland, the overstory trees) and initiates succession or regrowth.

Succession- The gradual, somewhat predictable process of community change and replacement leading toward a climax community; the process of continuous colonization and extinction of populations at a particular site.

SWOCG- Southwest Oregon Coordinating Group

SWOFMP- Southwest Oregon Interagency Fire Management Plan

TNC- The Nature Conservancy

UGB- Urban Growth Boundaries

Understory fire- A fire in forests or woodlands that is not lethal to the dominant, overstory vegetation and thus does not change stand structure substantially

USACE- United States Army Corps of Engineers

USFS- United States Forest Service

USFWS- United States Fish and Wildlife Service

USGS- United States Geological Survey

VDEP- Vegetation Departure

VLAT- Very Large Air Tanker

WFDSS- Wildland Fire Decision Support System

WFLC- Wildland Fire Leadership Council

Wildfire- An unplanned ignition caused by lightning, volcanoes, or unauthorized or accidental human actions.

Wildland Fire- A nonstructural fire that occurs in wildland vegetation and/or natural fuels. Includes both wildfire and prescribed fire.

Woodland- A formation in which overstory trees are >16 feet (5 m) tall and trees constitute from 25% to 60% cover (LANDFIRE).

WRAP- Western Regional Action Plan

WUI- Wildland Urban Interface- An area where structures and other human developments meet or intermingle with undeveloped wildland or vegetative fuels

WWRA- West Wide Risk Assessment

APPENDIX A. PREVIOUS FIRE PLAN ACHIEVEMENTS

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The following outlines accomplishments under the previous Jackson and Josephine County Integrated Fire Plans, which pre-date this RVIFP.

CWS: OVERARCHING – ELEMENTS NECESSARY FOR COMMUNICATION AND SUSTAINABILITY

CWS/WRAP Goal: Recognize the depth and importance of the Communications Framework and provide resources to implement communications recommendations, as it establishes the foundation of our collaborative process.

- Using Title III funding, both Josephine and Jackson Counties invested in coordinators for fire plans and Firewise Communities programs to maintain and enhance communications, coordination, and collaborative efforts. Coordinators also monitored and evaluated the effectiveness and facilitated adaptive management of the plans.
- Title III funding from Jackson County was used to contract with a local advertising agency that created a mailer, radio spots, and an updated Rogue Valley Fire Prevention Cooperative webpage (www.rvfpc.com). The mailer was sent to almost ten thousand Jackson County residents and inserted into small, local newspapers. Feedback from committee members indicated that the campaign generated an increase in phone calls requesting more information about wildfire safety.
- In 2009, the Outreach and Education (O&E) committee developed a mailer and radio spots as part of the spring awareness campaign. Josephine County coordinated a Free Woody Vegetation Day and a series of newspaper ads in the Grants Pass Courier. KDRV Channel 12 PSAs were rebroadcast.
- Create a local fire prevention team. A fire prevention team was developed by the O&E committee. Accomplishments included:
 - Fire prevention messages displayed on area billboards.
 - Winter and spring Defensible Space maintenance handouts.
 - Fire Safety Team Teaching presented to first grade classes in Jackson and Josephine Counties.
 - A Wolf Creek/Sunny Valley wildfire evacuation outreach, survey, and evacuation booklet.
 - Evacuation information posted on the RVFPC website.

- Two Defensible Space dioramas built and utilized at public events.
 - Fire resistant plants handouts, displays and plant cards placed at area nurseries.
 - A Firewise landscaping class provided for landscape professionals.
 - Fire prevention signs produced and displayed throughout the counties.
 - Fifty fire danger signs installed in the Applegate Fire District.
 - Wildfire information presented at Master Gardeners' Fairs, Home Shows, and County Fairs booths.
- Wildfire Outreach and Education Programs – Printed and Web-Based Information. The fire prevention team created flip-books addressing wildfire awareness, prevention, creating defensible space, and evacuation, the “Living with Wildfire” booklet, handouts on “When Evacuation is Imminent” and “If you Are Unable to Evacuate”, and several “one-pagers” on wildfire evacuation. The O&E Committee produced a handout to educate renters about fire prevention steps which do not require landowner involvement. After the Oak Knoll fire, post-fire discussions among partners generated a publication entitled, “Fire Resistant Shrubs and Trees for Privacy in Southern Oregon.” Their premier publication, **The Firebrand** newsletter, has had 10 printed issues.
 - Develop a Wildfire Safety Speaker’s Bureau. In 2007, members of the O&E committee delivered 17 public presentations throughout the region. Partners participate in over 25 public meetings and events annually.
 - Increase the Effectiveness of Public Education. The Master Land Steward program was introduced in 2009 through the OSU Extension Service to assist rural residents in addressing wildfire and other ecological issues on their properties. The first 10-week training session was conducted and received good reviews. Classes have been conducted annually. Presentations have been made to Crater High School and Applegate school classes.
 - Home Assessment and Recognition Program Training. In 2007, partners from the Applegate Fire Plan created an outline for the Home Assessment training and gained support to develop a formal training class. The O&E committee completed a training package in collaboration with the RVFCA in 2009 to provide home wildfire risk assessment training at local fire districts and wildland agencies. A second training session was presented in October 2010 and again in 2011.
 - Wildfire Education School Kits for Two-County Area. With a grant from State Farm Insurance, wildfire education kits were completed and distributed to various agencies in 2006-2007. The kits have been used in many schools throughout both counties.

- Sustain a Long-term Educational Program. The O&E committee secured Title III funding from both counties in 2008 for outreach and education activities which have persisted until the present.

CWS GOAL 1: RESTORING AND MAINTAINING FIRE RESILIENT LANDSCAPES

CWS/WRAP Goal: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.

- Southern Oregon Forest Restoration Collaborative (SOFRC). The SOFRC was instrumental in fostering the Pilot Joe, Pilot Thompson, Freise Camp, and Jumping Bean pilot projects. These projects have advanced restoration on thousands of acres and generated nearly 10mmbf of material for markets. The basis of the Pilot Joe and Thompson projects (Phase II of Pilot Joe) is the Rogue Basin Forest Landscape Strategy which codifies the science and the experience of the last several years into an emerging paradigm of active forest management.
- In 2013, the SOFRC expanded its strategy for southwestern Oregon to support regional utilization and market capacity for biomass. The next phase will result in an “all-lands” restoration initiative providing federal managers recommendations for a program of work based upon the identification of an economically viable and socially acceptable treatment landscape.
- **Ashland Forest Resiliency Stewardship Project.** This collaborative effort has been used to plan and implement monitoring and community involvement for the 22,000 acre project area. Field accomplishments in 2012 include:
 - 100 seasonal jobs sustained
 - 680 acres burned total
 - 1,560 acres of brush and small trees cut
 - 150 people received work training
 - 344 acres of ground based thinning accomplished
 - 355 acres of helicopter commercial thinning accomplished
- **Josephine County Stewardship Group.** The Josephine County Stewardship Group has engaged in collaborative planning, education, implementation, and monitoring of stewardship contracts. The Group has focused accomplishments on the following activities:
 - Capacity building for stewardship contracting
 - East Illinois Valley Managed Stands Environmental Assessment

- BLM Stewardship Projects
- Hope Mountain Stewardship Project
- Butcher Knife Slate Project
- Biological Standards of Biomass Retention
- Market Development
- Landscape Assessment of the Illinois Valley
- Regional Collaboration
- **Lomakatsi** Restoration Project. Lomakatsi Restoration Project and Lomakatsi Ecological Services have designed and implemented ecological restoration projects in damaged forests and watersheds throughout southern Oregon and northern California. Lomakatsi has been recognized nationally for their work in partnership with the Forest Service on four stewardship agreements where thousands of acres of impacted forests are being restored and hundreds of jobs being created. Programs include:
 - Restoration forestry
 - Hazardous fuels reduction
 - Ecological workforce training
 - Youth training and employment
 - Restoration by-product utilization
 - Oak habitat restoration
 - Prescribed fire
 - Ecological monitoring
 - Aquatic habitat restoration
 - Outreach and education
- **Northwest Fire Learning Network (Rogue Basin)**. Ongoing Projects of the FLN Partnership include:
 - Forest Service Ashland Forest Resiliency Stewardship Project (22,000-acres, project area).
 - Ecological References for the Rogue Basin.
 - The Applegate Demonstration Project.
 - Support for the Southern Oregon Forest Restoration Collaborative.
 - Support for the Medford BLM Applegate Pilot Project.
 - Rogue Basin Oak Woodland Restoration Assessment

- Mitigate the effect of invasive weeds in the course of fuels reduction projects. Effort to mitigate the unwanted spread of invasive weeds has been accomplished through a liaison with the Jackson County Cooperative Weed Management Area (CWMA). OSU Extension Service's Land Steward program is being used to educate and energize private landowners to care about and therefore spread the word about noxious weeds.

CWS GOAL 2: CREATING FIRE ADAPTED COMMUNITIES

CWS/WRAP Goal: Human populations and infrastructure can withstand a wildfire without loss of life and property

- Assessing wildfire risk to communities. Fire plan partners, with support from Jackson County GIS staff and Title III funds, completed a Two-County Risk Assessment Update. The primary goals of the assessment update were to 1) incorporate the new calibrated LANDFIRE data and advanced fire modeling tools, and 2) use methodology consistent across the two-county area. These goals were both accomplished.
- Hazardous Fuels Treatments. Between 2001 and 2012, fire plan partners secured and managed 142 grants totaling \$16.5 million to partner with private landowners to complete fuels treatment projects within the WUI on federal, county, and private lands. Between 2007 and 2012, the USFS and BLM reported treating 344,744 acres of fuels reduction work. Seventy-six percent of the acres occurred within the WUI.
- Identify strategies for coordinating projects on a landscape scale. Fire plan partners have utilized innovative fire simulation and burn probability models to identify effective strategies for designing and coordinating projects at the landscape scale to protect communities. Treatment alternative effectiveness was evaluated for reducing threats to values at risk, reducing fire size, and changing minimum response times to reach important values.
- Track public and private fuels reduction projects. A web portal was created by Jackson County GIS using Title III funding called Community and Agency Fuels Effectiveness (CAFÉ). This portal uploaded, displayed, and distributed BLM, USFS, ODF, and Josephine County Forestry fuels treatment data among partner agencies and the public. About 3,751 treatment units from 15 agencies and NGO's were compiled in 2008.
- Woody Vegetation Disposal Day. On May 9, 2009, Josephine County participants brought a total of 69 loads of woody vegetation totaling over 91 yards to the Jo-Gro facility during the four-hour

monitoring period. (Over 300 yards of debris were collected in past years.) On May 15, 2010, Josephine County participants brought a total of 87 loads of woody vegetation totaling over 215 yards to the Jo-Gro facility during the four-hour monitoring period.

Firewise Communities Programs

- Ashland Firewise. The Firewise Coordinator has delivered individual wildfire safety home assessments, grant-funded reimbursements for removing hazardous vegetation around homes, and created and distributed educational materials regarding wildfire prevention and preparedness to city residents. Wildfire prevention and preparedness messages have been coordinated with regional and state partners. A Firewise Clean-Up Day event was held in Ashland that allowed residents to dispose of yard debris for free. This event collected twenty-one, 25-yard debris boxes filled with over 65 tons of debris. Additional highlights of Firewise results include:
 - Over 120 wildfire safety assessments of individual properties in Ashland.
 - Over 100 grants given for supporting removal of hazardous vegetation around homes.
 - 475 households participated in some measures to protect their homes (ODF Wildfire Safety grant).
 - With the Firewise Communities grant (April, 2011 – December, 2012), 22 projects were completed, 431 acres were treated and 587 structures were treated.
- Shady Cove Firewise. Shady Cove has five neighborhoods certified under the Firewise Communities USA program. In addition to residents completing defensible space work around their homes, Title III and National Fire Plan grant money has completed fuels treatments on several properties, including 40 acres of school property. The Fire District conducts two Firewise cleanup days annually, offering free disposal of yard debris.
- Grants Pass Firewise. The goal of the Grants Pass Firewise program is to create safer neighborhoods by reducing the risk of wildfire. The four steps in the process include awareness, education, improvement, and ownership. A website www.GrantsPassFirewise.org was established to provide information to homeowners on wildfire protection. Information has been sent to 2,700 individual homeowners, resulting in 190 assessments. In addition, Firewise presentations have been made at 35 community events with over 1,200 in attendance. Forty-six properties have applied for and completed fuels reduction through community assistance grants. In addition several strategic fuels reduction projects have been completed including:

- 11 acres of thick blackberries and other heavy fuels along the I-5 corridor on State owned land.
- 20 acres of thick Scotch Broom on land adjacent to the east side of the Starlite neighborhood.
- 10 acres of heavy fuels west of the Starlite neighborhood.
- 7 acres of thick fuels adjacent to the Forest Hills neighborhood.
- Jacksonville Firewise. The ODF Title III Firewise crew has treated several properties including an old overgrown tree farm.

Local Community Wildfire Protection Plans (CWPPs)

- Applegate Fire Plan. The Applegate Fire Plan (AFP) CWPP was collaboratively developed in 2001-2. The AFP Coordinator participated in the development of both Josephine and Jackson County CWPPs in 2004-7. Success in raising awareness can be measured by the percentage of Applegate residences with defensible space and the number of private acres having been thinned or managed for hazardous fuels and stand health. In 2004 a public survey showed that 20% of Applegate respondents had not heard of “defensible space,” while a public survey in 2011 indicated that over 95% of respondents have a defensible space around their home, and that almost 90% are maintaining this over time.

It is estimated that over 50,000 acres have been treated in the Applegate as a result of the AFP. The BLM currently has approximately 12,000 acres in the Applegate that are now in maintenance mode using prescribed fire.

In 2009, The Nature Conservancy conducted a landscape assessment to map watershed values. Twelve ecological values were identified and mapped. In 2010, the results of the Applegate’s Fire Learning Network mapping were utilized to initiate a pilot restoration project. The Middle Applegate Watershed Pilot was initiated in 2011.

- Ashland CWPP. The Ashland CWPP was formulated in the summer of 2004. The CWPP addresses watershed plans and recaps wildfire planning, prevention, and response efforts.
- Coleston CWPP. The Coleston Rural Fire District completed a CWPP in June of 2005. The key issues addressed include: fuels reduction projects, community emergency response teams, and emergency communications.
- Seven Basins CWPP. The Seven Basins CWPP is a product of the Seven Basins Neighborhood Fire Planning Project (SBNFPP) and promotes strong community involvement, support, and

ownership for fire planning and fuels reduction in the watershed. The Seven Basins CWPP includes a risk assessment, a summary of current fuels reduction efforts, recommendations to reduce structural ignitability, and priorities for fuels reduction at large and neighborhood scales.

- Illinois Valley CWPP. The Illinois Valley CWPP was created in 2005 and updated in June 2011 using Josephine County Title III funds.

CWS GOAL 3: RESPONDING TO WILDFIRES

CWS/WRAP Goal: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

- Southwest Oregon Fire Management Plan. The Southwest Oregon Fire Management Plan (SWOFMP) was completed in 2004 and revised in 2006. The plan is designed to provide southwestern Oregon with an “integrated concept in coordinated wildland fire planning and protection among Federal, State, local government entities and citizen initiatives.” The FMP describes fire management activities for every burnable acre of federal land, while recognizing the ecological importance of fire on these landscapes.

Structural Response

- Rogue Valley Fire Chief's Association Structural Protection Task Force. In Josephine or Jackson counties wildfires, Incident Commanders can call on a special task force that mobilizes fire engines and personnel from fire departments in the two counties. This agreement between the fire departments allows for an increased ability to protect structures, far beyond what local fire departments could accomplish without the task force.
- The Fire Service Mobilization Plan. “The Fire Service Mobilization Plan is a guide for OSFM personnel and emergency responders which established operating procedures for practical utilization of state firefighting resources beyond the capabilities of the local fire service resources.

County Emergency Management

- County Emergency Operations Plans. Emergency Operations Plans (EOP) exist for both counties and integrate efforts to prepare for, mitigate against, respond to and recover from major emergencies or disasters. The plans set forth a strategy and operating guidelines using the

National Incident Management System's (NIMS) Incident Command System (ICS) adopted by the counties for managing emergencies

- County Resources. County Emergency Management is able to initiate and staff a public inquiry call center to provide public information during an incident in coordination with other agency public information efforts.

Fire Response Action Items – Both Counties

- Develop Animal Disaster Plans. Both counties contracted with a consultant in 2009 to develop animal disaster plans. Exercises were conducted in Jackson County in 2009 and 2014 where the animal sheltering plan was successfully activated. Animal evacuation and sheltering manuals were developed for both counties outlining the roles and responsibilities of affected agencies, organizations and animal owners.
- Strengthen RVFCA Incident Management Team (IMT). The Rogue Valley Fire Chiefs Association IMT brought all hazard Operation Section Chief and Logistics Section Chief training to the valley in 2013 through grant/funding from the ***Oregon Department of Safety Standards and Training (DPSST)***.

Fire Response Action Items – Josephine County

- Improve Interagency Coordination and Collaboration. One of the most significant accomplishments of the Emergency Management Board has been the coordination fostered between County Emergency Management, the local fire protection districts, and the state and federal land management agencies.
- Update Wildfire Development Standards in the County Land Use Codes. Local fire districts played a significant role in developing amendments to the County Wildfire Protection Code (Article 76), which went into effect October 18, 2005.
- Develop an interoperable communications plan. An FY2006 Homeland Security Grant funded new radio consoles in the 911 Dispatch Center. An FY2007 Homeland Security Grant funded interoperable communications equipment for the City of Grants Pass Department of Public Safety. An FY2008 Homeland Security Grant awarded Josephine County \$131,900 for continued interoperable communications equipment, as well as ongoing programs in Citizen Corps, including Community Emergency Response Teams (CERT) and Medical Reserve Corps (MRC).

- Develop a transportation detour plan for Redwood Highway 199. This plan was completed in partnership with Oregon Department of Transportation, Cal Trans and Josephine County Public Works
- Meet National Incident Management System Compliance Standards. Through a grant from the department of Homeland Security, Josephine County contracted with Resource Innovations at the University of Oregon to assist the county in meeting compliance standards for the National Incident Management System.
- Conduct a Flood Exercise in December 2007. A county-wide 100-year flood in the Grants Pass area exercise was held the beginning of December. In all, 65 staff from various county departments, agencies and regional partners came to participate.
- Fire Protection Standards in “Unprotected” Areas. In 2006, the Josephine County Board of County Commissioners established a Fire Protection Committee to research structural fire service in the areas of the county not served by fire districts of cities.
- Rural/Metro Low-income assistance. In 2007, Rural/Metro Fire Department established an innovative low-income assistance program to provide low-income citizens with increased access to fire protection through reduced rates. To date, over 100 low-income residents in Josephine County have applied and qualified for the program.
- County Emergency Operations Plan. Through a grant from the Department of Homeland Security, and through the State Office of Emergency Management, a contractor was hired to assist Josephine County in the rewrite of the County Emergency Operations Plan.
- Coordinate Evacuation Procedures. A Wolf Creek – Sunny Valley Evacuation Plan and Booklet was completed. Evacuation route signs and Fire Danger signs were installed in Wolf Creek and Sunny Valley. Josephine County has a Flash Alert System where residents can sign up to receive email emergency notifications.

Fire Response Action Items – Jackson County

- Strengthen Notification for Wildfire Evacuation. The county Emergency Notification System is in place and tested. All the land lines of Jackson County are included—156,006 residences and businesses. Cell phone numbers must be entered manually. A Citizen Alert website was established to allow citizens to list their cell phone, email and other contact paths for emergency and other notifications. As of October, 2013, the Sheriff’s Office has a new emergency management staff person who serves as a liaison between the county’s emergency management services and incident commanders. This long-term goal of the fire plan has been accomplished.

- Develop a Logistics Plan for Wildfire Evacuation. The RVFCA adopted Pacific Northwest Wildfire Coordination Group's notification, planning and resources guides for the two-county area. A Wildfire Evacuation Protocol and Logistics Plan and a Vulnerable Populations Sheltering Plan were developed. Evacuation information is posted on the RVFPC website.
- Promote Coordinated Emergency Response; Encourage USFS and BLM Participation. Coordinated Emergency Responses were achieved through annual meetings with emergency response agencies. Local exercises occurred through the county and have proven to be very effective.
- Use GIS resources during wildfire incident operations. County GIS aerial imagery for structure location and County fire map books continue to be updated. Jackson County completed the development of a GIS emergency response team.
- Coordinate Training. The Rogue Interagency Training Association (RITA) serves as the coordinating group for fire training needs in the Rogue Valley. Two training and several equipment grants were received in 2008. RITA received two small equipment grants from private foundations in 2011 and several training grants over the past few years through the Oregon Department of Safety Standards and Training (DPSST).
- Regional Vulnerable Populations Committee. The Vulnerable Populations Committee provides education, planning, and preparedness tools for vulnerable populations, including elderly, low-income, and disabled citizens. Member accomplishments through 2011 that have furthered the goals of the Vulnerable Populations Committee:
 - A Vulnerable Populations Sheltering Plan.
 - Emergency Operations Plan (EOP) development for Adult Foster Care providers.
 - EOP workshops for Childcare Providers.
 - Distribution of Ready Books to seniors and people with disabilities.
 - Disaster training for Managing Spontaneous Volunteers.
 - Incident Command System training to the Vulnerable Populations Committee members.
 - F.A.S.T. (Functional Assessments Service Teams) training.
 - S.T.A.R.T (Simple triage and rapid treatment/transport) training.
 - Shelter plan to house residents displaced by an emergency.
 - Phone system to handle all non-emergency calls.
 - Workshops on defensible space for committee members and for senior housing programs.

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**APPENDIX B. COMMON INSECT AND DISEASE THREATS IN
SOUTHWESTERN OREGON**

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INSECTS

Mountain Pine Beetle (*Dendroctonus ponderosae*)

The mountain pine beetle is active in southwestern Oregon. The beetle creates pine snags by directly causing tree mortality. Mortality typically occurs in patches of several or more trees, and generally occurs in overstocked pine stands. Severe outbreaks can affect large areas and contribute significantly to wildfire risk for many decades.

Douglas-fir Beetle (*Dendroctonus pseudotsugae*)

The Douglas-fir beetle is a destructive bark beetle attacking Douglas-fir in the region. Outbreaks develop in host trees following stand disturbance such as wind throw, fire, drought, or severe defoliation. Epidemics are usually short-lived, but may devastate susceptible stands before subsiding. The beetles are attracted to slash, stumps, wind throw, and trees weakened by fire. After attack, a tree's foliage will begin to discolor, with needles turning from green to yellow, then orange, then reddish brown. Maintenance of healthy, vigorous stands, and removal of slash and downed trees can help control outbreaks.

Fir Engraver Beetle (*Scolytus ventralis*)

The fir engraver beetle commonly attacks only true fir trees in western coniferous forests. The beetle is present in forests at low levels and kills trees weakened by disease, old age, competition, and other influences. The beetle often breeds in freshly wind thrown trees and logging slash. Drought, diseases and other factors that stress stands of trees can result in more widespread outbreaks. Maintenance of healthy, vigorous stands and thinning of crowded stands can help prevent outbreaks. Infested trees should be cut and removed during the winter before the adult beetles emerge in May.

Ips Beetle (*Coleoptera: Scolytidae*)

The pine Ips is an engraver beetle that attacks all pine species. They are attracted to green slash from logging, construction activities, or natural events, but living trees can also be attacked during outbreaks. Logging slash created from December through June can be especially hazardous because it provides large amounts of breeding material. Thinned, vigorous stands of pine are less attractive to pine engraver beetles, so maintaining healthy stands can be used to control outbreaks.

Western Pine Beetle (*Dendroctonus brevicomis*)

The western pine beetle can attack and kill ponderosa and Coulter pine trees of all ages and vigor. Significant group killing of trees can occur particularly where trees are experiencing moisture stress as a result of drought or disease. Attacking adult beetles carry spores of a blue staining fungus (*Ceratocystis minor*). This fungus invades and blocks the conductive vessels of the inner bark and sapwood. Once vessels are blocked the foliage begins to fade to pale green through yellow to red brown. Healthy pines typically have sufficient resin flow at the attack site to “pitch out” the beetle, inhibiting larval and fungal development. Thinned, vigorous stands of pine are less attractive to western pine beetles, so maintaining healthy stands can be used to control outbreaks.

Flathead Fir Borer (*Melanophila drummondi*)

Flathead fir borer will invade previously weakened trees following periods of drought, fire, insect or disease. Infestations tend to be sporadic, limited and unpredictable. Host trees include Douglas-fir, true fir, western larch, spruce, and western hemlock. The beetle is known to be particularly aggressive in this region, attacking Douglas-fir growing on the edges of stands or scattered patches of trees on dry sites. Procedures to maintain stand vigor, i.e. sanitation cuttings and thinning, are thought to be helpful in reducing tree susceptibility to the beetle. The beetle commonly attacks and kills fire damaged Douglas-fir. Trees with more than 50% of the crown or 25% of the cambium damaged by fire are the most at risk.

Diseases

Sudden Oak Death (*Phytophthora ramorum*)

Sudden Oak Death (SOD) is a forest disease caused by a federally quarantined pathogen (*Phytophthora ramorum*) that has caused widespread dieback of tanoak and other oak species in forested areas of California and Oregon (Oregon Department of Agriculture 2016). The pathogen infects and kills tanoaks primarily through the formation of girdling cankers, as well as twig and foliar diseases.

Swiss Needle Cast (*Phaeocryptopus gaeumannii*)

Swiss Needle Cast is a foliage disease that is specific to Douglas-fir and is caused by the fungal pathogen *Phaeocryptopus gaeumannii*. Infected trees suffer chlorotic (yellow) needles and premature needle cast (hence the name) and forests exhibit areas with sparse tree crowns and reduced diameter and height growth.

Root Disease

Root diseases are responsible for large timber losses in Pacific Northwest forests and can occur in all conifer species. Although root diseases can result from flooding, soil compaction, drought, and toxic compounds, the most common cause of damaging root diseases is fungus. The five root diseases that are responsible for the greatest damage in Oregon forests are laminated root rot, Armillaria root disease, annosus root disease, black stain root disease, and Port-Orford-cedar root disease.²⁹³

White Pine Blister Rust (*Cronartium ribicola*)

White pine blister rust attacks all five-needled pines, including western white pine, sugar pine, whitebark pine (*Pinus albicaulis*) and limber pine (*Pinus flexilis*). Infected trees will often exhibit dead tops and scattered dead branches. The disease can significantly reduce populations of western white pine and sugar pine, reducing the diversity of tree species present in many native stands.

²⁹³ Root Diseases in Oregon and Washington Conifers. Hadfield, James S., Donald J. Goheen , Gregory M. Filip, Craig L. Schmitt , Robert D. Harvey. U.S Department of Agriculture, Forest Service, Pacific Northwest Region, Forest Pest Management. R6-FPM-250-86.

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APPENDIX C. SUMMARY OF ROGUE BASIN COHESIVE FOREST RESTORATION STRATEGY

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The forests of western North America have innate ecological value, provide diverse wildlife habitats, underpin the global carbon and water cycles, and provide human communities with clean water, recreation, and other benefits. Landscape-scale forest restoration is needed to mitigate threats to these forests from uncharacteristically destructive fires catalyzed by climate change, a century of fire exclusion, and past destructive logging practices. This report frames the collaboratively-derived Rogue Basin Cohesive Forest Restoration Strategy (Strategy), which integrates multiple resource assessments conducted by the Southern Oregon Forest Restoration Collaborative and partners to clarify the costs and benefits of landscape-scale forest restoration in the Rogue Basin.

The Strategy outlines approaches and scenarios for implementing mechanical treatments designed to increase landscape resiliency, reduce wildfire risks, and generate economic activity for local communities while protecting complex forest and increasing fire management options and fire fighter safety. A foundation is provided for structured decision-making and prioritization with the long-term goal of accelerating forest restoration planning, implementation, and monitoring across the Rogue Basin. However, the focus of this report is on regional-scale planning for and selection of project planning areas with the acknowledgement that further development is needed for localized implementation and monitoring.

The Strategy aligns with the goals and components outlined in the National Cohesive Wildland Fire Management Strategy: an all lands approach to improving landscape resilience, fire adapted communities, and safe and effective wildfire response. It provides a basis for forming strategic and programmatic alignment across agencies, organizations, and governance, and is both built on and calls for further collaborative engagement. The Ashland All Lands Restoration project, which began as the Ashland Forest Resiliency Stewardship project (website) is a successful model of the approaches, partnerships, and outcomes of the work described in the Strategy.

The Strategy is built on a strong framework of conservation, including protection elements by proposing no new system roads and does not suggest mechanical treatment in wilderness, core Northern Spotted Owl habitat, or riparian reserves. Wildfire risk mitigation is integrated with ecologically based thinning in appropriate landscape settings where the large old trees have already been removed or in landscape settings where biophysical characteristics would favor more open conditions under a more frequent fire regime.

We aggregated, refined, and developed data to describe vegetation, fuels, high value resources and assets (HVRA), access, yarding capabilities, and no-treatment zones across 4.6 million-ac. We model fire probability and likely intensity across the basin to provide a wildfire risk assessment that identifies the HVRA's and landscapes most at risk to wildfire and provide data to evaluate sources of problematic wildfire.

Using these data, we optimized treatment placement using the software Marxan, balancing five objectives: 1) mitigating local fire community risk, 2) reducing large wildfire community risk, 3) restoring landscape resilience through proportions of open forest, 4) protecting existing and promoting future Northern Spotted Owl (NSO) habitat, and 5) promoting fire resistance in climate resilient settings. Data are provided to allow prioritization of projects that best achieve all five landscape objectives together, or that elevate individual objectives depending on stakeholder values.

The Strategy predicts restoration and fuels work needed, along with the restoration merchantable byproduct generated, by applying varied prescriptions across four treatment themes: ecological resilience, fuel management, long-range complex habitat, and near-range complex habitat. Each treatment theme sets target densities and stand structures specified by objective, forest type, and seral state. Where applied, the mechanical treatment themes would reduce canopy cover to 42%, 48%, 44%, and 54 % respectively, while reducing ladder and activity fuels with mechanical treatments and prescribed fire.

The assessment evaluates three 20-year mechanical treatment scenarios: 1) Business as Usual treating 150,000-ac of federal land, 11% of available acres on 50 planning areas, prioritized for all objectives weighting evenly with the addition of economically viable timber, 2) Maximum Federal, treating the entire treatable and accessible footprint with forest vegetation in need of thinning, 0.9 million-ac, on lands managed by the Rogue River-Siskiyou Mountains National Forest and the Medford District Bureau of Land Management, prioritized solely on the five risk and ecological objectives, 3) All Lands, treating 1.1 million-ac by adding to the Maximum Federal treated acres additional ownerships within the Community at Risk until 40% of the Community at Risk is treated in-line with SOFRC objectives to reduce wildfire risk to communities.

Implementation of the full All Lands scenario best reduced wildfire risk to all high value resources and assets; notably reducing wildfire risk to homes by 50%. The All Lands scenario reduced wildfire risk to high quality Northern Spotted Owl habitat by 47% and this was associated with a modest reduction of

Northern Spotted Owl nesting, roosting, and foraging habitat, transitioning it to dispersal habitat on ridges and warm midslopes. Landscape resilience only improved modestly, even under the most widespread treatment footprint. By thinning excess mid- and late-closed stands the landscape balance of mid- and late-open forests can be directly improved: this was observed at very local scales, but across the basin the deficit of late seral forests can only be dealt with by thinning mid-seral forests so that they grow to late seral more rapidly. Maintenance of 60% canopy cover in the community at risk and limited treatable/accessible footprint also diminish the ability to transition closed to open forests. Accounting for the contribution of managed fire to augment and supplement forest thinning could dramatically improve this outcome.

Implementation of the Maximum Federal strategy over 20 years would treat 0.9 million acres and require an annual investment of \$34 million to implement the mechanical treatments and treat associated fuels with pile burning. However, this would come with dramatic reductions in wildfire risk and produce 66 million board feet of merchantable timber every year. This investment in a fire adapted landscape is expected to generate significant related economic activity annually with 1,700 direct and indirect jobs that produce \$65 million in local wages, and generate over \$260 million in local economic output.

This report evaluates the costs and benefits of three scenarios that envision landscape-scale forest restoration at three different spatial extents. This framework can be used to structure manager decision-making and has already been used to engage stakeholder and the public in a conversation about management of this landscape. We hope that treatments will set the stage for managed fire that will improve landscape resilience, climate resilience, and community safety at a reduced cost over the long-term. Continued implementation of the Strategy on federal lands could encourage related work on all lands, and result in a more resilient landscape where people and nature thrive.

ROGUE BASIN COHESIVE FOREST RESTORATION STRATEGY- SUMMARY

Components of Risk – Hazards and Values

Risk is a measurement of the consequences of a wildland fire occurring and the resultant damage. Risk can include loss of buildings (homes and businesses) and critical infrastructure, impacts to socioeconomic factors, or loss of environmentally-sensitive species. Loss of some features (such as historic sites or critical infrastructure) is deemed unacceptable and merits extraordinary mitigations to reduce risk.

The RBS defined wildfire risk (also referred to as **exposure analysis**) as the “spatial interaction of wildfire likelihood, wildfire intensity, and the susceptibility of high value resources and assets (HVRAs)” (Figure C.1).

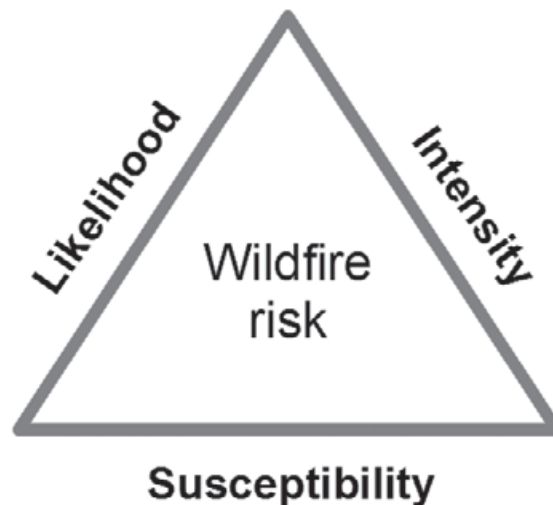


Figure C.1. The three building blocks of assessing wildfire risk.²⁹⁴

The susceptibility of any HRVA changes depending on a wildfire’s intensity level. For example, a stand of decadent conifers would benefit (rather than lose) from a low-intensity wildfire. The same stand may not incur any loss until the intensity level reaches some critical point. Because a home might incur loss at any intensity level, by definition it is more susceptible. Effectively, this methodology quantifies *net*

²⁹⁴ Miller and Ager, 2012.

value change (NVC), rather than just loss, from the effects of wildfire. The RBS risk assessment identifies and quantifies the benefits and losses from wildland fire at six different fire intensity levels.

Fire intensity is used to describe wildfire hazard. In turn, fire intensity is a combination of fireline intensity and flame length. Both fireline intensity and flame length were derived from a fire modeling exercise that anticipated wildfire behavior, and likely changes to fire behavior, based on the proposed increases in fuel treatment.

In addition, for any given area within the project boundary, the likelihood of a wildfire occurring, or burn probability, was also quantified. Both measures, fire intensity and burn probability, were used to quantify wildfire hazard.

The following sections further explain each component of assessing wildfire risk.

Likelihood and Intensity (Hazard)

The probability, or likelihood, and the intensity of a wildfire are both critical for determining hazard. Burn probability quantifies the likelihood that a wildfire will burn a given point. Fireline intensity quantifies the effects of fuel, weather, and topography on fire behavior.

In the RBS analysis, wildfire occurrence and spread were simulated to characterize how variability in weather through time, and variability in fuel, topography, and ignition density, influenced wildfire likelihood across a landscape. SOFRC used a large wildfire simulator (FSim) to characterize large wildfire likelihood and intensity.²⁹⁵

The process to derive hazard was complicated. It involved simulating wildfire in FSim to quantify the fire effects of relative spread direction (heading, flanking, backing, and all points in between). Ten thousand fire simulation iterations (each representing a “fire year”) were run through FSim. This produced an annual burn probability that identifies the probability of any 2-acre pixel (270 x 270 m pixels) burning in a fire larger than 35 acres (Figure C.2).

²⁹⁵ Hollingsworth and Menakis, 2010.

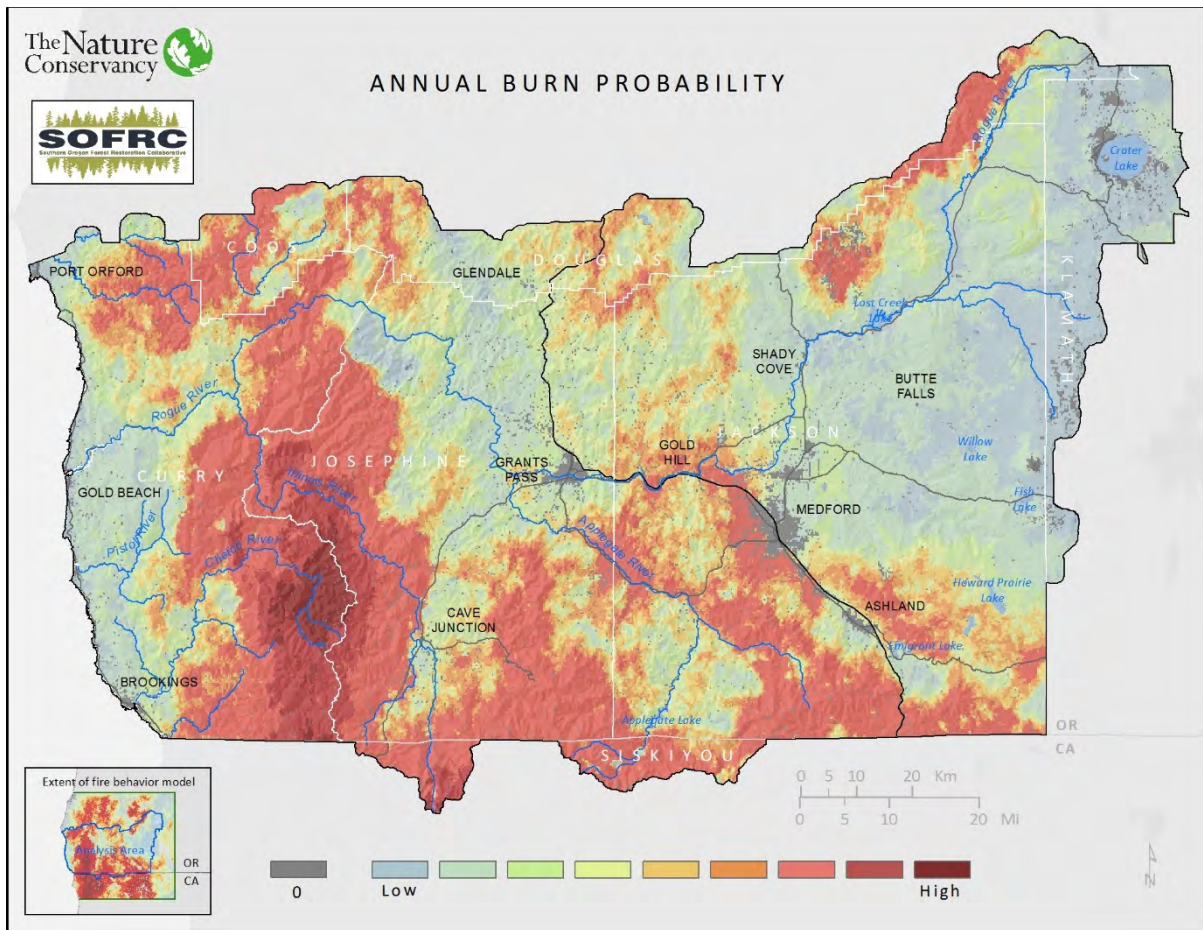


Figure C.2. *FSim generated annual probability of a 2-acre pixel burning in a fire that is >35 acres in size in a given year for the 10 million acre fire behavior modeling area (see inset) centered on the 4.6 million acre Rogue Basin Project area.*

Susceptibility

The RBS exposure analysis used stakeholder/expert contributions to identify high value resources and assets (HVRAs) and described each HVRA's susceptibility to wildfire. Local stakeholders identified individual HVRAs at workshops convened by the SOFRC and facilitated by Joe Scott of Pyrologix LLC (February 10-11, 2015). These workshops were attended by 51 participants representing a wide range of local, state, and federal agencies as well as non-governmental organizations.

Participants assembled an initial list of 59 values for subsequent mapping. After refining the list, the RBS mapped 12 HVRA's, split into 32 sub-HVRA's composed of 12 assets and 20 resources. An asset was defined as a human-built structure, such as a home, or cell tower, etc. Resources were defined as natural features such as forested wildlife habitat or unique species for which habitat distribution could be mapped.

A second workshop series held later (April 8-9, 2015) used a carefully structured method to integrate science and value-based information to describe likely sub-HVRA wildfire responses, and assigned weights to each to indicate their relative importance. This workshop was facilitated by Joe Scott (Pyrologix LLC) and Matt Thompson (Rocky Mountain Research Station).

Agreement on relative importance varied across a range of interest groups, but the entire group quickly agreed to a rough averaging as fairly representative, and the result across HVRA's was fairly even. After accounting for the spatial extent of each HVRA, the technical team reached agreement on calibrating adjustments of relative importance of each HVRA, while also roughly reflecting the rank order of importance from the workshop (Figure C.3).

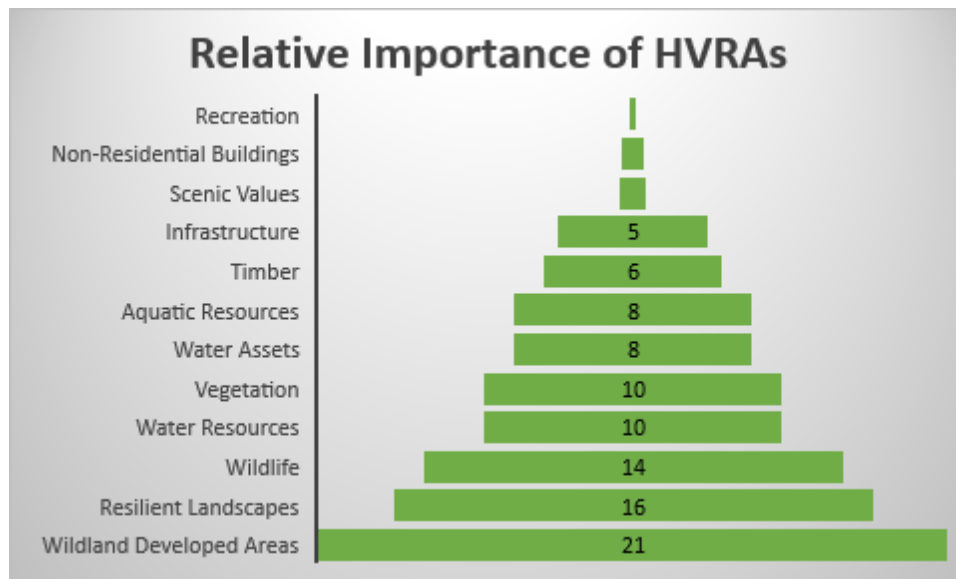


Figure C.3. *The relative importance of high value resources and assets as collaboratively identified in the workshop and after accounting for their relative extent and replacement value (data from RBS 2015).*

From this list of broad HVRAs, five classes of **assets** were identified and mapped as 18 individual sub-HVRAs. In addition, seven classes of **resources** were identified and mapped as 26 covaried sub-HVRAs (44 in total).

The likely wildfire response for each HVRA was classed on a scale from +100 to -100, with +100 being a 100% increase in the asset/resource value and -100 representing a complete removal of the

asset/resource value. Details of each HVRA data layer representing the HVRA ranked above are available in the full RBS report.²⁹⁶

Community Vulnerability

The RBS analysis process identified “Communities At Risk” (CARs), which focus on a geographic area within and surrounding permanent dwellings (at least 1 home per 40 acres) with basic infrastructure and services, under a common fire protection jurisdiction, government, or tribal trust or allotment, for which there is a significant threat due to wildfire.²⁹⁷ SOFRC began to define their CAR using the results of a statewide task force that established a uniform CAR framework for Oregon.²⁹⁸ This base CAR was augmented with data on where people live generated by the Westwide Wildfire Risk Assessment (WWRA) using 2009 LandScan data, and people per housing unit from 2010 census data. All additional data was integrated with the original CAR footprint using a rigorous methodology (Figure C.4).²⁹⁹

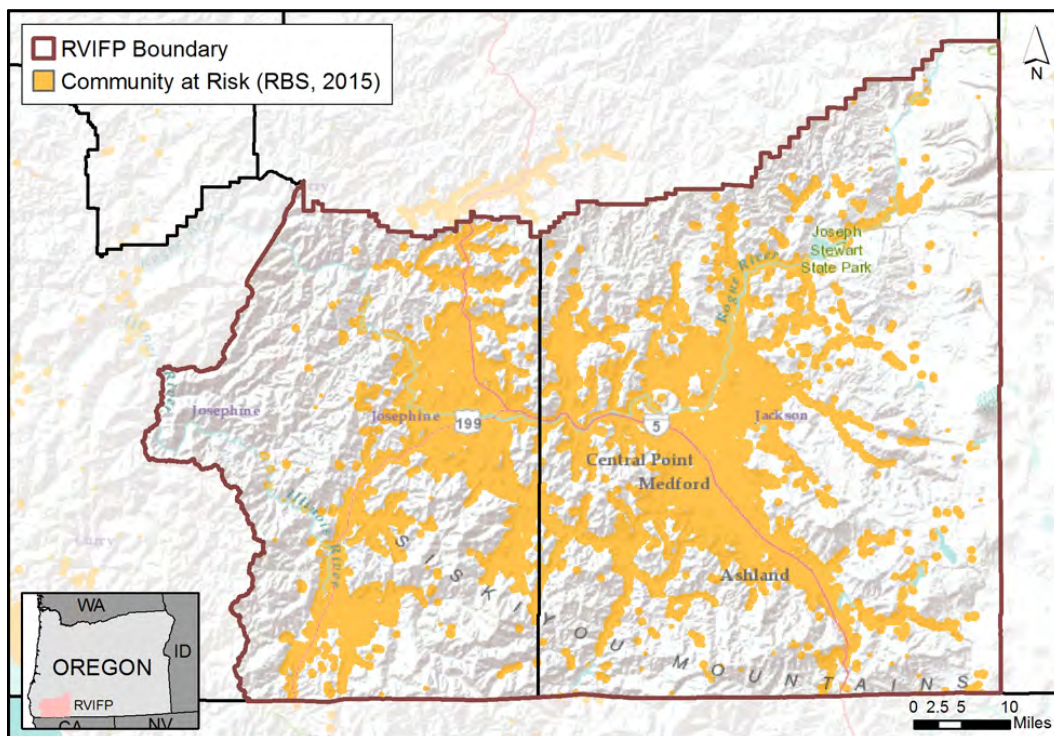


Figure C.4. Map of Communities at Risk (CARs) identified in the RBS.

²⁹⁶ Metlen, K. L., D. Borgias, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, C. Zanger, M. Bennett, B. Moody, and E. Reilly. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR. Available online at: <https://tnc.box.com/s/k8kel1cww1i3oo4ru55lc1dv7xpyxuob>.

²⁹⁷ HFRA, 2003.

²⁹⁸ ODF, 2006.

²⁹⁹ ODF, et al., 2013.

Local Wildfire Community Risk

Fires smaller than 35 acres can affect community values due to their close proximity to each other, but these types of fires are not modeled by the FSim. To augment the quantitative wildfire risk assessment, the RBS analysis included a product from the WWRA to account for wildfire risk due to fires smaller than 35 acres. The WWRA used an ignition density grid of all fires, including the small fires that can have high consequence for communities. The Local WildFire Community Risk used by the RBS is the Fire Risk Index from the WWRA within a 0.25-mile buffer of the Communities at Risk defined by SOFRC (Figure D.5a).

Large Wildfire Community Risk

The quantitative wildfire risk assessment developed for the Rogue Basin modeled likely large wildfire intensity for fires greater than 35 acres. From this, the assessment produced a quantified large wildfire risk metric for every pixel for a number of collaboratively derived resources and assets (described above).

For evaluating potential wildfire impacts on community assets, risk was summed for a subset of assets::

- where people live,
- non-residential structures,
- infrastructure, and
- the only surface-water municipal watershed (Ashland, OR) in the analysis area.

We aggregated the conditional net value change for these assets for every simulated wildfire, and then attributed the ignition source for those modeled fires with the likely consequence of that fire for our community assets.

We then averaged the cumulative conditional net value change to community assets risk to the 12-digit/6th level hydrologic unit code (HUC) to quantify the likely consequence to communities of fires greater than 35 acres igniting in a given spot on the landscape (Figure C.5). The intent of this process was to guide fuels reduction treatments, in part, toward locations that are most prone to producing wildland fires that damage the community.

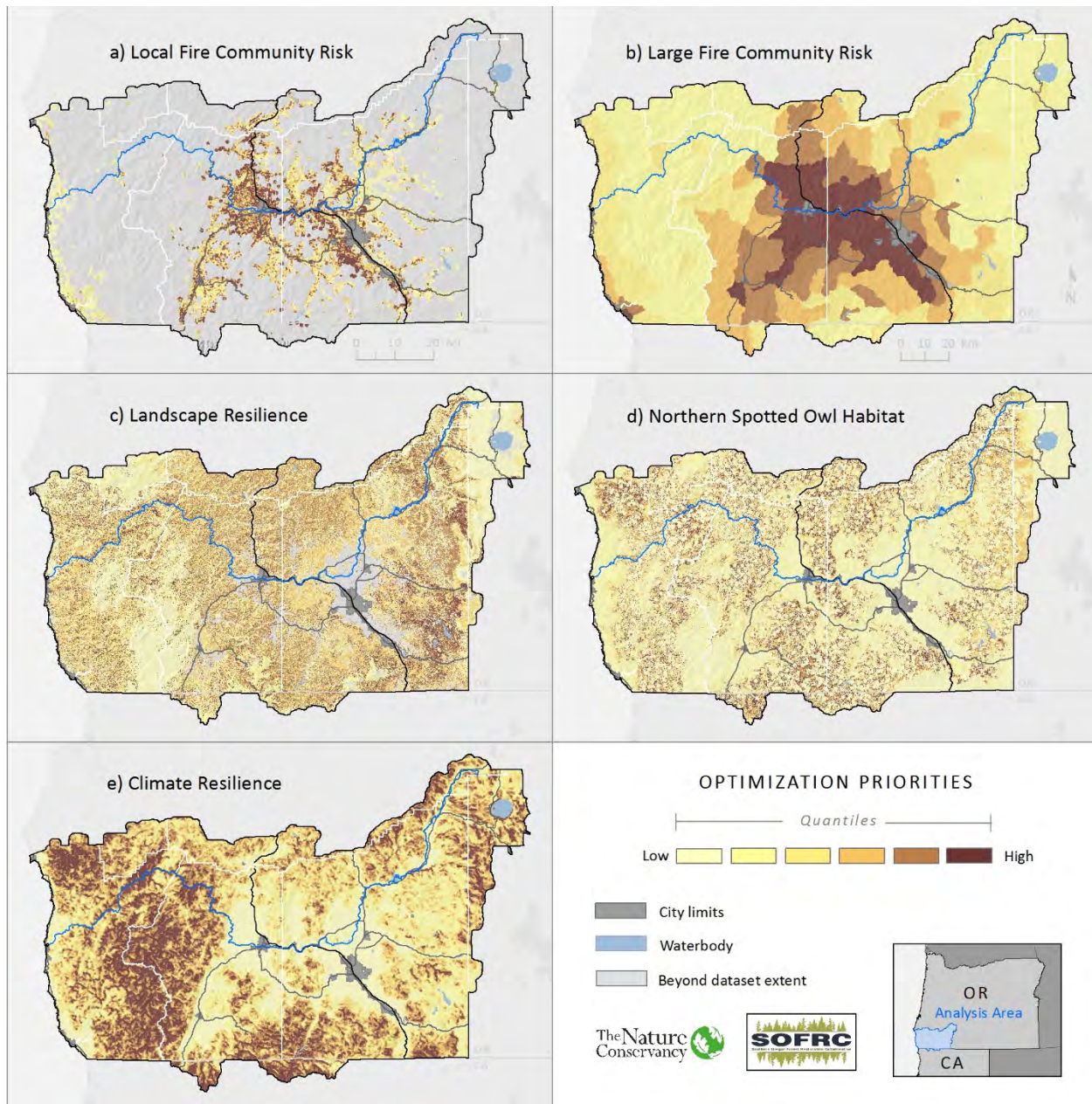


Figure C.5. *Forest restoration thinning and fuels reduction treatments were prioritized across the Rogue Basin project area based on five priorities a) fuels reduction to reduce local fire community risk b) fuels reduction to reduce large wildfire community risk c) thinning to promote landscape resilience d) thinning to promote and protect complex forest habitats e) thinning in settings likely to be resilient to climate change.*

Structural Vulnerability

The vulnerability of structures in the community (i.e., based on roof construction, structure siding, defensible space, proximity to flammable vegetation, etc.) was not explicitly considered in the RBS exposure analysis (risk assessment). However, the RBS process did consider five mappable classes of

assets that take into account vulnerability of structures (from infrastructure to housing density), and seven classes of housing density to provide for variable levels of vulnerability and effect magnitude (higher density classes were assumed to be more vulnerable to fire).³⁰⁰

Critical Infrastructure Vulnerability

In the RBS, mapped critical infrastructure, including communication towers, powerlines, and power hubs, were considered in modelling efforts. As described in the section above, each infrastructure HVRA's susceptibility to wildfire was quantified on a scale of -100 to +100. It was determined that most infrastructure, regardless of the fire intensity level (hazard), would incur relatively low loss due to wildfire (see full RBS report for details).³⁰¹

Resources at Risk

Resource values mapped were given response functions that included fire benefit in addition to detrimental fire effects. The seven classes of resources considered were: aquatic resources, resilient landscapes, scenic values, timber, vegetation communities, water resources, and wildlife habitat (see full RBS report for details on response functions of these resources).

Risk Assessment Results or Net Value Change

Combining fire intensity and the relative importance and effects of fire on the HVRAs, wildfire risk was generated for the entire RBS project area (Figure C.6). This result is expressed as conditional net value change (cNVC), which represents the likely effects (both positive and negative) of a fire when it burns across the landscape.

By multiplying cNVC with burn probability, another important result is a data layer called expected net value change (eNVC). This adds in the probability of whether or not any given pixel would actually burn.

³⁰⁰ Metlen, K. L., D. Borgias, B. Kellogg, M. Schindel, A. Jones, G. McKinley, D. Olson, C. Zanger, M. Bennett, B. Moody, and E. Reilly. 2017. Rogue Basin Cohesive Forest Restoration Strategy: A Collaborative Vision for Resilient Landscapes and Fire Adapted Communities v.2. The Nature Conservancy, Portland, OR. Available online at: <https://tnc.box.com/s/k8kel1cww1i3oo4ru55lc1dv7xpyxuoob>.

³⁰¹ Ibid

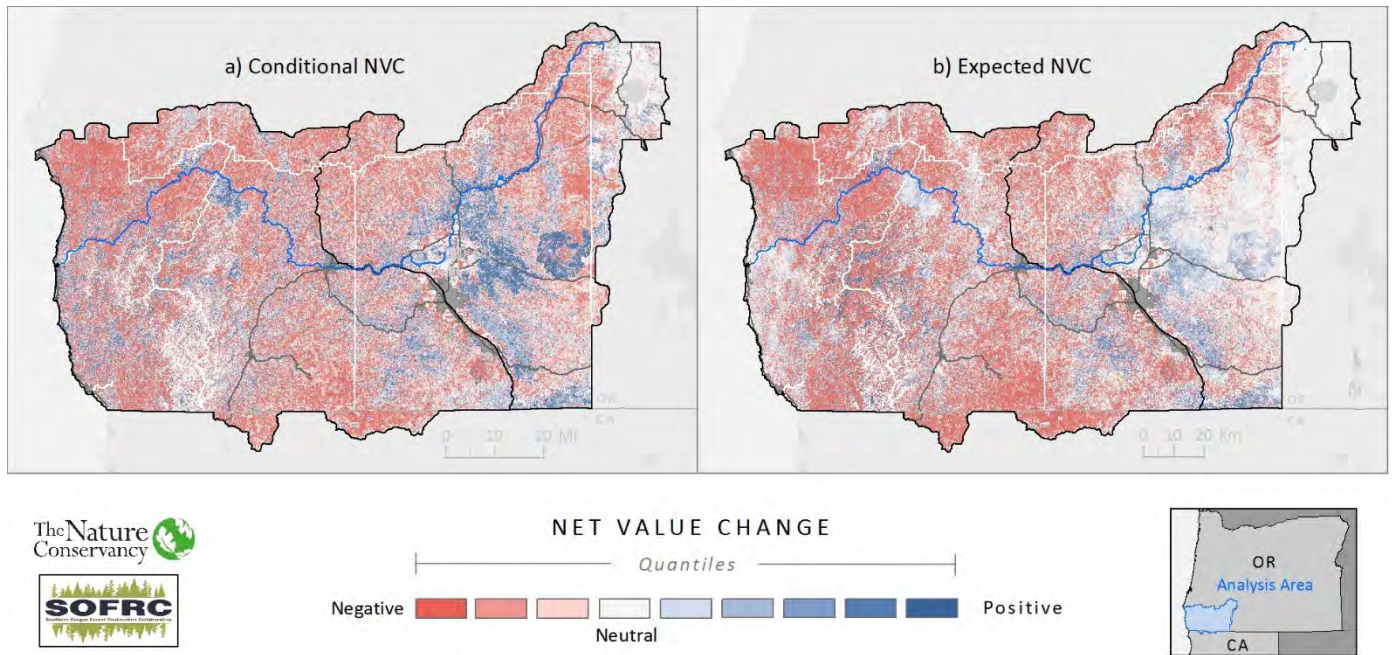


Figure C.6. Conditional (cNVC) net value change and b) Expected net value change (eNVC) to all mapped high value resources and assets.

APPENDIX D. PUBLIC EDUCATION AND OUTREACH MATERIALS

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Existing Public Education and Outreach Materials Tailored to the Rogue Valley Area include:

- **Living with Wildfire- A Homeowners Guide- Rogue Valley Fire Prevention Co-Op:**
<http://www.ci.medford.or.us/files/livingwithwildfire.pdf>
- **Help Your Home Survive a Fire: Clean up and Maintain Your Defensible Space- Spring and Summer Guide:**
http://extension.oregonstate.edu/sorec/sites/default/files/reader-spreads-keep_you_home_safe_from_wildfire_web-res.pdf
- **Be Ready, Be Set, Go- Evacuation Information trifold:**
https://jacksoncountyor.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=38364&language=en-US&PortalId=13&TabId=1549
- **Jackson County Emergency Preparedness Handbook:**
www.rvem.org/preparedness-handbook.html
- **Josephine County Emergency Preparedness Handbook.**
<http://www.co.josephine.or.us/files/2005bookfinal.pdf>
- **Before Wildfire Strikes! A Handbook for Homeowners and Communities in southwestern Oregon:**
https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9131_2.pdf

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APPENDIX E. FUNDING SOURCES FOR IMPLEMENTATION

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STATE SPECIFIC FUNDING

Source: Environmental Quality Incentives Program (EQIP)

Agency: Natural Resources Conservation Service (NRCS) Oregon

Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/financial/eqip/>

Qualifying organizations: Individual, legal entity or joint operation that meets EQIP eligibility criteria

Match requirement: Refer to Website

Annual funding: Provided by Untied States Department of Agriculture (USDA)

Description: The Environmental Quality Incentives Program (EQIP) is administered by NRCS Oregon in efforts to promote conservation practices on working agricultural land and thus enhance environmental quality. Program participants are benefited by financial and technical assistance in implementing conservation practices on their private land. Several initiatives are available for application as listed on the EQIP website. The next application cutoff date is May 19th, 2017. Detailed information regarding specific initiatives can be accessed through the EQIP website.

Source: Conservation Stewardship Program

Agency: NRCS Oregon

Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/financial/csp/>

Qualifying organizations: Individuals, entities, and Indian Tribes operating on private non-industrial forest land

Match requirement: Refer to website

Annual funding: Up to \$18.8 million in previous years

Description: The Conservation Stewardship Program (CSP) was established in the 2008 Farm Bill in order to assist landowners in implementing and maintaining conservation strategies on private land. NRCS Oregon enrolls voluntary participants to provide technical and financial assistance in meeting specific conservation management goals. In order to be eligible for this program, the applicant must have effective control of the land for the entirety of the contract term, which is five years. Applicants must also meet the “Stewardship Threshold,” or the appropriate level of management required to implement CSP plans, as determined by the Conservation Activity Evaluation Tool. Payments are capped at \$40,000 annually, or \$200,000 per five-year contract.

Source: Healthy Forest Reserve Program (HFRP)

Agency: NRCS Oregon and USFWS

Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/easements/forests/>

Qualifying organizations: Landowners with property 40 acres or more of Douglas fir/mixed conifer forest land. The land must include known or potential Northern Spotted Owl habitat or provide Connectivity between coast and Cascade Range habitats.

Match requirement: Refer to website

Annual funding: Provided by USDA

Description: The purpose of HFRP is to restore and protect forests and encourage sustainable land management practices on private lands. The program enrolls lands in Lane, Coos, Douglas, Josephine, Curry, and Jackson Counties. The three primary goals of restoration are to promote the recovery of threatened and endangered species, improve biodiversity and enhance carbon sequestration. The deadline for applications is subject to the availability of funds.

Source: Oregon Statewide Wood Energy Team

Agency: ODF

Website: <https://www.oregon.gov/ODF/Board/Pages/SWET.aspx>

Qualifying organizations: Grants are available statewide to public, private, and non-profit entities

Match requirement: Minimum 25 percent match required

Annual funding: USDA Forest Service

Description: The Oregon Statewide Wood Energy Team offer competitive grants for forest biomass as a means of offsetting the risk of biomass buildup and exploring valuable uses for woody biomass. Grants are typically intended to support early-stage project development and are not provided for capital construction funding or on-going maintenance.

Source: Forest Legacy Program

Agency: ODF

Website: <https://www.oregon.gov/ODF/Documents/WorkingForests/OregonForestLegacyProgramElements.pdf>

Qualifying organizations: Forestlands – defined as land that is at least 10 percent occupied by tree canopy cover or capable of sustaining at least that level of tree cover -- must be privately owned and located within one of Oregon’s Forest Legacy Areas to be eligible for Forest Legacy

Match requirement: Minimum 25 percent non-federal cost share requirement calculated as 25 percent of the total project costs

Annual funding: Previous annual funding has been approximately \$3,136,500

Description: The “Legacy” program as administered by the USDA Forest Service in cooperation with State partners is comprised of two separate but complementary programs: the State Forest Legacy Program and the Federal Forest Legacy Program. Below is a brief overview of the programs.

The purpose of the Forest Legacy Program is to protect environmentally important forestland threatened with conversion to non-forest uses, such as subdivision for residential or commercial development. In 2001, Oregon entered the Forest Legacy Program with approval of Oregon’s Assessment of Need by the U.S. Secretary of Agriculture. Due to political concerns, Oregon did not receive State legislative authority to implement the program until 2007. The goal of this program is to accept lands and interests in lands and to encourage the long-term conservation of productive forest lands by providing an incentive to owners of private forest lands to prevent future conversions of forest land and forest resources.

Protecting forests will ensure Oregon’s forests continue to be a significant carbon storage “sink” by avoiding conversion to non-forest uses that will result in GHG emissions rather than carbon sequestration. To help maintain the integrity and traditional uses of private forestlands, the Forest Legacy Program promotes the use of conservation easements or fee-title acquisition into public ownership. These easements provide a new approach, a new tool, with which the federal government, in cooperation with state and local agencies, private organizations, and individuals can preserve the rich heritage of private forests.

Eligible properties may be "working forests," where forestland is managed for the production of forest products and traditional forest uses are maintained. These forest uses will include both commodity outputs and non-commodity values. The purpose of these easements is to maintain these forests intact to provide such traditional forest benefits as timber production, wildlife habitat, watershed protection and/or open space. These forests remain in private ownership, except for the restrictions on development or other uses conveyed by the conservation easement to the agency selected by the landowner.

Federal Forest Legacy - Federal Program

The federal Forest Legacy (16 U.S.C. Sec. 2103c) program was part of the 1990 Federal Farm Bill. It recognized that private forestland owners were facing increased pressure due to greater population densities and users demands, to convert their forestlands to other uses, such as housing subdivisions, rural lots and vineyards. Furthermore, forestland provides a wide variety of products and services including fish and wildlife habitat, aesthetic qualities, timber and recreation opportunities. Good stewardship of privately held forest lands requires a long-term commitment that can be fostered through a partnership of local, state and Federal government efforts.

The objective of the Federal Forest Legacy Program is to identify and protect environmentally important forestlands that are threatened by present or future conversion to non-forest uses. Priority is to be given to lands that can be effectively protected and managed and that have important scenic, recreational, timber, riparian, fish and wildlife, threatened and endangered species, and other cultural and environmental values.

Project costs covered by the Federal Legacy grants include interests in lands (including actual purchase price), appraisals, land surveys, closing costs, establishing baseline information, title work, purchase of title insurance, conservation easement drafting and other real estate transaction expenses. Also included are funds expended to facilitate donations of land or interests in lands to a qualified and willing donor for Program purposes. For outright donations of a conservation easement or land, Federal funds may not be used to pay for an appraisal since the Forest Service does not need a determination of fair market value. **Federal funds are limited to 75% of the value of the conservation easement with the remaining portion contributed by non-federal matching funds. Landowner contributions may be part of the match.**

Source: Oregon Forest Stewardship Program

Agency: ODF

Website: <https://www.oregon.gov/ODF/AboutODF/Pages/GrantsIncentives.aspx>

Qualifying organizations: Land-owners – minimum plan size is 10 acres

Match requirement: Yes

Annual funding: Previous annual funding has been approximately \$350,000

Source: Urban and Community Forestry

Agency: ODF

Website: <https://www.oregon.gov/ODF/ForestBenefits/Pages/UrbanForests.aspx>

Qualifying organizations: Communities committed to their urban trees or looking to improve and expand their urban forestry programs

Match requirement: N/A

Annual funding: Previous annual funding has been approximately \$300,000

FEDERAL AGENCY FUNDING

USDA-NATURAL RESOURCE CONSERVATION SERVICE GRANTS

The Agricultural Management Assistance (AMA) helps agricultural producers use conservation to manage risk and solve natural resource issues through natural resources conservation. NRCS administers the AMA conservation provisions while the Agricultural Marketing Service and the Risk Management Agency implement other provisions under AMA.

The Conservation Stewardship Program (CSP) helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

Source: Conservation Innovation Grants (CIG)

Agency: Natural Resource Conservation Service

Website: <http://www.nm.nrcs.usda.gov/programs/cig/cig.html>

Qualifying organizations: Individuals, legal entities, Indian Tribes, or joint operations engaged in agricultural production on eligible land

Description: CIG State Component. CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program (EQIP) funds are used to award competitive grants to non-federal governmental or nongovernmental organizations, tribes, or individuals. CIG enables the Natural Resources Conservation Service (NRCS) to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with federal, state, and local regulations. The NRCS administers the CIG program. The CIG requires a 50/50 match between the agency and the applicant. The CIG has two funding components: national and state. Funding sources are available for water resources, soil resources, atmospheric resources, and grazing land and forest health.

The Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation or improved or created wildlife habitat.

Source: Air Quality Initiative

Agency: National Resource Conservation Service

Website: <http://www.nm.nrcs.usda.gov/programs/cig/cig.html>

Qualifying organizations: Individuals, legal entities, Indian Tribes, or joint operations engaged in agricultural production on eligible land

The NRCS Environmental Quality Incentives Program (EQIP) Air Quality Initiative provides financial assistance to implement conservation practices that address air resource issues for designated locations throughout the nation. Agricultural atmospheric related concerns include greenhouse gas emissions, ozone precursors, volatile organic compounds, airborne particulate matter, and some odor-related volatile compounds. For more information about agricultural air quality concerns, see the [Air Quality topic](#).

Source: National Air Quality Site Assessment Tool

Agency: National Resource Conservation Service

Website: <http://www.nm.nrcs.usda.gov/programs/cig/cig.html>

Qualifying organizations: Individuals, legal entities, Indian Tribes, or joint operations engaged in agricultural production on eligible land

The National Air Quality Site Assessment Tool (NAQSAT) has been developed for the voluntary use of livestock producers and their advisors or consultants. It is intended to provide assistance to livestock and poultry producers in determining the areas in their operations where there are opportunities to make changes that result in reduced air emissions. Air emissions research from livestock production systems is

increasing every year. NAQSAT is based on the most accurate, credible data currently available regarding mitigation strategies for air emissions of ammonia, methane, volatile organic compounds, hydrogen sulfide, particulates, and odor.

USDA- FOREST SERVICE GRANTS

Source: Community Forest and Open Space Conservation Program

Agency: US Forest Service

Website: <https://www.fs.fed.us/cooperativeforestry/programs/loa/cfp.shtml>

Qualifying organizations: Local governments, Indian tribes, qualified non-profit organizations

Description: Through this program, the Forest Service is authorized to provide financial assistance grants to qualifying organizations in order to establish community forests. Private forest lands that are threatened by conversion to non-forest uses and forest lands at least five acres in size and at least 75 percent forested are considered eligible land. There is a 50 percent non-federal match requirement. The program is focused largely on community involvement and community benefit. Individual grant applications are limited to \$400,000.

Source: Landscape Scale Restoration, Western Forestry Leadership Coalition

Agency: USFS, administered by Western Forestry Leadership Coalition (WFLC)

Website: <http://wflccenter.org/documents/2016/04/western-lsr-guidance-fy2017.pdf>

Qualifying organizations: State foresters submit applications on behalf of local organizations in a competitive system

Description: Federal funds grant administered by the Western Forestry Leadership Coalition of the seventeen (17) western states with the purpose of restoring natural areas at the landscape scale. Projects are limited to maximum of \$300,000 and each state is limited to submission of three proposals.

Source: Wildland Urban Interface Grants, Western Forestry Leadership Coalition

Agency: USFS, administered by Western Forestry Leadership Coalition

Website: <http://wflccenter.org/state-private-forestry/>

Qualifying organizations: State foresters submit applications on behalf of local organizations in a competitive system

Description: Federal funds grant administered by the Western Forestry Leadership Coalition of the seventeen (17) western states with the purpose of reducing the risk of Wildland Urban Interface. Projects are limited to maximum of \$300,000 and each state is limited to submission of three proposals.

Source: Federal Excess Personal Property

Agency: USFS

Website: <http://www.fs.fed.us/fire/partners/fepp/>

Description: The Federal Excess Personal Property (FEPP) program refers to Forest Service-owned property that is on loan to State Foresters for the purpose of wildland and rural firefighting. Most of the property originally belonged to the Department of Defense (DoD). Once acquired by the Forest Service, it is loaned to State Cooperators for firefighting purposes. The property is then loaned to the State Forester, who may then place it with local departments to improve local fire programs. State Foresters and the USDA Forest Service have mutually participated in the FEPP program since 1956.

Source: Title III Rural School Funds

Agency: USDA Forest Service

Website: <http://www.fs.usda.gov/main/pts/countyfunds>

Description: The Secure Rural Schools Act (SRS Act) was reauthorized by section 524 of P.L. 114-10 and signed into law by the President on April 16, 2015. This reauthorization extended the date by which title III projects must be initiated to September 30, 2017, and the date by which title III funds must be obligated to September 30, 2018. Counties seeking funding under Title III must use the funds to perform work under the Firewise Communities program.

Counties applying for Title III funds to implement Firewise activities can assist in all aspects of a community's recognition process, including conducting or assisting with community assessments, helping the community create an action plan, assisting with an annual Firewise Day, assisting with local wildfire mitigation projects, and communicating with the state liaison and the national program to ensure a smooth application process. Counties that previously used Title III funds for other wildfire preparation activities such as the Fire Safe Councils or similar would be able to carry out many of the same activities as they had before. However, with the new language, counties would be required to show that funds used for these activities were carried out under the Firewise Communities program.

Source: Volunteer Fire Assistance

Agency: U.S. Forest Service

Website: <http://www.fs.fed.us/fire/partners/vfa/>

Description: U.S. Forest Service funding will provide assistance, through the states, to volunteer fire departments to improve communication capabilities, increase wildland fire management training, and purchase protective fire clothing and firefighting equipment. For more information, contact your state representative; contact information can be found on the National Association of State Foresters website.

Source: The National Fire Plan (NFP)

Agency: Inter-agency

Website: <http://www.forestsandrangelands.gov/>

Description: Many states are using funds from the NFP to provide funds through a cost-share with residents to help them reduce the wildfire risk to their private property. These actions are usually in the form of thinning or pruning trees, shrubs, and other vegetation and/or clearing the slash and debris from this kind of work. Opportunities are available for rural, state, and volunteer fire assistance.

US DEPARTMENT OF INTERIOR- FISH AND WILDLIFE SERVICE GRANTS

Source: Rural Fire Assistance (RFA)

Agency: USDI – U.S. Fish and Wildlife Service

Website: <http://www.nifc.gov/rfa>.

Description: The RFA program provides funds for RFDs that protect rural, wildland-urban interface communities; play a substantial cooperative role in the protection of federal lands; are cooperators with the Department of the Interior (USDI) managed lands through cooperative agreements with the USDI, or their respective state, tribe or equivalent; are less than 10,000 in population. The required cost share amount for the recipient RFD will not exceed 10 percent of the amount awarded. The RFD must demonstrate the capability to meet cost share requirements. Cooperator contribution may be contributed as in-kind services. Cooperator contribution may exceed, but not amount to less than 10 percent. Examples of in-kind services may include but are not limited to: facility use incurred by and RFD for hosting training courses, travel and per diem costs incurred by an RFD when personnel attend training courses, and administration

costs related to purchasing RFA equipment and supplies. Finding or in-kind resources may not be derived from other federal finding programs.

US DEPARTMENT OF HOMELAND SECURITY GRANTS

Source: Fire Prevention and Safety Grants (FP&S)

Agency: DHS

Website: <http://www.firegrantsupport.com/fps/>

Description: The FP&S are part of the Assistance to Firefighters Grants and are under the purview of the Office of Grants and Training in the DHS. FP&S offers support to projects that enhance the safety of the public and firefighters who may be exposed to fire and related hazards. The primary goal is to target high risk populations and mitigate high incidences of death and injury. Examples of the types of projects supported by FP&S include fire-prevention and public-safety education campaigns, juvenile fire-setter interventions, media campaigns, and arson prevention and awareness programs. In fiscal year 2005, Congress reauthorized funding for FP&S and expanded the eligible uses of funds to include firefighter safety research and development.

Source: Staffing for Adequate Fire and Emergency Response (SAFER)

Agency: DHS

Website: <http://www.firegrantsupport.com/safer/>

Description: The purpose of SAFER grants is to help fire departments increase the number of frontline firefighters. The goal is for fire departments to increase their staffing and deployment capabilities and ultimately attain 24-hour staffing, thus ensuring that their communities have adequate protection from fire and fire-related hazards. The SAFER grants support two specific activities: (1) hiring of firefighters and (2) recruitment and retention of volunteer firefighters. The hiring of firefighters activity provides grants to pay for part of the salaries of newly hired firefighters over the five-year program. SAFER is part of the Assistance to Firefighters Grants and is under the purview of the Office of Grants and Training of the DHS.

Source: Funding for Fire Departments and First Responders

Agency: DHS, U.S. Fire Administration

Website: <http://www.usfa.dhs.gov/fireservice/grants/>

Description: Includes grants and general information on financial assistance for fire departments and first responders. Programs include the Assistance to Firefighters Grant Program, Reimbursement for Firefighting on Federal Property, State Fire Training Systems Grants, and National Fire Academy Training Assistance.

Source: Pre-disaster Mitigation Grant Program

Agency: DHS; Federal Emergency Management Agency (FEMA)

Website: <http://www.fema.gov/government/grant/pdm/index.shtm>

Description: The DHS includes FEMA and the U.S. Fire Administration. FEMA's Federal Mitigation and Insurance Administration is responsible for promoting pre-disaster activities that can reduce the likelihood or magnitude of loss of life and property from multiple hazards, including wildfire. The Disaster Mitigation Act of 2000 created a requirement for states and communities to develop pre-disaster mitigation plans and established funding to support the development of the plans and to implement actions identified in the plans. This competitive grant program, known as PDM, has funds available to state entities, tribes, and local governments to help develop multi-hazard mitigation plans and to implement projects identified in those plans.

PRIVATE ORGANIZATIONS AND ASSOCIATIONS

Source: Firewise Communities

Agency: Multiple

Website: <http://www.firewise.org>

Description: The Wildland/Urban Interface Working Team (WUIWT) of the National Wildfire Coordinating Group is a consortium of wildland fire organizations and federal agencies responsible for wildland fire management in the United States. The WUIWT includes the U.S. Forest Service, Bureau of Indian Affairs, BLM, U.S. Fish and Wildlife Service, National Park Service, FEMA, U.S. Fire Administration, International Association of Fire Chiefs, National Association of State Fire Marshals, National Association of State Foresters, National Emergency Management Association, and National Fire Protection Association. Many different Firewise Communities activities are available help homes and whole neighborhoods become safer from wildfire without significant expense. Community cleanup days, awareness events, and other cooperative activities can often be successfully accomplished through partnerships among neighbors, local businesses, and local fire departments at little or no cost. The Firewise Communities recognition program page (<http://www.firewise.org/usa>) provides a number of excellent examples of these kinds of projects and programs.

The kind of help you need will depend on who you are, where you are, and what you want to do. Among the different activities individuals and neighborhoods can undertake, the following actions often benefit from some kind of seed funding or additional assistance from an outside source:

- Thinning/pruning/tree removal/clearing on private property—particularly on very large, densely wooded properties
- Retrofit of home roofing or siding to non-combustible materials
- Managing private forest
- Community slash pickup or chipping
- Creation or improvement of access/egress roads
- Improvement of water supply for firefighting
- Public education activities throughout the community or region

Some additional examples of what communities, counties, and states have done can be found in the National Database of State and Local Wildfire Hazard Mitigation Programs at <http://www.wildfireprograms.usda.gov>. You can search this database by keyword, state, jurisdiction, or program type to find information about wildfire mitigation education programs, grant programs, ordinances, and more. The database includes links to local websites and e-mail contacts.

APPENDIX F. JACKSON COUNTY PROCLAMATION

BEFORE THE BOARD OF COUNTY COMMISSIONERS

STATE OF OREGON, COUNTY OF JACKSON

IN THE MATTER OF PROCLAIMING THE)
POSITION OF THE BOARD OF COUNTY)
COMMISSIONERS FOR JACKSON COUNTY,)
OREGON, RELATED TO THE PREVENTION)
AND SUPPRESSION OF WILDFIRES IN)
JACKSON COUNTY)

ORDER NO. 17-19

WHEREAS, the People of Jackson County, Oregon, have suffered and continue to suffer from wildfires and related smoke occurring on lands within and around Jackson County; and

WHEREAS, the Board of County Commissioners held a series of public meetings and a public hearing to gather input from the People of Jackson County as to the impacts that the wildfires and smoke and other by-products of those fires have had on the People's health, safety, and welfare, and to receive People's opinions on what efforts should be made to prevent and reduce the intensity of wildfires and related smoke; and

WHEREAS, the People of Jackson County identified that these wildfires pose significant threats to their real and personal property, health, safety, welfare, economic opportunities, and the very livability of Jackson County; and

WHEREAS, specifically, the threats to real and personal property posed by the wildfires and related smoke include damage and destruction of people's homes and businesses located in areas in proximity that are directly threatened by the burning of the wildfires and related smoke; and

WHEREAS, the threats to the health, safety, and welfare of the People of Jackson County include both the threat from the flames of the wildfires but, more so, the smoke and other by-products of the wildfires which impact People and the environment regardless of where they live in Jackson County; and

WHEREAS, the threats to the economic viability of Jackson County include not only the loss of timber and other resources destroyed by the wildfires, but also recreational, entertainment, and other activities which are affected negatively or cancelled throughout Jackson County due to the smoke and other by-products of the wildfires; and

WHEREAS, the threats to the livelihoods of the People of Jackson County include lost economic opportunities and jobs impacted by the wildfires and related smoke from the wildfires, and the loss of the desirability of Jackson County as a place to live, work, and recreate because of the constant threat and presence of un-suppressed and out of control wildfires and related smoke impacting our community; and

WHEREAS, the People of Jackson County identified numerous actions which all landowners, including Federal and State agencies, in and around Jackson County could take to lessen the threats of and intensity of wildfires including reducing fuels on lands susceptible to wildfires through prescribed burns and mechanical means, harvesting timber to reduce fuel loads, stewardship of the lands, and developing and maintaining roads for access to fight wildfires and as fuel breaks to lessen the spread of wildfires; and

WHEREAS, the United States Government, through its Federal agencies, owns and manages 53.09 percent of all land within Jackson County making these Federal agencies, by far, the owners of the largest portion of land within Jackson County; and

WHEREAS, being the largest landowner in Jackson County, the United States Government has the greatest impact on how public lands within the County are managed, through its Federal agencies' policies, to prevent and lessen the intensity of wildfires and related smoke and by how wildfires occurring in and impacting the County are fought; and

WHEREAS, the Board of County Commissioners additionally met with numerous representatives of Federal and State agencies and private entities to learn the causes of, and solutions to, the out of control wildfires occurring in and impacting our community; and

WHEREAS, representatives of Federal agencies indicated that their agencies have adopted policies which permitted agency representatives the discretion to allow wildfires occurring on lands managed by those agencies to continue to burn regardless of the impacts of those wildfires and related smoke on the community; and

WHEREAS, representatives of Federal agencies indicated that those agencies also lacked the resources necessary to fully suppress all wildfires occurring on lands managed by those agencies and that those limited resources were deployed based on the regional or national needs assessments, leaving more rural communities like Jackson County at significant risk for not having sufficient resources to fight wildfires occurring in and impacting our community; and

WHEREAS, representatives of the State agency indicated that State law and policy required those agencies to work to fully suppress any wildfires occurring on lands managed by those agencies; and

WHEREAS, representatives of the State agency indicated that they, similar to the Federal agencies, lacked sufficient resources necessary to fully suppress all wildfires occurring on lands managed by those agencies and that more resources would permit those agencies to more fully work towards suppressing wildfires on such lands.

Now, therefore,

The Board of County Commissioners of Jackson County PROCLAIMS that:

1. The United States Forest Service and the United States Bureau of Land Management should adopt policies and practices providing for the full suppression of wildfires and related smoke occurring on lands managed by those respective agencies in a state during the official wildfire season declared by that state.
2. The United States Forest Service and the United States Bureau of Land Management should adopt policies and practices providing for the reduction of fuels and the creation and maintenance of fuel breaks on all lands managed by those respective agencies, including harvesting of timber, development and maintenance of roads, mechanical fuels reduction, prescriptive burns outside of declared wildfire seasons, and other proven methods for reducing the amount and intensity of wildfires and related smoke occurring on those lands.

3. Congress should annually appropriate sufficient funding for the United States Forest Service and the United States Bureau of Land Management to fully implement the aforementioned policies and practices of fully suppressing wildfire and related smoke, reducing fuels, and creating and maintaining fuel breaks, including access roads, on all lands managed by those respective agencies.

4. The Oregon Department of Forestry's policy of full suppression of wildfires on lands managed by that agency during wildfire season is appropriate and fully supported by the Jackson County Board of County Commissioners.

5. The Oregon Legislature should annually appropriate enough funding for the Oregon Department of Forestry to fully implement the policy and practice of full suppression of wildfires and related smoke occurring on lands managed by the Department of Forestry during the official wildfire season.

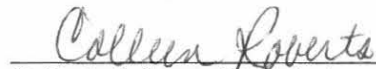
6. The Board of County Commissioners and Jackson County shall continue to take efforts to influence and coordinate with Federal and State agencies and governments to appropriately manage lands under their respective control for the prevention of, and lessening the intensity of, wildfires and related smoke, and to fully suppress wildfires on those lands which occur during the official State-declared wildfire season.

DATED this 30th day of January, 2019, at Medford, Oregon.

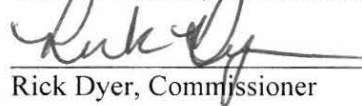
JACKSON COUNTY BOARD OF COMMISSIONERS



Bob Strosser, Chair



Colleen Roberts, Commissioner



Rick Dyer, Commissioner

APPENDIX G. JOSEPHINE COUNTY RESOLUTION

**BEFORE THE BOARD OF COMMISSIONERS FOR JOSEPHINE COUNTY
STATE OF OREGON**

In the Matter of Proclaiming the Position of the)
Board of County Commissioners for) **Resolution No. 2019-019**
Josephine County, Oregon, Related to the)
Prevention and Suppression of Wildfires in)
Josephine County)

WHEREAS, the people of Josephine County, Oregon, have suffered and continued to suffer from wildfires and related smoke occurring on lands within and around Josephine County; and

WHEREAS, wildfires pose significant threats to the livability of Josephine County; and

WHEREAS, the threats to real and personal property posed by wildfires and related smoke include damage and destruction of people's homes and businesses located in areas that are directly threatened by burning wildfires and related smoke; and

WHEREAS, the threats to health, safety, and welfare of people of Josephine County include threats from the flames of the wildfires and the smoke and other by-products of the wildfires which impact people and the environment throughout Josephine County; and

WHEREAS, the threats to the economic viability of Josephine County include not only the loss of timber and other resources destroyed by wildfires, but also recreational entertainment and other activities which are affected negatively or cancelled throughout Josephine County due to smoke and other by-products of wildfires; and

WHEREAS, the threats to the livelihoods of the people of Josephine County include lost economic opportunities and jobs impacted by wildfires and related smoke from wildfires, and the loss of desirability of Josephine County as a place to live, work, and recreate because of the constant threat and presence of unsuppressed and out of control wildfires and related smoke impacting our community; and

WHEREAS, the United States Government, through its Federal agencies, owns and manages most of the land within Josephine County making these Federal agencies, by far, the owners of the largest portion of land within Josephine County; and

WHEREAS, being the largest land owner in Josephine County, the United States Government has the greatest impact on how public lands within the County are managed, through its Federal agencies' policies, to prevent and lessen the intensity of wildfires and related smoke and by how wildfires occurring in and impacting the County are fought; and

WHEREAS, the Board of County Commissioners additionally met with numerous representatives of Federal and State agencies and private entities to learn the causes of, and solutions to, the out of control wildfires occurring in and impacting our community; and

WHEREAS, representatives of Federal agencies indicated that their agencies have adopted policies which permitted agency representatives the discretion to allow wildfires occurring on lands managed by those agencies to continue to burn regardless of the impacts of those wildfires and related smoke on the community; and

WHEREAS, representatives of Federal agencies indicated that those agencies also lacked the resources necessary to fully suppress all wildfires occurring on lands managed by those agencies and that those limited resources were deployed on the regional or national needs assessments, leaving more rural communities like Josephine County at significant risk for not having sufficient resources to fight wildfires occurring in and impacting our community; and

WHEREAS, representative of the State agency indicated that State law and policy required those agencies to work fully to suppress any wildfires occurring on lands managed by those agencies; and

WHEREAS, representatives of the State agency indicated that they, similar to the Federal agencies, lacked sufficient resources necessary to fully suppress all wildfires occurring on lands managed by those agencies and that more resources would permit those agencies to more fully work towards suppressing wildfires on such lands.

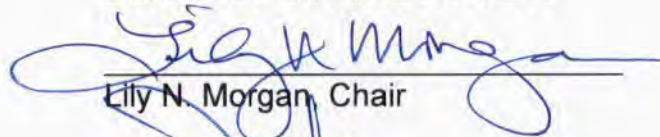
Now, therefore, it is hereby resolved by the Board of County Commissioners of Josephine County that:

1. The United States Forest Service and the United States Bureau of Land Management should adopt policies and practices providing for the full suppression, in an expedited manner, of wildfires and related smoke occurring on lands managed by those respective agencies in a state during the official wildfire season declared by that state.
2. The United States Forest Service and the United States Bureau of Land Management should adopt policies and practices providing for the reduction of fuels and the creation and maintenance of fuel breaks on all lands managed by those respective agencies, including harvesting of timber, development and maintenance of roads, mechanical fuels reduction, prescriptive burns outside of declared wildfire seasons, and other proven methods for reducing the amount and intensity of wildfires and related smoke occurring on those lands.

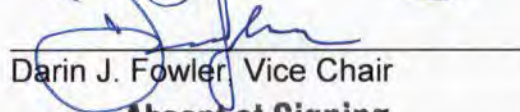
3. Congress should annually appropriate sufficient funding for the United States Forest Service and the United States Bureau of Land Management to fully implement the aforementioned policies and practices of fully suppressing, in an expedited manner, wildfire and related smoke, reducing fuels, and creating and maintaining fuel breaks, including access roads, on all lands managed by those respective agencies.
4. The Oregon Department of Forestry's policy of full suppression of wildfires on lands managed by that agency during wildfire season is appropriate and fully supported by the Josephine County Board of County Commissioners.
5. The Oregon legislature should annually appropriate enough funding for the Oregon Department of Forestry to fully implement the policy and practice of full suppression of wildfires and related smoke occurring on lands managed by the Department of Forestry during the official wildfire season.
6. The Board of County Commissioners and Josephine County shall continue to take efforts to influence and coordinate with Federal and State agencies and governments to appropriately manage lands under their respective control for the prevention of, and lessening the intensity of, wildfires and related smoke, and to fully suppress, in an expedited manner, wildfires on those lands which occur during wildfire season.

Dated this 24th day of April, 2019.

JOSEPHINE COUNTY
BOARD OF COMMISSIONERS



Lily N. Morgan, Chair



Darin J. Fowler, Vice Chair

Absent at Signing

Daniel E. DeYoung, Commissioner

APPENDIX H. LIST OF PROJECTS

Appendix H lists potential projects in the coverage area of the Rogue Valley integrated Fire Plan. Additional information and project specifics are on file with the jurisdiction of fire district listed as the Primary Agency. This list may not be exhaustive of mitigation projects throughout the Rogue Valley.

Primary Agency	Project	Est. Structures	Est. Acres	Est. Year	Additional Information
FD9 Applegate	East Battalion Defensible Space Phase 1	40	80	2024	
FD9 Applegate	District Access & Roadside Phase 1		80	2024	
FD9 Applegate	West Battalion Defensible Space Phase 1	40	80	2024	
FD9 Applegate	Cantrall Buckley Defensible Space Phase 1	20	40	2024	
FD9 Applegate	Humbug Creek Defensible Space Phase 1	20	40	2025	
FD9 Applegate	Upper Applegate Defensible Space Phase 1	60	120	2025	
FD9 Applegate	Thompson Creek Defensible Space Phase 1	40	80	2025	
FD9 Applegate	East Battalion Defensible Space Phase 2	40	80	2026	
FD9 Applegate	District Access & Roadside Phase 1		80	2026	
FD9 Applegate	West Battalion Defensible Space Phase 2	40	80	2026	
FD9 Applegate	Cantrall Buckley Defensible Space Phase 2	20	40	2027	
FD9 Applegate	Humbug Creek Defensible Space Phase 2	20	40	2027	
FD9 Applegate	Upper Applegate Defensible Space Phase 2	60	120	2027	
FD9 Applegate	Thompson Creek Defensible Space Phase 2	40	80	2028	
FD9 Applegate	District Strategic RX	20	40	2028	
JCFD4/PRFPD	Mill Creek Defensible Space Phase 1	30	20	2024	
JCFD4/PRFPD	Prospect Airport Access & Roadside		10	2024	
JCFD4/PRFPD	Trail Defensible Space Phase 1	20	20	2024	
JCFD4/PRFPD	Rogue River Drive Defensible Space Phase 1	30	20	2024	
JCFD4/PRFPD	Indian Creek Defensible Space Phase 1	20	20	2025	

Primary Agency	Project	Est. Structures	Est. Acres	Est. Year	Additional Information
JCFD4/PRFPD	Shady Cove Defensible Space Phase 1	50	30	2025	
JCFD4/PRFPD	McNeil Creek Defensible Space Phase 1	10	10	2025	
JCFD4/PRFPD	Crowfoot Defensible Space Phase 1	30	20	2025	
JCFD4/PRFPD	Lower Hwy 62 Defensible Space Phase 1	30	20	2025	
JCFD4/PRFPD	Upper Hwy 62 Defensible Space Phase 1	30	20	2026	
JCFD4/PRFPD	District Access & Roadside Phase 1		30	2026	
JCFD4/PRFPD	Prospect Defensible Space Phase 1	30	20	2026	
JCFD4/PRFPD	Rogue River Drive Defensible Space Phase 2	30	20	2026	
City of Jacksonville	Jacksonville Wildfire Mitigation Project – Forest Park	4,280	1,400	2023-28	Partnership with Lomakatsi Restoration Project. This is a fuels reduction project utilizing thinning and prescribed fire treatments to reduce the risk of wildfire to Jacksonville and surrounding neighborhoods.
City of Gold Hill / Jackson Co FD3	Gold Hill Community Wildfire Protection Project	1,418	198	2024-28	Partnership with Lomakatsi Restoration Project. This is a fuels reduction project utilizing thinning and prescribed fire treatments to reduce the risk of wildfire to Gold Hill and surrounding neighborhoods.
JCFD3	SV FMZ Defensible Space	35	30	2025	
JCFD3	DB FMZ Defensible Space	207	200	2025	
JCFD3	GH FMZ Defensible Space	209	150	2026	
FD1 Rogue River	Wards Creek Restoration	105	182	2025	