

Planning and Implementing Cross-boundary, Landscape-scale Restoration and Wildfire Risk Reduction Projects

A Guide to Achieving the Goals of the National Cohesive Wildland Fire Management Strategy

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Chapter header photo: U.S. Forest Service

Foreword

by Ned Livingston

A short history of the Gerber Ranch would show a typical eastern Oregon two-story, wood-framed main house with veranda (a building that doubled as a school and post office) on homestead patents issued in the late 1800s. For those familiar with Lewis A. McArthur's book, *Oregon Geographic Names*, the town of Olete is described briefly. The ranch's original headquarters was in Olete, and the current ranch house is still on the town's historical location. The operation used the natural meadows for hay and pasture, and the rock flats for summer grazing. The timber portions were either used for barn building or treated as a nuisance. The economic engine of the ranch in the early years had four legs and a tail; anything related to the trees was not part of the economic equation.

We worried about weather and fire, lived with both, and had a “you take what you get, and you don't complain” attitude. From 1890 to 1990, the ranch had twelve major wildfires that were 40 or more acres within 12 miles of the ranch headquarters. We experienced twelve such fires: two were structure fires at the ranch; three were 40 to 80 acres; five were 600 to 1500 acres; and two were 3,000 to 7,800 acres. Of all the fires, only three were man-caused; the others originated as lightning strikes.

Several of the early blazes were allowed to burn until winter because there was no manpower or equipment to do otherwise. Depression-era Civilian Conservation Corps crews fought at least one of the blazes, and four others required some or all of the ranch's personnel and equipment in putting them out. One of the structure fires was limited because it was the early part of a still-damp month in June. That was in 1949 when one of the hired men mistakenly refilled the kerosene tank on the ranch refrigerator with gasoline. That was the end of Olete, Oregon, at least as the old-timers remembered it.

So, what impact has this history of fire had on our tiny community? Some might say that it gave the people a gritty, passive stoicism as they learned to accept the power of forces beyond their control. This kind of attitude is essential if you are planning to live on the land. Just ask any farmer. But we don't have to be unprepared while waiting for the inevitable. We have learned through experience that we can plan and practice for disasters, and maybe even avert them.

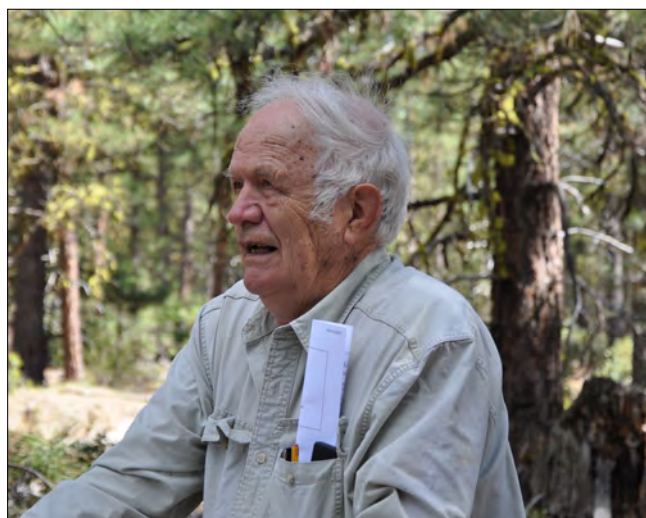


Photo: Leigh Ann Vradenburg

Ned Livingston, owner of Gerber Ranch and founding member of the Klamath-Lake Forest Health Partnership

“In short, we have a healthy respect for fire.”

Ned Livingston

We live in a high fire-hazard area and have all the accompanying problems and responsibilities. Our survival in a disaster situation is of primary concern to us. But the properties surrounding ours—which belong mainly to the United States Forest Service, the Bureau of Land Management, and private industry—are equally important to us. If we cause a fire, the impact would most likely extend far beyond our ranch boundaries. This concern is always in the back of our minds.

As a result, the ranch has developed a fire program of its own over the years. In terms of protection and the prevention of human-made fires, fire safety is first on the list. As for Mother Nature and her lightning storms, we prepare for and are equipped to fight any fire on the ranch.

Our equipment list includes:

- D-6 CAT with canopy
- 700-gallon water trailer with 400 feet of hose reel and manual start pump
- WAJAX BB 4, electric-start pump stationed next to a fish pond in front of our structure complex
- 1,000 feet of 1½ inch cloth fire hose and reel house
- Sprinkler system on the one shingle roof we have

We also have fire extinguishers on all gas-fired equipment, in every major room in the house, and in every room in the shop building. We have a permanent, gravity-fed domestic water supply of 28 gallons per minute at 20 lb PSI, which we use as an additional wet-down source. And last but not least, we have a maintenance and fire drill program for the whole family. In short, we have a healthy respect for fire.

Two of the best long-term fire tools we have on the ranch are silvicultural practices: thinning and pruning. We dedicate one man—me—to 50 acres of thinning per year. We allow growing space by selective cutting and reduce the fuels by crushing with a crawler tractor. It's a labor-intensive but extremely effective fire prevention tool.

The way I see it, we are not landowners as much as we are land stewards. We have a lot to do and not much time to do it. The fact that we own land may give us what we loosely call “rights,” but I would argue that what we really have is lots of “responsibilities.” The biggest and most important of these responsibilities is to ensure the viability of our land for the future. And that is no small task!

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Photo: Ned Livingston

Underburning on the Gerber Ranch in partnership with the BLM, 1995

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Kasey Johnson's interest in forestry and forest ecosystems started at a young age while growing up in Central Oregon and spending time in the woods hunting and fishing with his dad and brother. He graduated from Oregon State University in 2015 with a Bachelor of Science in forest management. After graduation, he worked on the Southern Oregon Coast for a timber consulting company, later moving closer to his home range in Eastern Oregon. Since 2016, he has worked for the Oregon Department of Forestry in Lakeview, where he enjoys applying his forestry knowledge in Klamath and Lake counties.

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Dan Shoun has been a Lake County Commissioner for the past 12 years. Before becoming a county commissioner, Dan was an employee for the Fremont-Winema National Forest and Lakeview District Bureau of Land Management for over 32 years, retiring as the Deputy Interagency Fire Staff. During Dan's tenure as commissioner, he has been the chair of Oregon Public Lands and has served on both the Western Interstate Region executive board and the board of directors for the National Association of Counties Public Land Committee (NACPLC). Dan has represented NACPLC as the county official on the Wildland Fire Leadership Council, the group that was given the charge of developing the National Cohesive Wildland Fire Management Strategy.

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CHAPTER 1.

Introduction

Issues and challenges

Wildfires today are larger and more severe, starting earlier, ending later, and resulting in loss of homes, forests, and other resources. Past and current management practices, including fire exclusion, have left forests in dry regions stressed from drought, overcrowding, and uncharacteristic insect and disease outbreaks. Compounding the problem is the fact that humans cause 84 percent of all wildfires in the United States. These human-caused fires account for 44 percent of the total area burned and result in a fire season that lasts three times longer over a greater area (Balch et al, 2017). The increase in size and severity of wildland fires is causing ecological, social, and economic damage. The departure from historic fire patterns is also having an impact on water, wildlife habitat, stream function, large and old tree structure, and soil integrity.

Wildfires are affecting communities across the West. The 2017 fire season again illustrated the risk of wildfire to communities large and small. Subdivisions in urban areas have become a fuel component, burning from house to house similar to how crown fires burn from tree to tree. Economically, wildfires burn valuable infrastructure and timber, make recreation and tourism unappealing, and can have direct impacts to municipal water supplies (Diaz, 2012).

In 2009, the National Cohesive Wildland Fire Management Strategy (<https://www.forestsandangelands.gov/strategy/thestrategy.shtml>) was developed as a strategic push to encourage collaborative work among all stakeholders across all landscapes to use best scientific principles and make meaningful progress towards three goals:

- 1) Resilient landscapes
- 2) Fire-adapted communities
- 3) Safe and effective wildfire response

This strategy establishes a national vision for wildland fire management, describes wildland fire challenges, identifies opportunities to reduce wildfire risks, and establishes national priorities focused on achieving these national goals.

To address these issues across the Intermountain

West, politicians, leaders, managers, practitioners, universities, agencies, and landowners are seeking solutions to the issues of forest health¹ and wildfire risk. People are gathering at conferences and workshops; politicians are drafting congressional bills; academia is conducting research and educational outreach; agencies are exploring opportunities to increase the pace and scale of restoration; and private landowners are motivated to reduce risk based on a sense of responsibility.

Wildfire threatens forest values, but this is not just a public land issue. As noted in the American Forest Foundation report titled, *Western Water Threatened by Wildfire: It's not Just a Public Land Issue*:

1. Across 11 Western states, more than ⅓ of the high wildfire risk is on private and family-owned land.
2. Nearly 40 percent of lands that keep water clean in important watersheds and that are at high risk of wildfire are privately or family owned.
3. Family forest owners want to do the right thing and are motivated to take action on their land. The majority cite the high cost of implementing management as a barrier.
4. Greater attention to management action is needed not only concerning private and family-owned lands but also regarding partnerships that work across public and private land boundaries.

About this guide

In each chapter of this guide, the process used by the Klamath-Lake Forest Health Partnership (KLFHP) to plan and implement cross-boundary restoration projects is described. This process addresses the issues and challenges listed above. This guide is intended as a model from which other individuals and communities can learn. Public land managers and private landowners are encouraged to modify the KLFHP process to meet

¹ Forest health is defined in WA state statute as “the condition of a forest being sound in ecological function, sustainable, resilient, and resistant to insects, diseases, fire and other disturbance, and having the capacity to meet landowner objectives” (RCW 76.06).

the needs of their local circumstances. Hopefully, this will also spark ideas for ways to improve and refine the process. The final chapter (page 54) examines areas that KLFHP considers in need of further action.

The KLFHP process incorporates the recommendations of two important sources of information for improving the success of cross-boundary restoration: the survey by the Rural Voices of Conservation Coalition (RVCC) and the *Western Water Threatened by Wildfire: It's not Just a Public Land Issue*.

The Rural Voices of Conservation Coalition completed a survey in 2017 with 96 respondents representing networks of organizations, agencies, and entities engaged in cross-boundary management to learn how to improve implementation, foster peer learning, and inform supportive policy. Based on the survey, the RVCC made the following recommendations, which are discussed throughout this guide:

1. Find the right set of **core partners** who have complementary resources and abilities, and who are willing to invest time and energy; and develop the right structures and frameworks for partnering. (See Chapter 2, page 9)
2. Increase **flexibility**, particularly around use of funding, and in the rules, deadlines, and procedures required for all lands programs, tools, and authorities. In particular, flexibility on matching requirements for partner organizations is essential. (See Chapter 7, page 28)
3. Provide funding for **capacity-building**, partnership training, facilitation, coordination, leadership development, and other key components of all lands projects that are not always supported through traditional funding sources. (See Chapter 7, page 28)
4. Identify and figure out **how to use and/or “stitch together” available programs**, tools, and authorities, which can be a matter of different interpretations and risks rather than just clear guidelines; and implement and administer them. (See Chapter 8, page 30)
5. Encourage more **efficient processes for administering agency grants** and agreements with cooperators and partners on all lands projects. (See Chapter 8, page 30)
6. Continue to support **appropriate use of tools** for efficiencies where socially appropriate; these may reduce delays in projects due to agency timeline, which can frustrate partners and landowners. (See Chapter 8, page 30)

Useful resources

- *Western Water Threatened by Wildfire: It's Not Just a Public Issue*
https://www.forestfoundation.org/stuff/contentmgr/files/1/3d98bbe1b03a0bdf4c726534d438b0ab/misc/final_fire_report.pdf
- *How do We Accomplish All-Lands Management? Direct Insights from a Survey of Practitioners (Rural Voices of Conservation Coalition)*
<https://static1.squarespace.com/static/562e839ee4b0332955e8143d/t/59ede7cafe54ef255de3c9e0/1508763595768/RVCC+Land+Report+WEB.pdf>

7. Dedicate a **partnership coordinator**, or similar position, to coordinate the work and ensure that engagement in all lands projects is incorporated into the job description, as opposed to a collateral duty. (See Chapter 12, page 54)
8. Review and better **align respective agency policies** and processes for all lands-related programs/tools/authorities to improve inter-agency cooperation on projects. (See Chapter 12, page 54)
9. **Encourage informed risk-taking** among staff. Strategies include support from supervisors, colleagues, and partners; willingness of leadership to take the risk and set the tone; collaboration and finding social agreement; and flexibility in funding sources. (See Chapter 12, page 54)

The paper *Western Water Threatened by Wildfire: It's not Just a Public Land Issue* provides additional recommendations to help drive landscape-scale efforts across ownership boundaries, such as:

1. Focusing **collaborative efforts on both public and private lands** to adequately address wildfire risk; most existing collaborative efforts focus only on public lands (See Chapter 2, page 9)
2. Accomplishing forest restoration and risk mitigation projects at a **scale commensurate with the challenge** (See Chapter 3, page 13)
3. Increasing on-the-ground, cross-boundary efforts to **engage private and family landowners** focused on delivering measurable risk reduction and forest restoration at a landscape-scale (See Chapter 4, page 14)

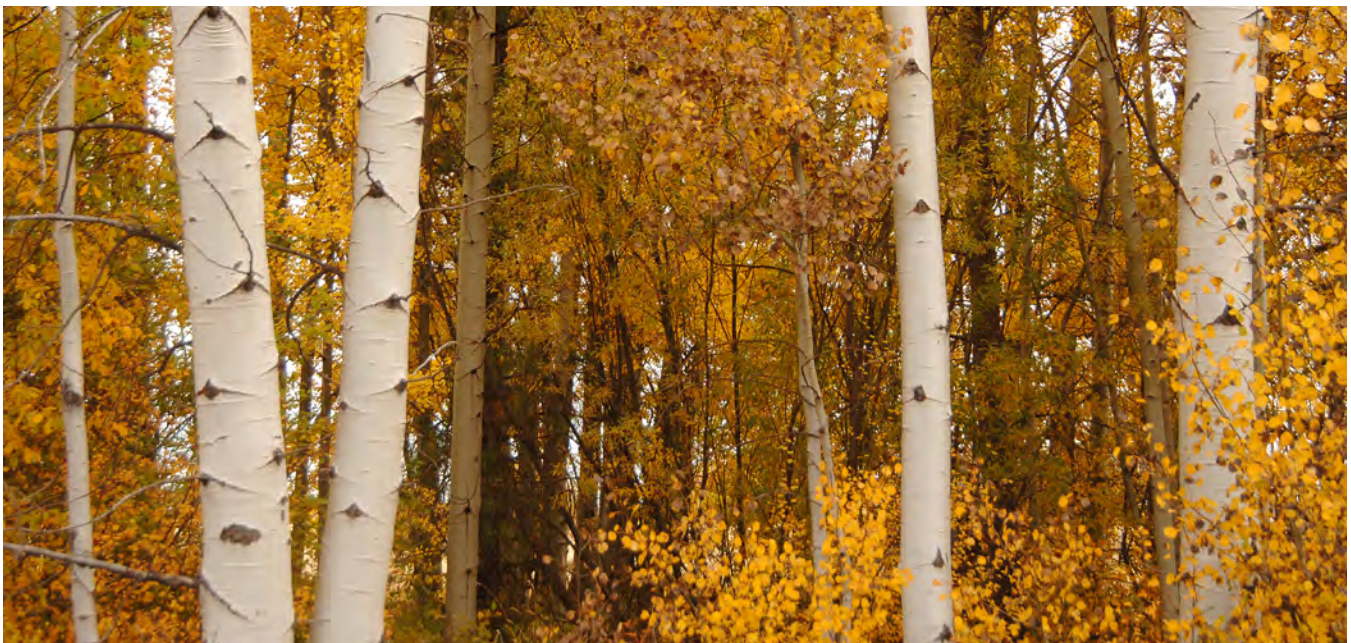
4. Improving **policy and public funding** to support on-the-ground action, including private lands (See Chapter 7, page 28)
5. Catalyzing markets that **reduce the costs of wildfire risk reduction** and forest restoration, and make ongoing healthy forest management economical (See Chapter 10, page 35)

Finally, additional recommendations provided in this guide include:

1. Addressing both **forest health and wildfire risk reduction awareness simultaneously** through private landowner outreach and education (See Chapter 4, page 14)
2. Gathering **data for private land** to inform recommendations and priorities (See Chapter 5, page 17)
3. Designing projects that meet all **three goals of the Cohesive Strategy** (See Chapter 5, page 17)
4. Providing **science-based**, natural resource knowledge and technical assistance to private landowners so they can successfully manage their lands (See Chapter 6, page 22)
5. Focusing on successfully **implementing projects on private and public land** (See Chapter 9, page 32)

“Having been involved with our local collaboratives for many years, as well as being a member of the National Wildland Fire Leadership Council that developed the Cohesive Strategy, I believe I’m in a great position to comment on the Klamath-Lake Forest Health Partnership’s collaborative work. It is my opinion that the work being accomplished in Lake and Klamath counties, through the implementation of the Cohesive Strategy principles, is second to none in the nation. When you look at the goals and objectives of the National Strategy—from working across jurisdictional boundaries to achieving improved forest health conditions on large landscapes scales—every box for the Cohesive Strategy can be checked! At the core of the success has been building relationships with many landowners who have different needs and interests. And these relationships could not be better. I would not hesitate for a minute to endorse our Partnership group as a national model for the way forest management should be approached and accomplished in the 21st Century.”

Dan Shoun, Lake County Oregon County Commissioner



Aspen in the Fremont-Winema National Forest

U.S. Forest Service

CHAPTER 2.

It starts with a partnership

To better understand where we are today in terms of Oregon's fire management policies and practices, it's valuable to acknowledge the perspectives and interests of our history over the past 150 years. Safeguarding forests in Oregon at the state level began its legal journey in 1864, when the first forest protection law was passed. The purpose of this original legislation was to protect the homes, fields, and woodlots of the settlers, not the timber holdings of the newly arrived lumber companies. Although this act made it unlawful to start fires for any reason on lands belonging to another landowner or to allow fire to spread to another landowner from your land, landowners continued to insist they had the right to burn whenever and wherever they wanted.

By 1902, the growing importance of forest lands and the fear of fire began to swing the pendulum toward forest protection through fire prevention. A 1905 law appointed state fire wardens but without organizations to support them. Oregon passed several fire suppression laws in 1907 with provisions to address human-caused ignitions. During this time, William B. Sellers became the president of the first organization in Oregon to begin cooperative efforts for fire protection: the Klamath and Lake counties Forest Fire Association (K&LCFFA). This marked the beginning of cooperative efforts by timber owners and state, federal, and local agencies to work together in fire protection. Their efforts spanned jurisdictional boundaries to include anyone who wanted to join and worked to bring landowners together for fire protection. Forest health and fire protection was a community effort. Through the efforts of the K&LCFFA, people became accountable for their own lands and helped their neighbors when needed.

The problems facing these early timber trailblazers focused on the transportation of goods to markets, the destructive forces of nature, and state regulations for resource protection and protection against fire. Innovative and cooperative ideas about protecting the abundant timber resources grew within the industry. The Klamath Forest Protection Association (KFPA) was formed in 1908 to address the danger of damaging wildfires and the time required to respond to them. The story of the KFPA is evidence of the resourcefulness of people in rural communities to protect forest resources and infrastructure.



Photo: Harold Weaver

Historical logging in Klamath County, 1933



Photo: Harold Weaver

Fire-killed timber, 1959

Moving ahead 85 years, the forested landscape has changed significantly, and issues are shifting towards recognizing the need for forest management, reintroducing fire into the ecosystem, and reducing the risk of wildfire. In 1993, continuing a century-long partnership in Klamath and Lake counties of Oregon, a group of private landowners, forestry consultants, conservation groups, local fire districts, and state and federal agencies organized a partnership to promote forest health and awareness through collaboration, problem-solving, science, and sharing of lessons learned. Cooperative efforts facilitated prescribed fire management on private and public land to the east of Klamath Falls in the 1990s. The group was incredibly forward thinking and developed a publication in 1999 titled *Klamath-Lake Forest Health Management Guide*.

This guide is still relevant today. Progress toward promoting forest health across land boundaries on a small scale continued in 2004 when the group incorporated as a nonprofit 501(c)(3) organization called the Klamath-Lake Forest Health Partnership (KLFHP). The voting members are few, and the bylaws are simple.

On February 17, 2015, the Partnership held a summit titled, “How Can We Partner in Lake and Klamath Counties to Increase the Pace and Scale of Forest Restoration in Klamath and Lake counties.” Over seventy people attended the one-day summit to increase their involvement to meet a shared goal of forest health and fire risk reduction.

Participants identified issues common to the two-county area and at the end of the session voted for KLFHP to take a leadership role. Summit participants recognized the need to pool existing efforts to achieve the common goal of forest health and wildfire risk reduction through accelerated landscape restoration and agreed the KLFHP was in a good position to lead this effort. Summit participants believed that only through this existing Partnership—within which there is mutual respect and sharing of information, expertise, and resources—could the outlined goals be met. At a subsequent monthly meeting, KLFHP partners voted and passed a motion to accept the leadership role for Klamath and Lake counties on behalf of all summit participants. Given the added responsibility, the KLFHP started to build capacity to undertake the task.

The KLFHP hired a professional facilitator in

“Working with a conservation group like the Klamath-Lake Forest Health Partnership has been a great experience. Pooling our expertise and resources to assist private landowners and public lands seem to be the key to address the western states’ forest health issues.”

David F. Ferguson, Natural Resources Conservation Service District conservationist

2016 to update the mission statement and define an organizational structure to meet the challenges ahead. The identification of KLFHP organizational strengths, weaknesses, opportunities, and threats became the focus of meetings. Priority goals identified included:

- Developing active subcommittees to take the lead on priorities identified by the KLFHP
- Actively engaging key audiences in the KLFHP, including private landowners
- Enhancing organizational capacity by securing funding
- Identifying KLFHP successes and developing a strategy for communicating these with the public
- Establishing a model/pathway for undertaking a cross-boundary, landscape-scale approach

As the process concluded, KLFHP agreed on a shared mission to “facilitate restoration projects on public and private forestland in Klamath and Lake counties through education, outreach, and diverse partnerships.” To meet this goal, KLFHP developed an organizational structure that functioned through three subcommittees: 1) organizational structure and capacity, 2) outreach, and 3) project focus.

As projects were added and developed, new self-directed subcommittees formed to accomplish work efficiently. All of the key agencies (see bullet list, page 11) contributed to the effort by dedicating existing staff. As grant funds have increased, agencies have been able to add capacity through new staff and contracts with external consultants.

Near the end of 2016, KLFHP agreed to move forward with its first landscape management effort, the North Warner Multi-ownership Forest Health Project (see Chapter 11, Case Study 1, page 40). This project started the process of carrying out the results of the 2015 forest summit.

Building relationships and a sustainable partnership

The current Klamath-Lake Forest Health Partnership brings guidance and structure to support forest treatments using relevant science, protection laws, and funding. It can be easy to overlook the importance of managing and maintaining the relationships in this kind of partnership. A few local lessons in wildfire have shown us that relationships often heal more slowly than the landscapes we manage. Thoughtful employee succession management, respectful communication among all participants, and large-scale visionary planning for multiple values in complex systems are intrinsic to successful landscape-scale projects.

The Partnership meets in person once a month, with subcommittee meetings scheduled as needed. A web page for the Partnership was designed in 2017 (<https://www.klfhp.org/>). See Appendix A (page 61) for a KLFHP brochure.

KLFHP functions well as a partnership and meets its mission because of a few basic factors. Consider these if you are interested in starting a partnership to work on cross-boundary restoration:

- Gain 501(c)(3) nonprofit status
- Develop bylaws, but keep them simple
- Refine the mission statement through group exercise
- Remain neutral and nonregulatory
- Use existing agencies and organizations with an existing financial structure to manage grant funding, not the partnership
- Focus on results instead of the organization
- Consider functioning through subcommittees
- Recruit leaders from all key agencies such as Oregon Department of Forestry (ODF), Oregon State University Extension Service, National Resources Conservation Service (NRCS), Bureau of Land Management (BLM), U.S. Forest Service (USFS), The Nature Conservancy (TNC), Watershed Councils, local nongovernmental organizations (NGOs)
- Meet regularly (e.g., once per month)

Tools for Success: Consider starting a partnership that focuses on development and implementation of cross-boundary projects

Landscape-scale, cross-boundary projects vary in scope and scale (from vast landscapes to neighborhoods), and in the number of partners and landowners involved. While there is no single model, all successful partnerships require deliberate effort. Such partnerships are distinct from the “forest collaborative” groups now common on national forestlands. Forest collaboratives are venues for multistakeholder dialogue to build social agreement around management priorities, typically on public lands. This dialogue is important but not sufficient for the planning and implementation of cross-boundary projects involving multiple partners and landowners. Those wishing to form a cross-boundary, landscape-scale partnership should consider these key elements:



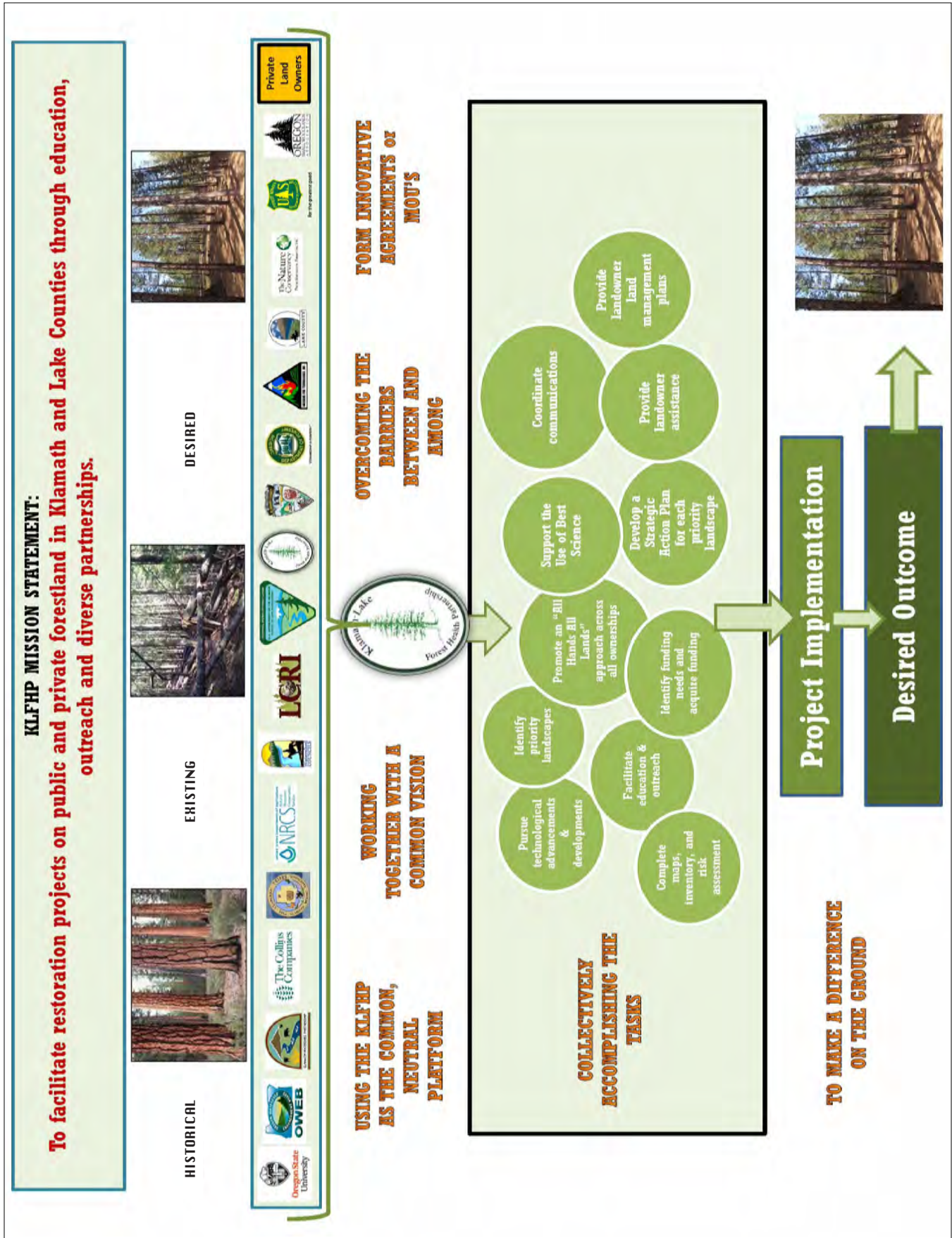
- **A core team of willing participants**, including landowners, agencies, organizations, and funders with relevant expertise, passion, and ability to serve both public and private interests
- Involvement of **contracting, grants, and agreement personnel** at early stages to ensure design feasibility
- **Supportive leadership** from government agency deciding officials and specialists
- **Trusted consulting foresters and Extension Service personnel** to assist family forest landowners in meeting their individual needs



Photo: Leigh Ann Vradenburg

Members of the Klamath-Lake Forest Health Partnership

- **Business engagement**, including operators and local forest products processing facilities to incorporate economic viability and impacts
- A **central entity** to convene partners, bridge organizational differences, and be a flexible intermediary
- Strategies for **maintaining the partnership**, including meetings, communications, and other necessary interactions that sustain momentum



KLFHP mission statement



CHAPTER 3.

Identification of a landscape

Klamath County has a total land area of approximately 4 million acres, and Lake County has approximately 5 million acres. These two combined areas are about 15 percent of the total land area of the state of Oregon. In its 2010 publication *Federal Forestland in Oregon*, the Oregon Forest Resources Institute (OFRI) reported that:

- Within both counties, public land management (i.e., USFS, BLM, and U.S. Fish and Wildlife) covers about 75 percent of the total land area, and private land ownership is about 25 percent.
- Many small and large private land parcels in Lake and Klamath counties are adjacent to public land.
- The state of Oregon is 47 percent forested. Of that, 60 percent is managed by federal agencies.
- Klamath County is 81 percent forested, and Lake County is 26 percent forested.

Due to the intermingled ownership of public and private land, it is recommended to design cross-boundary projects in coordination with National Environmental Policy (NEPA)-ready projects (ones for which NEPA documents are completed and signed). This helps ensure that projects on public and private land are implemented in the same timeframe. Private landowners are often pleased to know that treatments are occurring “across the fence” on federal land and that there are opportunities for cooperative implementation. Cooperation across public and private land adds efficiency and effectiveness to projects such as timber harvest, service contracts, or prescribed burning.

When a NEPA-ready project is identified, select a broader landscape for the cross-boundary project area. Base the selection on the geographic area, watershed boundaries, or other features. If the landscape includes a large amount of private land, consider completing a risk assessment of the broader area to determine the most appropriate project area boundary.

Risk assessment criteria could include: land ownership, USFS priority landscapes, broad vegetation classes, fire history, communities at risk identified

Tools for success: Design your landscape around NEPA-ready federal land projects

It is recommended that cross-boundary, landscape-scale projects be developed around NEPA-ready, federal land projects (where relationships are favorable) to create long-lasting partnerships across boundaries. These partnerships begin with a shared vision of what the landscape could look like, while balancing all the other values that are inherent in land management (e.g., social, economic, biological interests). Planning needs to extend over several generations. A diverse landscape plan incorporates multiple values for future generations while enhancing natural resources. The partnerships must share a general vision for treatments to restore and maintain landscapes appropriately (so that they are scientifically and operationally sound) and have the expertise to implement site-specific projects. The site-specific projects should accommodate specific economic, social, biotic and abiotic systems, and other complexities to meet the goals of the larger vision.

Select a landscape at a scale commensurate with the challenge of reducing the risk of wildfire (Fry and Bender, 2015).

within Community Wildfire Protection Plans and the Oregon State Communities at Risk Project, and personal knowledge of the landowners and communities. Another resource to help local land managers prioritize regional-scale, multiownership considerations in a risk management assessment is the publication *A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA* in Resources (page 111).

As recommended in the *Western Water Threatened by Wildfire: It's not Just a Public Land Issue* report, select a landscape at a scale commensurate with the challenge of reducing the risk of wildfire. In general, the cross-boundary landscape should be 100,000 to 300,000 acres in size. Refer to the maps in Chapter 11 (page 39) for case-study examples of landscape-scale, cross-boundary project areas.

CHAPTER 4.

Landowner outreach and education

According to the *Family Forestland Resource Guide* published by the Oregon Forest Resources Institute:

1. There are 60,000 private landowners in the state of Oregon, who own about 4.3 million acres of forestland.
2. These family forestlands cover roughly 40 percent of the total private forestland in Oregon.
3. These owners are as diverse as their forestland. In the National Woodland Owner Survey completed in 2013, owners listed over 100 occupations and professions—ranging from doctors, educators, librarians, lawyers and engineers to accountants, florists, clergymen, journalists, and firefighters, as well as professional foresters.
4. Each private landowner in the state likely has a different set of goals, objectives, and management styles.

Conducting an effective outreach and education effort can be challenging, especially in largely populated areas. The greater the number of landowners and/or subdivisions within a given landscape, the more important it is to preplan, evaluate, and decide on a set of strategies specifically designed to reach as many landowners as possible in the project area. Refer to Appendix B (page 65) for an example of an outreach and education plan and organization format.

Specialists have a lot to offer when it comes to professional instruction and education. Agency foresters, wildlife biologists, hydrologists, and fire managers are available to instruct in workshop settings. Agency partners also can use these educational opportunities to connect with private landowners and establish relationships. It is important to remember that some agencies have more trust with the public than others. It may be better for a neutral party, such as Oregon State University Extension Service (a nonregulatory entity) or Watershed Council (a nongovernmental organization), to lead outreach efforts instead of federal or state agencies.

Lesson learned: Bring the information to the outdoors

Public education and engagement are vital to effective landowner education and outreach. When forest landowners understand the realities, issues, and project possibilities for addressing forest health and wildfire topics, they can move toward a solution.

Outdoor workshops are especially useful outreach tools. Being outside is key to learning, whether it's through a one-to-one site visit with a landowner or a field trip with a group of people. An hour or two of field instruction and discussion is worth many hours of indoor presentations.

Producing analyses and documents like Community Wildfire Protection Plans is just one step in the process, not the end result. Bringing information to field practitioners and landowners in the form of forest health improvement projects is the goal. Successful project completion on some initial parcels will often result in interest by neighbors to treat their adjacent property. As more parcels are completed, neighbors see success and want to replicate it. The project forester spreads the word among landowners, and the entire community benefits from the collective defensible space.



Assessing the North Warner Project in the field

Photo: Amy Markus

It is important to remember that some agencies have more trust with the public than others. It may be better for a neutral party, such as Oregon State University Extension Service (a nonregulatory entity) or Watershed Council (a nongovernmental organization), to lead outreach efforts instead of federal or state agencies.

Oregon State University Extension Service (the College of Forestry Extension, in particular) can be a valuable partner in landscape management because it serves as a liaison to OSU College of Forestry resources. The OSU Extension Service Catalog is also a useful resource. The Catalog offers core curricula such as:

- *Basic Forest Inventory Techniques for Family Forest Owners* (PNW 630)
- *Fire-Adapted Communities: The Next Step in Wildfire Preparedness* (EM 9116)
- *Management Planning for Woodland Owners: Why and How* (EC 1125)
- *Fire Science Core Curriculum* (EM 9172)

See Resources (page 111) for more information. These courses are time-tested and offered or facilitated by local Extension agents and statewide Extension specialists. These courses connect education and outreach by bringing landowners into a cooperative workshop environment with agency personnel. This is another way to demonstrate how all the partners work together, building relationships with each other and in communities.

“When you are talking about the safety of someone’s home and property, stakeholder engagement is more than meetings and mailings; it is a personal relationship that shows you have their interests and wellbeing at heart.”

Leigh Ann Vradenburg, Klamath Watershed Partnership Project Manager

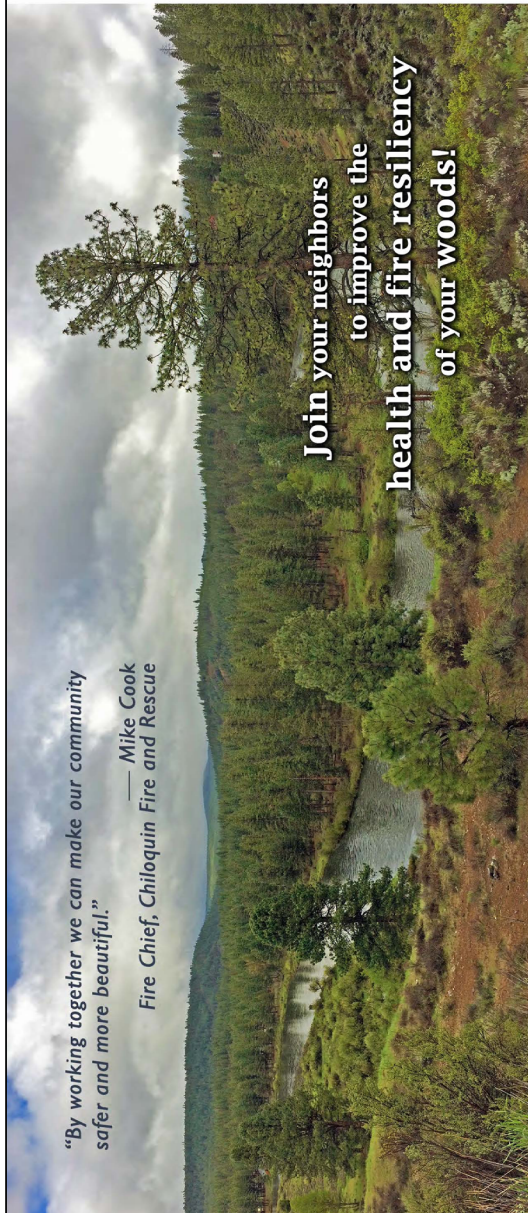
OSU Extension Service foresters and Oregon Department of Forestry (ODF) foresters make house calls when requested by individuals or neighborhoods. These outreach and educational opportunities build rapport, establish relationships, and help create a word-of-mouth reputation of trust. The Oregon Forest Resources Institute and the American Forest Foundation are excellent organizations to reach out to for assistance in developing printed and electronic resources such as newsletters, door-hangers, brochures, posters, mailings, and solicitations for outreach and educational activities.

The Oregon Forest Resources Institute and the American Forest Foundation are excellent organizations to reach out to for assistance, and to produce professional-quality printed and electronic resources for education and outreach.



Forest health workshop in Lake County

Photo: Lake County Examiner



Your woods may provide your family with many benefits:

- ♦ Recreation
- ♦ Wildlife
- ♦ Beauty
- ♦ Livestock grazing
- ♦ Protection for future generations
- ♦ Income

No matter why you own your land, the Chiloquin Community Forest and Fire Project has valuable tools and resources for landowners like you.

WHERE DO WE START?

You are being invited to the first of several community meetings and educational opportunities. We will also be calling and knocking on doors to inform everyone about this effort. You may even be encouraged by your neighbors to get involved -- remember, wildfire knows no property boundaries!

NEXT STEPS

This summer we will be working with private landowners throughout the Chiloquin area to map their forests and fire risks at no cost or obligation to them. This will provide landowners information on forest health, treatments to reduce risk, and a foundation for a land management plan.

Our ultimate goal is to secure grant funding to allow landowners to complete forest treatments on their property, creating tracts of resilient forests across public and private land.

By providing technical and financial resources throughout the process, we hope to reduce the risk of wildfire for the larger Chiloquin community.

Visit www.KLFHP.org/chiloquin
or email foresthealth@KLFHP.org to learn more.



The Chiloquin Community Forest and Fire Project is sponsored by the Klamath-Lake Forest Health Partnership -- a group of federal and state agencies, non-profits, private entities, and landowners committed to forestland restoration.



CHAPTER 5.

Private land mapping, assessment, and wildfire response preplan

Landscape restoration involves an integrated resource approach. Much of the focus of this publication is on forest health and wildfire risk reduction. However, consider “restoration” in the context of ecosystem restoration, as it is defined by the U.S. Department of Agriculture:

“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 ecosystems’ sustainability, resilience, and health under current and future conditions.”

When designing a landscape restoration project of tens of thousands of acres of private, nonindustrial land, consider all the potential data needed to complete ecosystem restoration objectives. When collecting data on private land, you also have the opportunity to collect a variety of data and information to inform all restoration goals and objectives.



Forest Planner: An interactive tool for private land management planning

In Oregon, there is a lack of detailed natural resource information across large landscapes of private, nonindustrial land at a scale suitable for private land management planning. The nonprofit Ecotrust (sponsored by the NRCS and USFS) has developed an interactive tool called Forest Planner that makes forest management scenario planning accessible to all Oregon and Washington land managers. Forest Planner is designed to help users visualize alternative management scenarios on their lands and receive immediate feedback on how decisions might pay off in terms of timber harvests and financial returns, as well as public benefits like carbon storage and ecosystem services. OSU Extension Service is consolidating the Forest Planner tool into the land management planning process used in Klamath and Lake counties. In time, it might be possible to generalize this information to apply to private land areas elsewhere.

Private land mapping and assessment

The development of mapping and assessment protocols depends on identifying ecosystem restoration goals for the landscape (e.g., forest health, wildlife habitat, defensible space, safe and effective wildfire response, fire risk, livestock grazing, and noxious weeds). Any mapping and assessment effort should provide sufficient base information to identify the needs and priorities necessary to meet the stated objectives. This process allows you to assist landowners with developing land management plans, better communicate with specialists and landowners, create education and outreach tools, and form the basis of grant proposals. It is important to have a baseline of quantitative data and/or qualitative information about the natural resources. Current datasets such as LiDAR, Gradient Nearest Neighbor (GNN), and LANDFIRE can inform the preliminary assessment of private land, but it is important to also do ground-truthing and complete a field visit. The recommended steps for completing a private-land rapid assessment is outlined below.

1. Pursue funding

Explore options for potential funding through grant writing or existing funding sources. The total cost will depend on the mapping and rapid assessment protocol. Once funding is secured, determine which partner will oversee the mapping and data collection.

2. Develop a rapid-assessment protocol

Develop a rapid-assessment protocol to collect the necessary information to inform ecosystem restoration needs and develop a land management plan for private landowners. Collect additional information based on the needs or priorities within the landscape (e.g., noxious weed locations, shrub condition, special wildlife habitats—such as aspen and springs). Refer to Appendix C (page 72) for an example of a rapid-assessment protocol for natural resources.

3. Develop a wildfire risk assessment protocol

Develop a wildfire risk assessment protocol to evaluate the risk of wildfire for individual structures, subdivisions, and surrounding vegetation. Collect additional information for ingress, egress, evacuation routes, water sources, locked gates, and power sources and placement. Refer to Appendix D (page 75) for an example of a rapid-assessment protocol for wildfire risk to structures.

Current datasets such as LiDAR, Gradient Nearest Neighbor (GNN), and LANDFIRE can inform the preliminary assessment of private land, but it is important to also do ground-truthing and complete a field visit.

4. Generate a preliminary GIS mapping, stand delineation, and overstory classification

A GIS analyst assigned to the project completes the following:

- Create a geodatabase for the landscape (map scale 1:100,000), using ESRI's ArcMap10 and compiling publicly available datasets from both state and federal agencies. Integrated datasets include National Agriculture Imagery Program (NAIP imagery), hydrologic information, roadway, vegetative cover, forest canopy cover, a digital elevation model (DEM), land ownership information (tax lot information), soils information, geologic information, structures, and tax lot layers.
- Create a polygon shapefile for each private landowner within the landscape (map scale 1:15,840 and 1:3600). This file will delineate stands based on overstory vegetation, using

Tips for success: Private land mapping and rapid assessment

- Keep the data collection methodology simple and understandable for landowners. Avoid using silvicultural terminology such as basal area (BA) or stand density index (SDI).
- Find a dedicated GIS analyst to assist with the project, from planning through implementation.

1-meter resolution NAIP imagery as a guide. Polygon boundaries will be based on changes in landcover appearance related to cover type, density, and age of dominant vegetation.

- Give each stand a unique stand ID (see Appendix C, page 72). Create georeferenced maps as viewed and processed with field tablets using software such as Avenza Maps (map scale 1:15,840) or a similar product.

5. Complete the private land rapid assessment in the field

Before entering a property, agency partners need to get permission from the landowner. Using existing staff or a contractor with appropriate forestry background and experience, ground-truth and validate every stand in the field. Verify and update the initial overstory classification and stand boundaries, and collect any additional data and information while walking from stand to stand. Reference each verification point using the original stand ID as well as a two-digit modifier to identify multiple points collected within each stand polygon. (Note: Tablet software collects this additional data in point format [X, Y] using a custom attribute schema drop-down menu explicitly created for this purpose.) During the initial walk-through, record stocking levels, species composition, noxious weeds, insect and disease outbreaks, overall forest health, and any information that will be pertinent to implementing the grant. Assess the structures following the wildfire risk protocol (see Appendix E, page 79).

Tips for success: Communication between the project forester and the GIS analyst

To produce the best product for land managers and landowners, the GIS analyst should be in frequent communication with the project forester. When information passes from the project forester to the GIS analyst, the analyst can assess and learn from the delineation created in the office and how that transposes to what is happening on the ground.

Land management maps for the landscape and individual property should be updated annually, reflecting any treatments carried out on the lands. Keeping maps up to date will allow for better management of the property by the owner over the duration of the management plan. As this management plan is passed between generations or owners of the property, maps will show the timeline of the property with the original structures and the treatments carried out to meet the objectives of the land.

Lesson learned: Assign conservation practice job sheets to each stand

Some grant sources have payment or practice rates for each treatment type. For example, NRCS has conservation practice job sheets (see Appendix F, page 83) that identify treatment types and costs. During the field assessment, consider identifying conservation practice job sheet treatment recommendations for each stand. This information can then be used by the project forester to identify recommended treatments and costs for the landowner.

Note any natural stand delineations when validating boundaries on the map, and natural or human-made elements (such as roads or structures), which could aid in creating the logistical plan for implementation. During this initial walk-through of the property, balance three considerations to discuss later with the landowner:

- What forest health and fire hazard issues are most apparent?
- What land management objectives could be of the highest priority to the landowner?
- What are the goals and/or requirements of the potential agency administering the grant?

Lastly, identify potential monitoring and photo point locations, management needs, and priorities. This data can then be summarized for the entire landscape and for each individual landowner.

6. Data summary and prioritization

When a tax lot assessment is complete, provide the data to the GIS analyst for analysis (including any adjustments needed in cover type, density, age, and stand boundary) and the production of the final map. Using the data collected, identify a recommended treatment as high, moderate, or low priority regarding forest health. See Appendix G (page 88) for an example of a simple matrix to determine preliminary priority and treatment recommendations.

Once editing is complete, assign restoration priorities, with the additional data parsed into individual datasets. The final step is the development of maps and datasets. Assemble a variety of map products depicting

a range of themes (as needed and appropriate) for each participating landowner. Create small-scale (1:100,000) base maps for the entire landscape project area, as appropriate, and larger-scale (1:15,840 and 1:3,600) thematic maps for each particular property.

The wildfire risk assessment data is stored and processed to prioritize a wildfire response preattack plan for the entire landscape, which identifies future projects to mitigate high-priority risks and hazards. Maps can be generated to show structure risk visually (e.g., red, yellow, green) based on the determination of risk from the assessment. Share the plan with local and county emergency management authorities as preplans via GIS technology. These preplans will help improve safe and effective wildfire response, especially with the situation unit of any responding incident management team and/or local fire district.

Wildfire risk mitigation plan

A wildfire risk mitigation plan identifies data needs and opportunities to mitigate the potential risks of a wildfire in the project area. This document should reference the information and recommendations identified in the Oregon Natural Hazards Mitigation Plan and the Lake and Klamath County Wildfire Protection Plans (CWPPs). This plan is designed to identify and characterize the probability and vulnerability of hazards to important features such as structures or infrastructure. Efforts to reduce the hazards will then mitigate the risks involved. The mapping and rapid-assessment information can feed directly into the wildfire risk mitigation plan. The following are planned actions for the risk mitigation plan:

1. Collect data on access **ingress and egress**, and identify hazards to response vehicle movement, evacuation routes, and safety zones.
2. Recommend and implement **defensible space treatments** around structures, subdivisions, businesses, and throughout the landscape.
3. Use landscape-scale private land and USFS vegetation data to inform priority and placement of **strategic fuel breaks**.
4. Identify **state and nonstate critical and essential facilities**, such as communication towers and power lines, and recommend strategic fuel breaks.
5. Evaluate current **water systems and sources for emergency operations**, and recommend necessary upgrades or new water developments.

Private land mapping and assessment provide an excellent outreach and education tool

Landowners appreciate getting detailed maps of their property; most landowners would have no other way of acquiring them. When the project forester moves from property to property to complete the assessment, it is an opportunity to ask landowners permission for access, drop off packets of information, and talk to neighbors curious about the project. These activities are all part of an organized outreach and education effort.



Photo: John Wagoner

Landowner outreach

6. Develop an **evacuation plan** for the community.
7. Encourage landowners to implement **defensible space treatments and other fuel reduction treatments**, and prepare for evacuation in conjunction with land management plans.

Wildfire response preattack plan

All agencies responsible for wildfire response (ODF, USFS, BLM, FWS, BIA, Rangeland Associations, Forest Protection Associations, and local fire departments) can coordinate to develop a wildfire response preattack plan for public and private lands for the landscape area defined in Chapter 3 (page 13). This preplan is designed to meet the needs of the community and guide initial attack and incident management teams in wildland, urban-interface wildfire suppression efforts within the jurisdictional boundaries of the rural county fire district. The mapping and rapid-assessment information can feed directly into the wildfire response preattack plan. The following are planned actions for the preattack plan:

1. Develop **designated response zones** detailed for each fire station and responding agency. The response zones list the hazards and risks identified, as well as the resources for wildfire response available on a typical staffing day.
2. Develop **response actions** that incorporate firefighter and public safety, and that minimize the loss to property (including property used for triage priorities, and response and evacuation routes).
3. Ensure **compliance** with agency and stakeholder priorities, laws, and authorities.
4. Develop **command and tactical considerations**, communications plans (e.g., frequencies, contact numbers), water sources, air operations, safety considerations, evacuation plans, shelter locations, special population needs, contingency needs, and potential incident command post (ICP) locations.
5. Further develop **tactical plans** to accurately identify high-risk areas, access and egress, and potential suppression plans under normal to extreme fire season conditions. Provide emergency response strategies for the direct and/or indirect attack commonly used for the fuel type, and identify safety zones and escape routes. Tactical plans will be in a brief, written format along with detailed georeferenced maps.
6. Provide copies of local agreements for **fire suppression-specific activities**, local energy release component (ERC) values, and pocket cards for the area. The homeowner risk assessment reports can also be provided through the Klamath County Ready, Set, Go website, County Emergency Response website, and Klamath County situation analyst for Klamath County (login permissions needed). See Resources (page 111) for more information.

“We find that sincere relationships bring awesome results. When people re-engage with historical homelands, they emotionally reconnect with the land. When new outcomes for the land are collaboratively set, it can bring deep changes that lead to better relationships, shared decision making, more resilient systems, and a higher degree of relevance externally.”

Craig Bienz, Director of The Nature Conservancy Sycan Marsh Preserve

CHAPTER 6.

Support to private landowners

Land management plan development

For forest landowners, the most important reason to develop a management plan is to learn about their forest and to create or refine a course of action based on how it looks today and how they want it to look in the future. Land management plan templates are available for private landowners. One example is, *Managing Your Woodlands: A Template for Your Plans for the Future*. A more recently updated template is the *Oregon's Forest Management Plan – Template*. The USFS, OSU Extension Service, Oregon Department of Fish and Wildlife (ODFW), ODF, OFRI, NRCS, Tree Farm System, and Oregon Small Woodlands Association (OSWA) sponsor both land management templates. Consult the “Know Your Forest” webpage (<https://knowyourforest.org/index.php>) hosted by OFRI for land management planning resources.

The private land mapping, assessment, and wildfire response preplan information described in Chapter 5 (page 17) can feed directly into the accepted land management template. In a workshop or one-on-one conversation, landowners can work with partners to define their goals and objectives and fill out the rest of the template using these steps:

1. Develop and **recommend prescriptions** based on the diagnosis of information and data collected during the rapid assessment. (See Appendix H, page 89)
2. Generate **vegetation and resource maps** of various scales (1:100,000, 1:15,840, and 1:3600) using the private land data collected (refer to Chapter 5, page 17). The maps can be printed and placed into an indexed map folder for the landowner's property. (See Appendix I, page 90)
3. **Modify prescriptions** to meet the landowner's goals and objectives. If modified, the partners should provide the landowners with the expected effects to the resources.

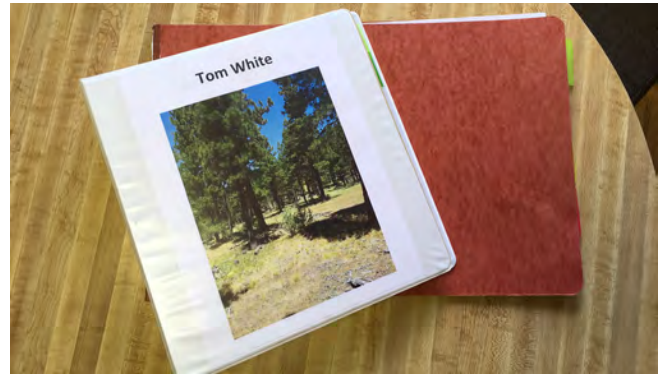


Photo: Kasey Johnson

Example of a landowner map book and land management plan binder

It is useful to provide other informational and educational materials to landowners as part of their land management plan, such as:

1. *Management Planning for Woodland Owners: Why and How* (EC 1125)
2. Recommended prescriptions for all vegetation cover types inventoried on private property (Appendix H and I, pages 89 and 90)
3. PowerPoints delivered during workshops
4. NRCS conservation practice job sheets (Appendix F, page 83)
5. Examples of goals and objectives for land management planning
6. *Fire-Adapted Communities: The Next Step in Wildfire Preparedness* (EM 9116)
7. Oregon Tree Farm information and application
8. *Basic Forest Inventory Techniques for Family Forest Owners* (PNW 630)
9. *Wildlife-Friendly Fuels Reduction in Dry Forests of the Pacific Northwest*

Once forest stewardship actions are completed, the landowner can document in their land management plan what treatments have been conducted in each stand. Along with recording completed work, landowners can use their management plans to look ahead at what projects or parcels of land they would like to treat next. As landowners begin to look ahead, the land management plans will allow them to identify priority areas for short- and long-term planning, based on quantitative data or qualitative information that best illustrate their personal goals and objectives. Data provided in the land management plan recommends treating specific areas based on vegetation, fire-risk potential, wildfire response preplan, wildlife habitat, and land use. This information can directly factor into where and what a landowner manages next.

Land management plans are a document that can be passed along between generations and facilitate seamless management practices for decades to come. If the land has the potential to be sold to a new owner,

the land management plan becomes a critical tool for the new landowner to see what work has been conducted, what the management trajectory is for the land, and what issues still need to be addressed. The land management plan (when shared with landowner approval) will also give natural resource granting agencies access to a document that contains all the relevant information needed to conduct further restoration work, based on work previously completed and on the landowner's goals and objectives.

Offering established training courses

There are several established training courses available for family forestland owners. The Oregon State University College of Forestry Extension Master Woodland Manager core curriculum is an example of an established training course that can be offered to private landowners. Courses such as this one encourage landowners to acquire knowledge in the following areas:

1. Management planning
2. Upland forest ecology and management
3. Landscape and setting
4. Riparian forest and stream ecology and management
5. Business, forest taxes, and planning
6. Marketing, logging, and roads
7. Reforestation and vegetation management
8. Forest health
9. Watershed systems and soils

Other pertinent OSU College of Forestry Extension curricula include:

- Ties to the Land (<http://tiestotheLand.org/>)
- Women Owning Woodlands Network (<http://extensionweb.forestry.oregonstate.edu/WOWNet>)
- Master Woodland Manager (<http://extensionweb.forestry.oregonstate.edu/mwm>)
- Basic Forestry Short course (<http://extensionweb.forestry.oregonstate.edu/basic-forestry-shortcourse>)



Oregon Tree Farm System

If a landowner has a land management plan, they may want to consider being part of The Oregon Tree Farm System (OTFS). The OTFS promotes sustainably conserving and growing forest resources on private, family-owned forests. The OTFS is a nonprofit organization affiliated with the American Tree Farm System and American Forest Foundation. Their purpose is to:

- Help family forest landowners manage their lands with the goals of conserving forests, water, and wildlife while promoting natural resource-based recreational opportunities
- Recognize and celebrate OTFS members who exemplify sustainable forest management
- Support the responsible harvesting of renewable natural resources and the Oregon wood products industry

The Tree Farm System (www.treefarmssystem.org) is the oldest forestry certifying entity. It does not charge membership fees. Any landowner with 10 acres or more of forested land or land capable of supporting trees can join the Oregon Tree Farm System.

Local OSU Extension Service offices throughout the state can also assist in conducting personalized workshops. There are many other publications, videos, and other references on the OSU Forestry and Natural Resources Extension Program website (<http://extensionweb.forestry.oregonstate.edu/>).

Administering contracts

As grant funds are used to apply treatments for private land management, contracts are created between the granting agency and landowner, the granting agency (or a third-party grant recipient) and the contractor (operator), and/or the landowner and the operator. The combination of contracts varies with each granting agency.

Contracts between government agencies and private landowners will cover the scope of work, timeline for completion of treatments, silvicultural prescriptions, acres treated, treatment methods (hand versus mechanical), and most importantly, what funds will be awarded from the granting agency.

Grants administered from federal or state agencies do not require a direct contract between the operator and agency. It is highly recommended that the landowner and contractor develop a contract before operations begin. A template can be found at <https://catalog.extension.oregonstate.edu/ec1192>. Landowners may need assistance from the project forester in developing a contract.

Contracts between a third party and contractor will usually occur when a project is receiving funds through a nongovernmental organization, such as a Watershed Council group or other natural resource NGOs. These contracts will cover much of the same information described for a contract between a government granting agency and a private landowner. As part of a contract between an NGO and an operator, there is usually a contract between the entity and landowner that defines liabilities and the scope of work.

For contracts between private landowners and government agencies, it is important to allow time for careful review of the contract and land management plan. Private landowners are usually new to forestry and forest restoration activities and may need to discuss the contract and clarify any questions. Regarding the contract process, the silvicultural prescription may be the hardest part for a private landowner to understand. Verify that the landowner understands the work that will be conducted and how the project will look once it is complete; marking a sample area that will be treated



Find a forester

Oregon State University Extension Service foresters and Oregon Department of Forestry foresters are the frontline resources for assisting private landowners with short- and long-term land management planning and implementation.

- ODF: <http://www.oregon.gov/odf/working/pages/findaforester.aspx>
- OSU Extension Service: <http://extensionweb.forestry.oregonstate.edu/>

can reduce confusion. It may also be necessary to help landowners identify the right operator. Private landowners are usually unfamiliar with local operators and the extent of their capabilities.

Once a treatment unit has begun, it is essential to visit the site to validate that the silvicultural prescription is implemented correctly. Depending on the size of the unit and the team completing the work, implementation monitoring will need to occur at different times. Whether on a smaller acreage project or a complex prescription, it is a good idea to check on the operation a day or two after work has begun. Visiting the site early allows adequate time to amend practices that may be outside the prescription or help with clarifying any questions the operator or private landowner may have.

Landscape project oversight

When working with private landowners, it is important to supply them with the information they need to feel comfortable with the management recommendations identified in their land management plan. Landowners need to clearly understand the goals and objectives outlined in the plan and make sure they are consistent with their vision for the property. If private landowners do not understand or are not comfortable with management recommendations, they might withdraw from the project. When treating a landscape, each parcel of land is vital to meeting the overall objectives of the landowner and the landscape.

If private landowners do not understand or are not comfortable with management recommendations, they might withdraw from the project. When treating a landscape, each parcel of land is vital to meeting the overall objectives of the landowner and landscape.

It takes a lot of trust for a private landowner to allow a government or nongovernment natural resource employee (sometimes a complete stranger) on their land and give them the authority to make suggestions and changes to land where they have invested their livelihoods. For private landowners to trust the goals of a landscape-scale project and offer their lands in support of that goal, someone involved with the entire project (including land management planning) needs to serve as a liaison for the work conducted on private and public lands. The role of the liaison is to relay the needs of the private landowner to the interagency group working on treating a given landscape. Sharing information with landowners about the treatments being conducted across their fence line—whether their land is adjacent to another privately-owned parcel or public ground—helps them better understand the goal for the landscape-scale treatment and how they are involved in the bigger picture. Much depends on prior steps of mapping, assessment, land management planning (including workshops) to build trust.

When conducting a landscape-scale project across property lines, it is important for the project forester to be aware of activities planned and performed on both the private and public lands. In Oregon, a statewide agreement exists between the NRCS and ODF. This agreement exists so that ODF can provide technical forestry assistance for NRCS for private landowners, while NRCS provides financial compensation for the time ODF spends on NRCS projects. Within Oregon, ODF is the state agency responsible for fire suppression on private lands. In addition, ODF administers the Forest Practices Act for forest activities on private lands. This provides ODF an easy avenue to work with private landowners on multiple facets of natural resource management. Through the partnership between NRCS and ODF, private landowners have a one-stop shop for implementing NRCS restoration activities as well as access to information about conducting activities on their forestlands.

Within a cross-boundary project area, ODF personnel work with private landowners to address

their restoration needs, administer various grant resources, and provide technical forestry assistance for NRCS, private landowners, and other agencies or organizations. For example, ODF may provide technical support to nonprofits that have received funding for project implementation (e.g., OWEB funds received by a Watershed Council). When an agency (e.g., ODF) is directly involved with the work conducted on private lands and is a member of the partnership group, that agency can relay the needs of private landowners.

Providing for the needs of private landowners, ODF also has authority to administer work on USFS ground through the Good Neighbor Authority (see Chapter 8, page 30) granted through the 2014 Farm Bill. When an agency like ODF has the authority to administer work on both private and public lands, it is possible to resolve many forest health issues. These same issues might fall through the cracks because government agencies typically respect property lines rather than natural resources boundaries. This risk can be avoided when one agency has knowledge of the cross-boundary work occurring across public and private land.

It can be helpful to show the landowner and operator examples of stands where the same type of work has been completed so they can see the desired outcome. Either arrange visits to local sites or use a series of photographs from other projects. This kind of demonstration is especially helpful during the land management planning process. Forest operations can look a bit messy immediately following the operation, but the key is to show the landowner how a stand will respond once competition for water, sunlight, and nutrients is reduced.

Communication is essential both before and during the operation. If cost-share funds are used, it is crucial for the funding agency, landowner, and operator to meet at the project site shortly after the operation has begun to ensure that everyone understands the specifications, landowner objectives, and desired outcome for the project. The land management plans provide guidance on this.

Through the partnership between NRCS and ODF, private landowners have a one-stop shop for implementing NRCS restoration activities as well as access to information about conducting activities on their forestlands.



Untreated (left) and treated (right) ponderosa pine stands

Lesson Learned: Provide clear communication to landowners on varying prescriptions

It can be difficult for landowners to visualize what their densely overstocked, noncommercial-sized timber stand would look like opened up to commercial spacing that encourages resiliency to insects, diseases, and fire. Spacing for commercial operations will vary based on the site's productive capacity and the landowner's short- and long-term goals. Some landowners may choose to do a commercial and noncommercial thinning operation at the same time to reduce costs and the number of entries on the land.

When an agency like ODF has the authority to administer work on both private and public lands, many forest health issues can be resolved. These same issues might fall through the cracks because government agencies typically respect property lines rather than natural resources boundaries. This risk can be avoided when one agency has knowledge of the cross-boundary work occurring across public and private land.

KLFHP PARTNER	ROLES	MECHANISMS
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can partner with NRCS under a Joint Chiefs' Landscape Restoration Partnership Can work with ODF through Good Neighbor Authority on federal land Can work with ODF and others on public and private land through the Wyden Authority
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can serve as arbitrator, facilitator, and coordinator Can provide support, administration, and technical assistance through cooperative agreements Can conduct outreach, education, and technical expertise as programmatic objectives Can serve as a conduit from OSU to partners/communities Can provide direct support to landowners through Extension Foresters
	Technical support, outreach/ education, planning, and implementation through stewardship foresters and natural resource specialists	<ul style="list-style-type: none"> Can provide technical forestry support to NRCS through a cooperative agreement Can provide support to the USFS through the Good Neighbor Authority (e.g. timber sales), the Federal Forest Restoration program, and Supplemental Project Agreements Can provide direct support to landowners through Stewardship Foresters and the Protection from Fire Program
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can apply for Farm Bill funding to be used on private lands for restoration and/or easements Can provide technical support to landowners
  Watershed Councils	Landowner outreach, grant writing, fiscal administration, planning, contracting, and implementation	<ul style="list-style-type: none"> Can apply for funding sources restricted to 501(c)(3) entities Can contract and administer some funding sources for greater project efficiency Can act as a liaison to the community and private landowners
  The Nature Conservancy Other agencies, NGO's, consultants	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can provide technical expertise and valuable insight as stakeholders in landscape planning Can apply for diverse and/or restricted funding sources Can contract and administer some funding sources for greater project efficiency Can conduct forest restoration and fire management workshops on managed lands (TNC)
 Private Landowners	Planning, outreach/ education, and stakeholder insight	<ul style="list-style-type: none"> Can be a valuable tool for engaging the private sector and ensuring project goals are in line with the community needs

Roles and mechanisms for each KLFHP key agency and organization



CHAPTER 7.

Implementation grants

Writing implementation grants is one of the most critical steps in a cross-boundary restoration process. The investments in outreach, education, planning, and mapping become apparent through grant writing. Consider all grant opportunities and timelines, and develop a plan for which partner will be taking the lead on each grant. Discuss the landscape needs, landowner tax lot size(s), priorities for the landscape, and determine which agency is best suited to apply for each grant. Some agency grant programs only focus on larger properties, while other programs offer more flexibility in property size. Priorities for a landscape—whether it be wildlife habitat restoration, forest health, and/or wildfire risk reduction—may also fit better with one grant than another.

Several funding opportunities help facilitate cross-boundary landscape restoration. The guidebook *From Ideas to Actions: A Guide to Funding and Authorities for Collaborative Forestry* is an excellent resource. Refer to this document for more information regarding the following:

1. Collaborative Forest Landscape Restoration Program (USFS)
2. Forest Legacy Program (USFS)
3. Community Capacity and Land Stewardship Program (USFS)
4. Joint Chiefs Landscape Restoration Partnership (USFS and NRCS)
5. Environmental Quality Incentive Program (NRCS)
6. Conservation Innovation Grants (NRCS)
7. Conservation Stewardship Program (NRCS)
8. Regional Conservation Partnership Program (NRCS)

Other grant opportunities include:

- **State and Private Forest (S&P)** funding for bark beetle mitigation allows ODF to assist

Tips for success: Utilize the mapping and assessment protocol to develop a landscape strategy and priority

Fully utilize the mapping and assessment results (Chapter 5, page 17) to tell the story of the landscape strategy and priority for each grant. Depict the landscape strategy using the maps as a visual for treatment needs, priorities, and to develop cost estimates. This will contribute to very competitive grant proposals.

landowners. These funds are available through the Wildland Urban Interface Grants or Landscape-scale Restoration Competitive Grant Program. For more information see the Council of State Foresters website. ODF can also receive noncompetitive (e.g., Stewardship, Bark Beetle, Conservation Reserve Program) grants for landowner assistance.

- **Oregon Watershed Enhancement Board (OWEB)** has a variety of grant opportunities for technical assistance, capacity, and restoration. For more information, visit the Oregon Watershed Enhancement Board website.
- **Federal Emergency Management Agency (FEMA)** funding can be available through the Pre-disaster Mitigation or the Fire Prevention and Safety Grant Program.
- **National Forest Foundation (NFF)** has on-the-ground conservation programs. NFF supports action-oriented projects that directly enhance the health and well-being of America's national forests and grasslands, and engage the public in stewardship.
- **National Fish and Wildlife Foundation (NFWF)** has the Resilient Communities Program, designed to prepare for future environmental challenges by enhancing community capacity to plan and implement resiliency projects and improve the

protections afforded by natural ecosystems by investing in green infrastructure and other measures. The program focuses on water quality and quantity declines, forest health concerns, and sea level rise.

Once one grant is secured, it can be used to leverage additional funding. To maximize financial contributions from each agency—be it cash or in-kind or both—be sure to depict the true costs of planning and implementing the project. Include sufficient funding for project management. For example, grant funds could be used to hire a project forester.

For more information on grants, see Resources (page 111).

“The timeliness of gaining grant funding is critical. Once you have buy-in from landowners through outreach and education, mapping and assessment, and development of land management plans, it is extremely important for landowners to see results on the ground. Landowners will often spread the word to their neighbors, which can increase the number of landowners involved in the project.”

Amy Markus, Fremont-Winema National Forest
Wildlife Biologist

Tips for success: Understand funding types and strive to obtain a variety of funding sources

1. Matching funding: Some grant sources require a percentage of match funding. Once funding is obtained for a project (e.g., from a state grant), it can be used to match funding for another grant (e.g., a federal grant). In other words, funds from one grant can be used to leverage funds from another.
2. Direct funding: Funding that is provided to an organization directly by a governmental entity or intermediate organization. Another term for this is “cash” funding.
3. Indirect funding: Funding for administrative costs (e.g., building maintenance). Another term for this is “overhead.”
4. In-kind funding: Funding composed of noncash contributions of time, equipment, labor, materials, space, and other elements central to the goals of the project. In-kind funding can often be used as match.

It is a good idea to try to gain funding from multiple sources. Funds from a variety of sources can provide flexibility to meet a variety of needs to accomplish work on the ground. Some landowners may prefer to work with a particular agency or funding source based on the application requirements. For example, some landowners may shy away from funding sources that require heritage surveys or cost-share because those elements can seem difficult to manage.

CHAPTER 8.

Agreements and authorities

Several agreements and authorities help facilitate cross-boundary landscape restoration. The guidebook *From Ideas to Actions: A Guide to Funding and Authorities for Collaborative Forestry* is an excellent resource. Refer to this document for more information on:

1. Participating agreements
2. Stewardship agreements
3. Challenge cost-share agreements
4. Memorandum of understanding
5. Good neighbor authority or agreements
6. Stewardship authority or agreements
7. Wyden authority or agreements
8. Tribal Forest Protection Act

If there is a challenge in accomplishing the project work, discuss and explore all relevant agreements or authorities. This may involve talking with agency grant and agreement specialists who can point to the appropriate tool to address the specific circumstances. It may take some creativity to determine the appropriate tool to use.

Specific agreements or authorities used in South Central Oregon include:

- **NRCS and ODF Cooperative Agreement**
This agreement allows ODF to provide technical forestry assistance to NRCS to implement the Environmental Quality Incentives Program (EQIP) and the Wetland Reserve Program (WRP) on private lands.
- **Oregon Department of Fish and Wildlife and the Watershed Council Contract**
This contract facilitates the transfer of funding from ODFW to Watershed Council for private land GIS work and assessment.
- **USFS and OSU Extension Service Participating Agreement using the Wyden Authority**
This agreement facilitates the transfer of funds from USFS to OSU Extension Service for GIS services, assessment, outreach, or education for private landowners.
- **The Nature Conservancy (TNC) and USFS Master Participating Agreement**
This agreement supports ongoing cooperation in performing prescribed burns on or affecting federal lands, with a focus on the training of personnel from both parties.
- **USFS and Private Landowner Agreement using the Wyden Authority**
This agreement allows the USFS to conduct restoration work on private lands if the work provides benefits to federal land.
- **USFS and ODF Good Neighbor Agreement**
This agreement allows the USFS to transfer funding to ODF to implement forest management on federal lands.
- **Watershed Councils and OSU Extension Service Contracts**
These contracts allow for technical service agreements that may include outreach, education, private land GIS work and assessments, and archaeological surveys.
- **American Forest Foundation and Oregon Forest Resource Institute with OSU Extension Service Agreements**
This agreement facilitates the transfer of funds for outreach and education technical services.
- **Watershed Councils and Contractor Contracts**
These contracts facilitate the use of grant funding (e.g., OWEB funding) to implement projects on private land.
- **ODF and Oregon Department of Environmental Quality Memorandum of Understanding (MOU)**
This MOU documents each agency's responsibility to administer forestland debris-burning smoke management.

■ **ODF and Watershed Council Agreements**

This agreement facilitates the transfer of funds from the watershed council to ODF for forestry technical service agreements that may include forestry or stream survey services.

■ **Oregon Forest Practices Act**

This Act sets resource protection standards and enforcement for all commercial-forest, tree-management practices on Oregon private forestlands. It includes Fire Protection Laws that regulate forestland debris burning and wildfire protection.

■ **Oregon State Federal Forest Restoration Program**

This program dedicates funding to increase the pace and scale of restoration on federal land. Oregon is the first state in the nation to invest in national forest management.

“The success in large-scale projects comes from the right people involved with the right projects at the right time with the right authorities to do so.”

Jason Pettigrew, ODF Stewardship Forester

Implementation

This chapter provides guidance for implementing forest health restoration treatment on private land. Refer to Appendix J (page 95) for an implementation checklist.

Meet with property owners

The first step in planning a grant-funded restoration project is to meet with each private landowner individually to discuss the scope and objectives of the project that will be implemented on their private land, based on their land management plan. The land management plan is a necessary starting point and continues to be an essential reference document throughout the implementation process. It is important to discuss the grant agreement and criteria required for each funding organization. Most restoration grants outline who is involved, what will take place, a timeline for the project, and who is responsible for each task. Let landowners know how much the grant is worth and whether there is a cost share or required in-kind contribution. Some grants require a percentage of match fund, which can often come in the form of cash or labor.

The land management plan is a necessary starting point and continues to be an essential reference document throughout the implementation process.

After you have established how the granting process works, develop a clear understanding of how the property owner's land will be used and what their objectives are for their land. Again, refer to the land management plan to understand their short- and long-term goals and objectives, as well as concerns for special places on their property. Most property owners know what improvements they would like to see and may have target areas of importance in their plan. Discuss forest health issues that the landowner is aware of, such as species composition or insect and disease outbreaks. Note other land management objectives, such as timber production, wildlife habitat, forest health, aspen restoration, livestock use, and aesthetics. Consult the summary of assessment information

Tools for success: From planning to implementation

1. Grant funding is acquired based on the needs and priorities identified from the risk assessment.
2. Assistance with land management plans reflects the diagnosis, recommended prescriptions, and priorities.
3. Land management plans are modified to meet landowner goals and objectives.
4. Landowners have the chance to learn about and discuss consequences of management alternatives.
5. Landowners decide to participate based on their goals and objectives.

collected in the map folder for each stand and the additional information summarized for their property. This information will provide a baseline to work with. This information can indicate nontimber vegetation types, soil compositions, springs and stream/water locations, and general timber stand composition and densities. This information identifies priority areas based on vegetation stand type and stocking. These topics are included in a comprehensive land management plan for each landowner.

Establish potential treatment methods with the landowner. Their plan will have recommended prescriptions and a diagnostic summary of treatment recommendations. Landowners may have modified these to meet their unique goals and objectives. For example, treatments may consist of commercial thinning, noncommercial thinning, juniper removal, or a combination of each. Property owners often have preferences for the type of treatment they want on their land, for instance, hand felling versus mechanical felling. Slash treatment methods (such as piling and burning, mastication, broadcast burning, or a combination of methods) can also be established. Refer to the land

management plan for clarity and direction on these subjects. A solid land management plan will put everyone on the same page moving forward.

Field assessment – boots on the ground

Once the landowner and project partners reach an understanding of the project and the project objectives, it is time to get boots on the ground. Using the plan information and maps as a reference, walk the property to assess overall forest health or observe forest health issues within a specific area that the landowner would like to restore first. The scope of this process will depend on the funds available and the landowner's objectives for the project as stated in their land management plan.

Establish contracts and other required documents

After thorough observation of the project area, the next step is to conduct a follow-up meeting with the property owner to discuss observations and develop a final recommendation for treatment. Discuss the cost of treatment types, which will translate into the total number of acres that can be treated. It is important that the property owner understands their role during the whole process. Typically, landowners assist with project planning, checking on implementation progress, and possibly helping with clean up or post-project burning. It is also important to have the landowner involved with final project inspections so that everyone is comfortable with the final result.

Once a follow-up meeting has been carried out between the agency and landowner, both parties should come to agreement on treatments and unit locations. The next step is to create and sign the contract or

“Many properties are multigenerational ranches. Consider the needs of the different generations that will be using the information and maps. Older generations may need printed materials, while younger generations might prefer digital information. Although more literature is now available through the internet than in the form of pamphlets, flyers, and newsletters, many people still do not use electronic information.”

Gene Rogers, Wildland Fire Technologies, Inc.

agreement between the granting agency and landowner for the restoration work. Each agency and grant may have different contract protocols, so the landowner may need assistance working through this aspect of the process. Each element should be discussed and agreed on.

Project layout

During the layout phase of the grant implementation, it may be helpful to paint or flag part of the unit based on the silvicultural prescription for implementation written in the landowner's land management plan. This will help the landowner visualize what will be removed and what will be retained, along with skid road layout and slash pile location. During this part of the process, it is also good to flag off the areas identified for post-treatment monitoring.

Secure project contractor

After the project and unit boundaries have been laid out, the landowner may need help finding an operator for the project. Many landowners are unfamiliar with forestry equipment and do not know which local operators to contact. Each contractor will have something unique to offer. For instance, some have a hired crew and others work alone; some have commercial logging capabilities and others complete a treatment by hand. Having a list of operators, with a summary of the equipment they use and the limitations of the equipment, will help landowners decide which operator to choose. For an example of an operator list, see the KLFHP website (<https://www.klfhp.org/professional-contacts/>). Depending on the grant or agency administering the grant, it may be necessary to have a bid process for hiring an operator. Depending on which granting organization the property owner is working with, contracts with the operator may be between the landowner and the operator or between the third-party grant recipient, such as a Watershed Council, and the operator. This is specific to each funder.

Concept: Learning network

Education and learning are constant throughout the process. The learning network strengthens as partners examine the results of their efforts, share experience and knowledge, develop new skills, and identify what is needed to manage the next project better.



Photos: Marci Schreder

Pre-treatment (left) and post-treatment (right) unit on private land in the North Warner Project

Implementation oversight

Project and implementation administration is necessary to validate that the prescriptions, landowner objectives, and agency objectives are being met. This oversight is also important if the operator or landowner misinterpreted the prescriptions. It also provides an opportunity to change the prescriptions or clarify any issues that arise during implementation.

Post-treatment monitoring

Once the project is complete, monitoring of the restoration treatments will help illustrate the work that was carried out. A predetermined monitoring schedule is important to document change over time. Note any changes in vegetation cover, shrub response, tree growth, water presence, or whichever natural resource issues are the objectives of the granting agency. Monitoring typically occurs for 3 to 5 years after the project is complete.

It is likely that post-cut treatment options will occur immediately or 12 to 24 months after the project is complete. These may include using slash for firewood or fence posts or chipping the slash material. There will always be material remaining (in the form of slash piles or slash scatter throughout the units). There are various methods for removing this material, such as burning slash piles, conducting prescribed broadcast burning, or converting slash to biochar. Encourage property owners

Tips for success: Develop a single vision among the agency staff and conservation partners

The key to implementing a successful conservation program is to develop a single vision among the agency staff and the other conservation partners involved. When there is a well-developed vision, the conservation message to landowners and their involvement are more effective and result in the successful implementation of forest practices. Expectations also need to be aligned up front with conservation partners so that the landowners implementing practices are informed and knowledgeable about the process from start to finish.

to work with their local fire agencies to burn at the right time or find other assistance.

The quality of the communication among the conservation partners will determine the effectiveness of the relationships between partners and the landowners. Expectations need to be understood and well-defined among the technical providers, the landowners, and the contractors doing the work. When conservation partners are willing to share each other's workload to increase the capacity to implement a project, it creates an atmosphere that program funders, landowners, and contractors appreciate and want to participate in.

Ecological, social, and economic benefits

Ecological benefits

Ecological restoration and wildfire risk reduction are the keys to creating a highly functioning watershed. This can be accomplished through ridgetop-to-ridgetop, top-to-bottom restoration. Ultimately, precipitation captured in the top of the watershed affects the health of everything in it. Forest landscapes across the Intermountain West are suffering from unhealthy management, which increases the risk of uncharacteristic insect and disease infestations, dense canopy cover stress, and stand-replacing or high-severity fire. Overall, the watershed function can be improved by developing quality management strategies that treat factors associated with a specific focal area, such as water quality and availability, fish and wildlife habitats, or the quality of riparian or forested conditions. Within that set of criteria, multiple benefits can be realized.

Restoration and fuel reduction treatments on private and public land result in landscapes that are more resilient to natural disturbance, prolonged drought, and high-severity wildfire. Along with landscape-scale resiliency, restoration and fuels reduction treatments also benefit high-priority values and habitat (e.g., old-growth legacy ponderosa pine, focal habitat, homes and structures, ranch land, and private timberland). Furthermore, these treatments reduce canopy cover and stand density, resulting in more precipitation reaching the forest floor, improving vegetation health and soil conditions, water storage, and stream flows. In counties where climate change, drought, and soil fragmentation directly affect native fisheries, increased flows significantly improve species persistence over time. Specifically, these landscape-scale projects can impact ecosystems in the following ways:

1. Overstocked timber stands lead to loss of vigor, nutrients, and the number of productive trees. Stressed, overstocked forests often have increased disease and insect infestations. Thinning conifer stands and reducing juniper results in increased sunlight, water, and nutrient cycling throughout the system, improving overall stand health while simultaneously reducing the risk of high-severity wildfire.

Ridgetop-to-ridgetop ecosystem restoration

Managing landscapes from ridgetop to ridgetop is a successful strategy to improve overall watershed function. Everything that occurs in the uplands affects water release, capture, and storage throughout the landscape. This type of management benefits timber stands, habitat for fish and wildlife, and working landscapes. Ridgetop-to-ridgetop restoration is possible through collaborative partnerships and quality planning, followed by implementation. Because of this strategy, multiple resource objectives can be met from the top of the watershed to the meadows and the water bodies below. This trickle-down effect benefits the natural resources, protects private and public lands, and positively impacts the local economy.

2. Reducing canopy cover and stand densities increase water availability and sunlight, which will increase ground cover and shrub capacity. This results in better habitat for upland wildlife species and forage production for livestock managers.
3. Juniper encroachment and overstocked timber stands require large quantities of water. Once juniper thinning occurs, watershed hydrology improves seeps and springs, and streams flow more abundantly. In addition, overland flow decreases as established understory vegetation slows erosion potential and maintains nutrients in the soil profile.

“Ridgetop-to-ridgetop restoration enhances the entire watershed from the uplands to the water bodies and everything in between. Great collaboration and planning lead to action on the ground. Without implementation and good monitoring, change will never happen.”

Marci Schreder, Lake County Umbrella Watershed Council Coordinator and Project Manager

“During a landscape-scale project, it is imperative to remember that ecosystems—void of human interaction—are self-sustaining and that every human action has a trickle-down effect. Although an objective may address a singular issue, resolving this issue will have impacts throughout the ecosystem.”

Kasey Johnson, ODF Stewardship Forester

Overall, the goal for resource specialists is to improve ecosystem health to an ecologically self-sustaining level, which in turn provides local communities with sustainable levels of natural resource products. Maintaining the balance between forest sustainability and the production of goods and services is a common challenge.

Social benefits

Restoration projects that reduce the risk of wildfire have a profound effect on the landscape as well as on the communities and agencies involved. This type of conservation and collaboration brings resource specialists and private landowners together to develop quality planning where everyone has a voice, benefiting vast landscapes and enhancing multiple resources. Planning followed by treatment on the ground gives everyone confidence that change will occur over time, and each individual and organization has a stake in the process. The overall goal in this type of restoration is to create healthy landscapes that are resilient to natural disturbance and are seamless across private and public land. Everyone works together to benefit the land as a whole.



Recreation use

Photo: U.S. Forest Service

Overall, the goal for resource specialists is to improve ecosystem health to an ecologically self-sustaining level, which in turn provides local communities with sustainable levels of natural resource products.

Large landscape-scale projects across jurisdictional boundaries result in a tremendous trickle-down effect. These projects have a positive impact on watersheds, which improves overall health, enhances habitat, promotes opportunity for water flow, and improves forage for livestock, and returns value in our working landscapes.

Economic benefits

It's important to emphasize that the partnerships involved in landscape-scale efforts also support local mills. Rural community mills employ a critical percentage of the population of small towns. Landscape-scale restoration provides wood for local mills, job



Photo: Harold Weaver



Photo: Faith Brown

Ponderosa pine forest in Klamath County, 1958 (left) and 2012 (right)



Collins Pine Company Mill in Lakeview, OR

opportunities for contractors, and supplies and materials for local merchants. As the local economy improves, the community benefits because hotels, restaurants, grocery stores, and gas stations get busier. In addition, healthy forests provide recreation opportunities, wildlife habitat, and aesthetic values for the public. Creating sustainable natural resource products is vital to support the economy of rural counties.

To take the economic benefits a step further, resource managers and partnerships need to consider the amount of material that is generated from each landscape-level, forest-health treatment. Currently, much of the material created from large forest restoration projects does not have a direct market available; those that are in place are niche markets. This underscores the importance of exploring and capitalizing on new markets.

Large, landscape-scale projects demonstrate how these new markets and employment opportunities evolve. For example, across the West, resource managers agree that the presence of juniper must be reduced across the landscape. Juniper reduction can lead to large amounts of slash material. New opportunities for marketing this product as a merchantable wood source can lead to economic gain for a community.

As thousands of acres are cut as part of a prescription treatment plan across the landscape, the result is the accrual of landscape-scale acreage with slash piles. A majority of these piles will be burned, as this is currently the most cost-efficient management technique. However, instead of burning this material, biochar is an opportunity to use this “by-product.” Biochar is the process of converting organic matter (in this case forest slash) into a charcoal-like product to be used as a range, farmland, forest, or home garden additive for water retention, nutrient input, and improved soil fertility. Along with specific uses of the materials in a landscape-scale restoration project, economic opportunities are

Creating sustainable natural resource products is vital to support the economy of rural counties.

What do landscape-scale, cross-boundary projects mean to the timber industry? From the perspective of Lee Fledderjohann, resource manager (retired), Collins Pine Company

If a log buyer were to go out to a property that had a lot of small-diameter material, they likely would turn to the landowner and say there is nothing that they can do for them. The small-diameter material that is so prevalent in many eastside pine stands is not worth much, if anything, to a sawmill. There is nothing that a sawmill can make out of the small-diameter material.

With a process like the North Warner Partnership (see Chapter 11, Case Study 1, page 40), the landowner benefits. Landowners can treat their stands so that their trees grow well, which, in turn, benefits the industry because at some point the treated stands will be merchantable timber that can be sustainably harvested. Furthermore, this process gives the landowner valuable knowledge about how forests grow. A forester can now go out with the landowner on their property and discuss how to manage their forest for the long term.



Untreated stand on private land in North Warner Project

also possible through large, cooperative involvement. Organic materials removed from these projects can be used for biomass and conversion to other sustainable energy products.



Logging on private land in Klamath County

Beyond the benefits that come from the direct use of forest products, the community benefits from the demand for an increase in the labor force. As financing is established and projects are planned, coordinating and implementing thousands of acres of treatment requires workers. However, there are fewer people entering the timber profession today. This is a complicated issue to address. One avenue that may mitigate the problem is by using operators who are willing to work with the local jail or prison system. Work crews can often be arranged, trained, and placed in the field to complete landscape-scale projects. The crewmembers receive a training opportunity that meets the demand of the market while providing inmates with a skill set they can use once they re-enter the workforce. An operator or agency will have to work directly with the corrections facility or talk with their State Department of Corrections (depending on state and local laws) to arrange for a jail or prison work crew.

Landscape-scale restoration treatments lead to innovations for wood material and products. Beyond fence posts and firewood, entrepreneurs are developing connections throughout the state to market juniper, a historically submerchantable tree species, as well as creating avenues for slash treatment beyond the traditional cut-pile burn method. Contractors are coming together to solve difficult issues and find a process that economically benefits them as they move from the forest, to the mill, and to the market.

Restoration of private land contributes to increasing pace and scale of restoration

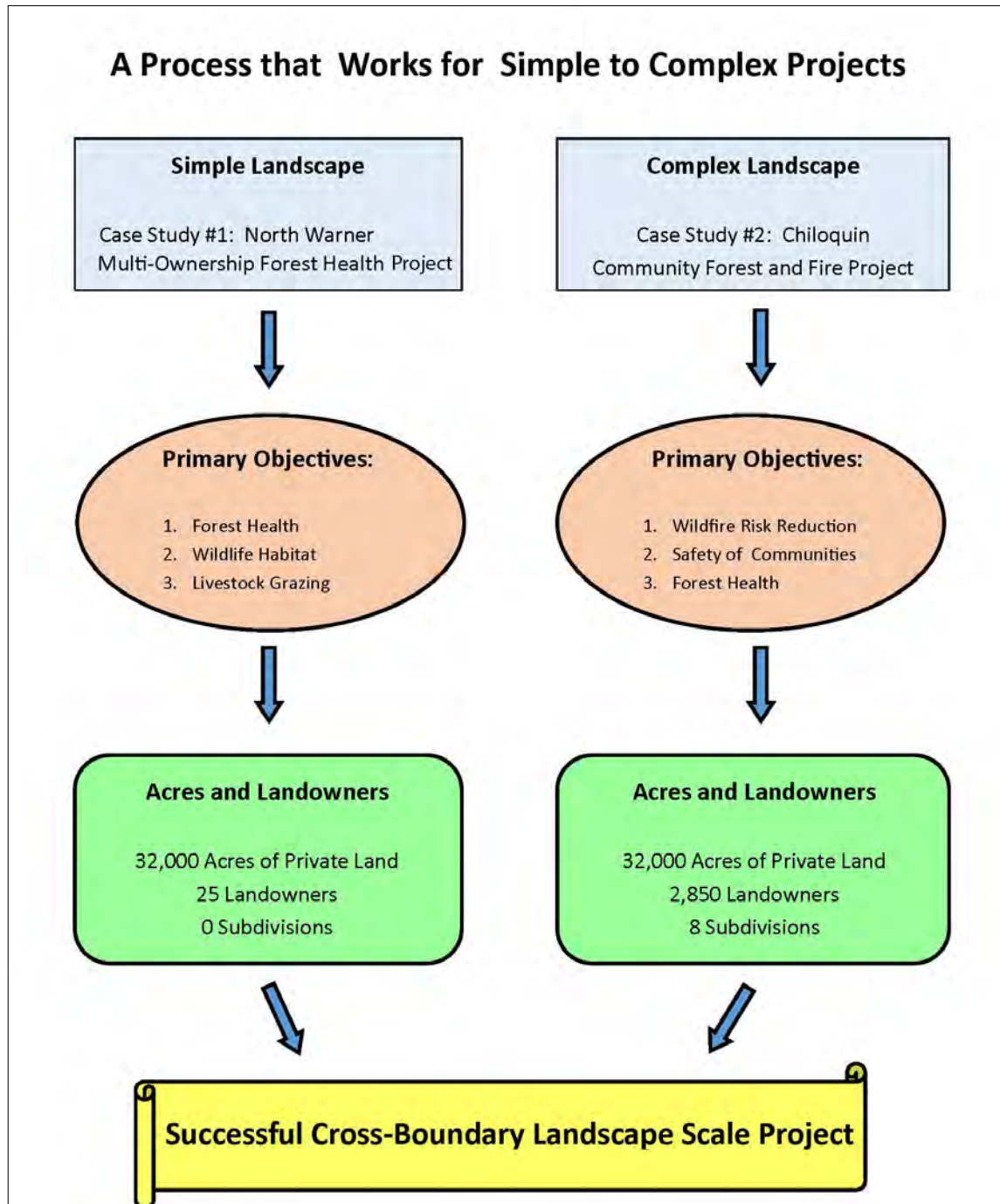
“To increase the pace and scale of restoration”—people often say this, but very few are accomplishing this critical goal. When it comes to this goal, many agencies focus on public lands, forgetting that across eleven western states more than 1/3 of the high-wildfire risk falls on private and family-owned land. One obvious way to increase the pace and scale of restoration across the West is to increase restoration on private lands in conjunction with public lands.

Contractors are coming together to solve difficult issues and finding a process that economically benefits them as they move from the forest, to the mill, and to the market.

CHAPTER 11.

Case studies

The following case studies describe two cross-boundary, landscape-scale projects in Klamath and Lake counties of Oregon. The process has proven to work with simple to complex landscapes.



A process that works for simple to complex landscapes

CASE STUDY 1.

North Warner Multi-ownership Forest Health Project

Overview

The North Warner Landscape covers 150,000 acres and focuses on dry forest restoration. This project is unique due to the extensive stands of old legacy ponderosa pine intermixed with aspen and meadows, with greater sage grouse focal habitat immediately adjacent to the north and east. The landscape is at severe risk of uncharacteristically intense disturbance due to heavy fuel loading and stand densities. Located northeast of Lakeview in Lake County, Oregon, the project is located in four watersheds: Crooked Creek, Honey Creek, Deep Creek, and Thomas Creek. It contains 51,525 acres of USFS land, 32,000 acres of nonindustrial private forest land, 17,865 acres of nonindustrial private forest land, 47,320 acres of nonforested private land, and 1,290 acres of Bureau of Land Management land.

Goals and objectives

The goal of this project is to collaborate across ownership boundaries to implement forest health treatments to create a seamless, healthy forest landscape that is resilient to natural disturbance. The partnership has identified three objectives:

1. Improve forest health
2. Improve wildlife habitat
3. Improve livestock grazing

Methods

1. Identification of landscape

The Fremont-Winema National Forest identified vast landscapes for planning and implementation and prioritized each landscape for restoration based on USFS regional and national priorities, such as the Watershed Condition Framework and Terrestrial Restoration and Conservation Strategy, past management in the Wildland Urban Interface (WUI), current stand structure by plant association, and likelihood of crown fires in

forests. The USFS Crooked Mud Honey Integrated Restoration Project (noted as North Warner on the Landscape Restoration Areas on the Fremont-Winema National Forest in Appendix M, page 109) was the first large landscape restoration project on the Fremont-Winema National Forest. The NEPA decision document was signed in September 2015. This project authorizes forest restoration across 50,000 acres and is surrounded by nonindustrial and industrial private forestland.

To delineate the cross-boundary project area, the Partnership identified all of the forestland located within the subwatersheds that overlap with the USFS Crooked Mud Honey project. The resulting project area is approximately 150,000 acres. Within the nonindustrial private lands, there is about 32,000 acres forested or partially forested land owned by 25 landowners.

2. Landowner outreach and education

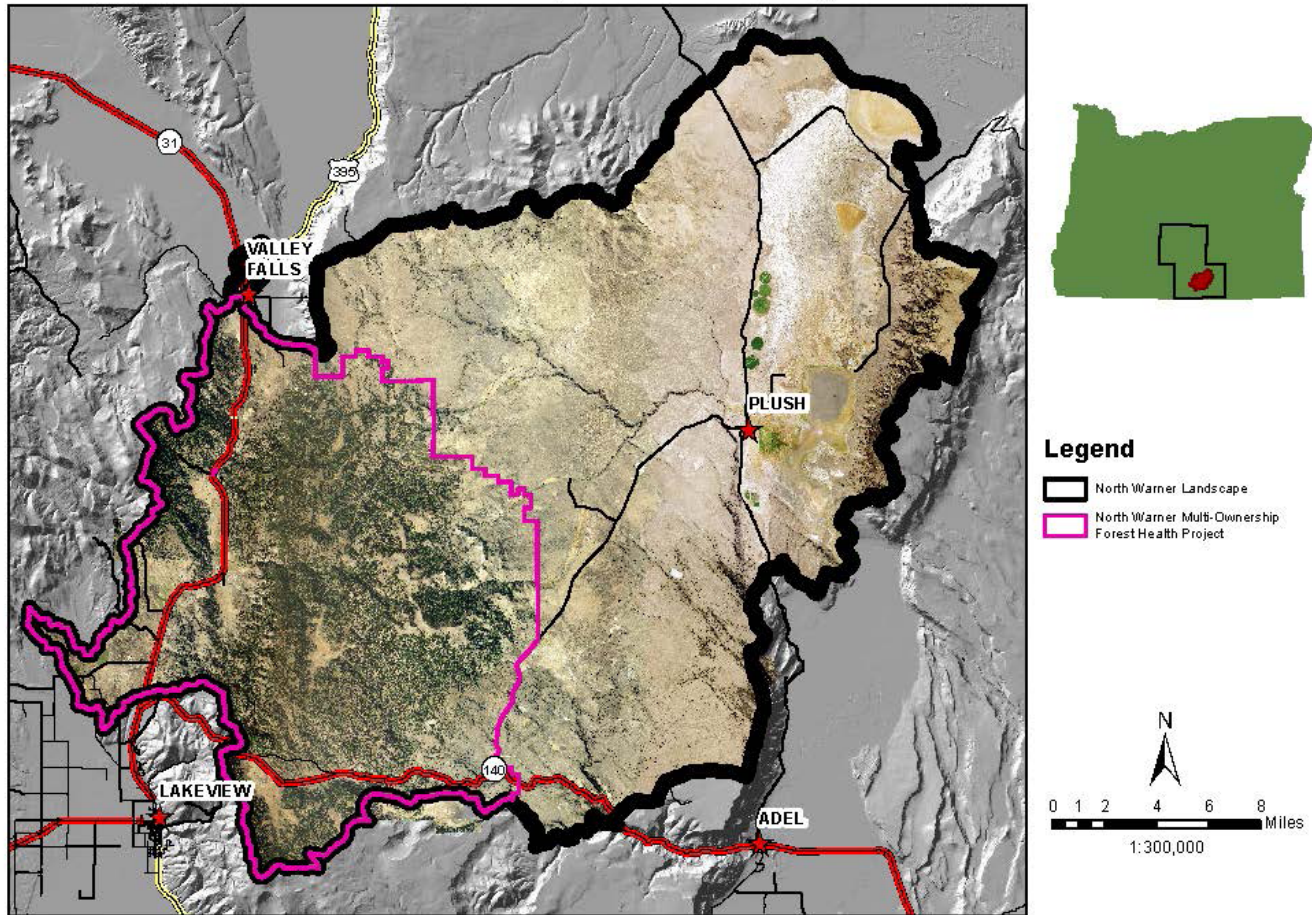
Private landowners in the project area follow state trends in forest ownership that have been identified by researchers Woodward and Cloughesy. Many owners have other occupations, and many have goals and objectives that do not focus on timber production. Most forest landowners in Lake County are cattle ranchers who own a combination of forest and pasture, with more of an expertise in ranching than forestry. The perspective of landowners in Lake County reflects the findings in the report *Western Water Threatened by Wildfire: It's not Just a Public Land Issue*. They want to do what's right for the land and are concerned about forest health, wildlife habitat, fuels reduction,



Photo: Amy Markus

Old legacy ponderosa pine on USFS land in the North Warner Project

North Warner Multi-Ownership Forest Health Project



North Warner Project area

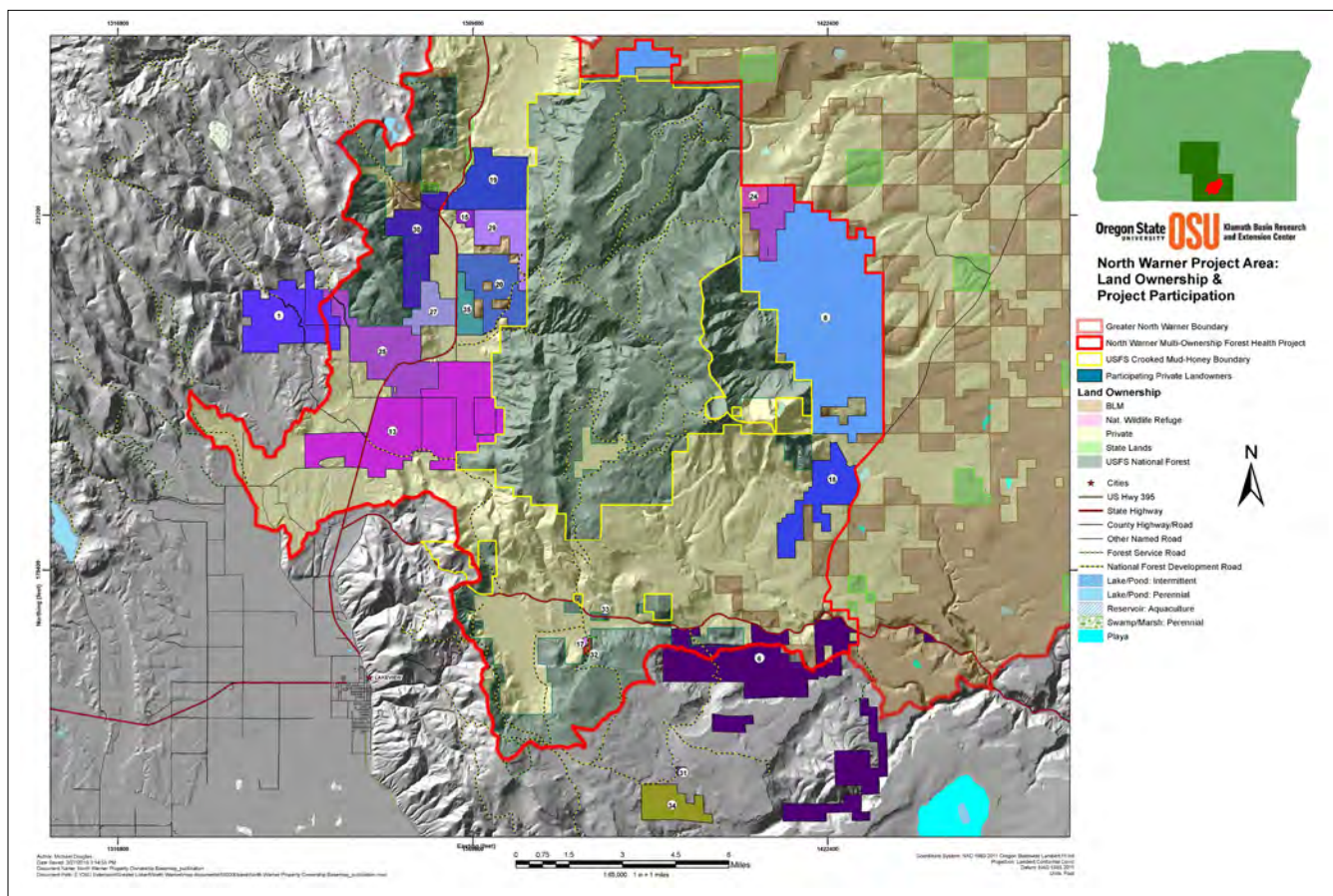
livestock grazing, and safe and efficient fire response and protection. The landowners are motivated to take action on their land; however, many lack a working understanding of forestry and fire science, in spite of wanting to do the right thing.

This landscape is located in a small rural community. There are existing relationships between the 25 landowners and partners. A partner with previous experience working with the landowners made the initial contact, reaching out to landowners by phone. Other outreach and education tools included short, 2-hour workshops on forest health and wildfire, OSU Extension Service Master Woodland Training, and a 4-hour workshop to assist landowners with the development of land management plans. Also, there were extensive one-on-one meetings with each landowner to go over the maps, data, and land management plans, and to identify treatment locations.

3. Private land mapping and rapid assessment

In 2016, Oregon Department of Fish and Wildlife funded \$50,000 to the Lake County Umbrella Watershed Council (LCUWC) to complete the mapping and rapid assessment for 25 private landowners on a total of 32,000 acres that surround the USFS Crooked Mud Honey Integrated Restoration Project. The Partnership developed a protocol for the mapping and natural resource data collection (see Appendix C, page 72) based on the resources within the project area. In addition to the overstory forest condition, additional data collection included fuel loading, understory trees, aspen condition, and noxious weed locations.

For this project, the rapid assessment conducted (to meet ecosystem restoration goals) cost about \$1.25/acre (with approximately 1,000 acres per week for mapping and field assessment).



North Warner Project participating landowners

A matrix was developed to identify both treatment recommendations and priority for restoration of each stand. See Appendix G (page 88) for a sample matrix. Finally, a series of maps were developed for each landowner and the entire landscape. These maps were used to assist with the planning, implementation, and priorities for each landowner and across the entire landscape. See Appendix I (page 90), which provides an example of maps provided to Tom White, a participating landowner in the project area.

4. Support to private landowners

OSU Extension Service offered the established Master Woodland Manager core curriculum. In addition, a land

management plan workshop was held for all participating landowners to assist each landowner in developing a land management plan for each property. Each landowner received a map book with all of the maps for their property at the 1:100,000, 1:15,840, and 1:3600 scale. In advance of the meeting, the partners developed draft prescriptions for each cover type (e.g., ponderosa pine and mixed conifer), recognizing they could be modified based on individual landowner objectives. See Appendix K (page 97), which provides an example of a recommended prescription for ponderosa pine. Also, a binder was provided to each landowner with a variety of resources, as described in Chapter 6 (page 22).

Lesson Learned: A lot of maps and data may be too much detail for private landowners

The map books that were created for private landowners are useful in a variety of ways; however, one set of maps was trying to accomplish too many objectives. Private landowners had a range of forestry knowledge and varying degrees of interest in learning more about forestry topics. Along with the landowners, land management professionals were also using these same maps to create restoration projects. However, land managers are typically more familiar with using different maps to carry out project implementation. After initially working with landowners, an important lesson emerged: Develop two “levels” of map books for partners—one for landowners with less detail and a more comprehensive version for the project forester.



Land management plan workshop for private landowners

Lesson learned: Project forester – from planning through implementation

The project forester should be involved throughout the entire process—from planning through implementation and monitoring. Ideally, the project forester assists with the development of mapping and assessment protocols and oversees the rapid assessment. This involvement ensures that the necessary level of information and data are collected to complete both the planning and implementation of the project consistently and efficiently.

5. Grant writing for implementation

The private land mapping and assessment process allowed the Partnership to map and prioritize restoration across 32,000 acres of private land. With the landscape mapping, the Partnership was able to depict the bigger picture strategy for the landscape, identify treatment needs, and develop cost estimates. See Appendix L (page 103) for examples of the results of the private land mapping. This information and mapping allowed for very competitive grants proposals, most of which were selected for funding.

The North Warner Project continues to be successful in leveraging funds for implementation, and the Partnership will continue to write grants for forest management. The implementation funding secured for this project resulted in additional capacity for the Partnership by allowing ODF to hire a forester specifically to manage the North Warner Project.

See Table 2 for a list of grants that were submitted and selected for funding as of September 2018. The

The implementation funding secured for this project resulted in additional capacity for the Partnership by allowing ODF to hire a forester specifically to manage the North Warner Project.

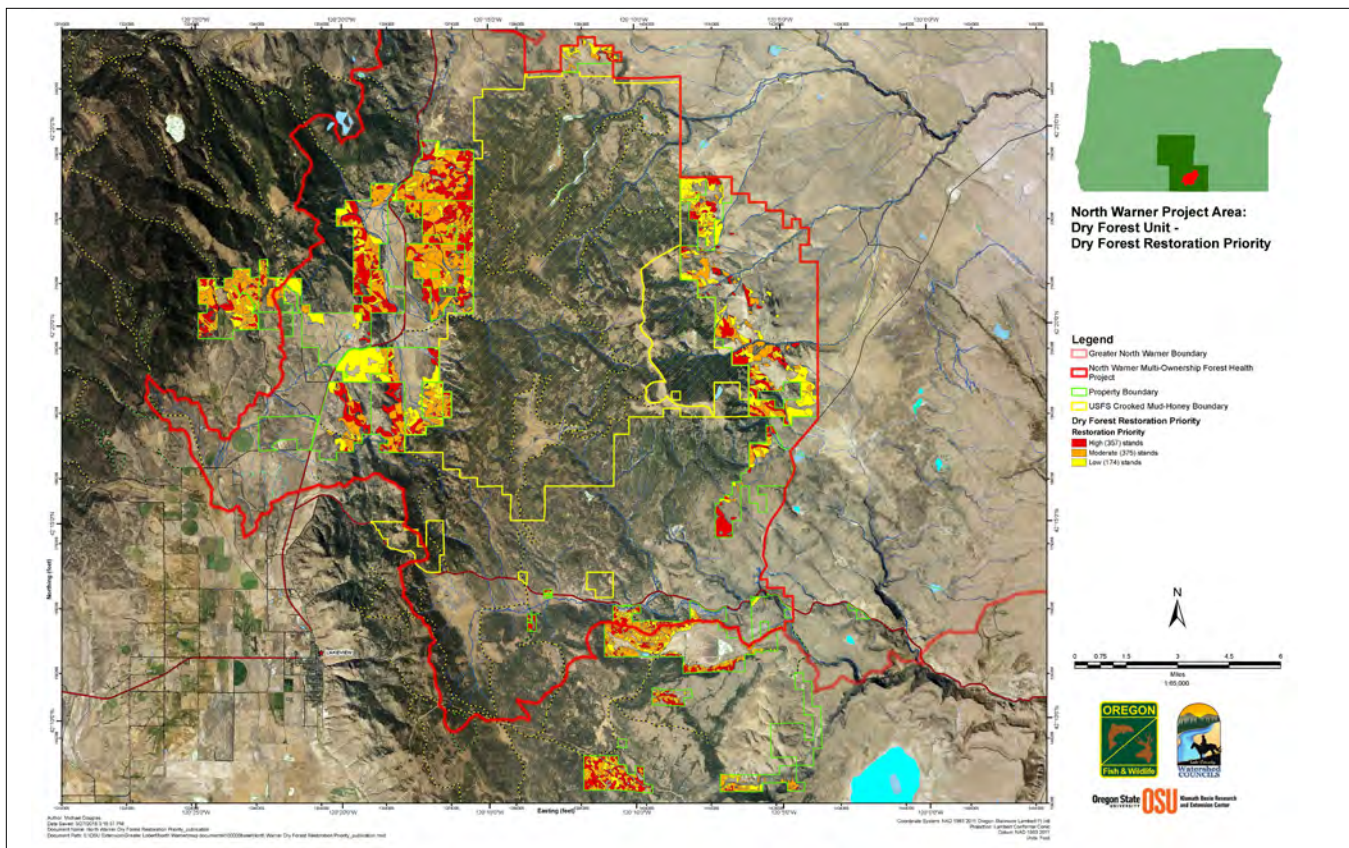
Partnership will continue to use this secured funding to leverage and obtain more funding because additional funds are needed to implement restoration on private and federal land within the project area.

6. Agreements

Agreements were created between agencies to allow for the best-suited partner to accomplish work within the project. NRCS has only one forester in Oregon who has oversight of all forest activities conducted by NRCS at the state level. As a result of this limited capacity, the NRCS district participating in the North Warner Project used the Oregon statewide agreement between ODF and NRCS. This agreement was created to provide NRCS with technical forestry assistance (in the

Table 2. North Warner Multi-ownership Forest Health Project Grant Funding (2017-2018 only)

Funding Source	Private Land		Forest Service	
	2016/2017	2018	2017	2018
Joint Chiefs	\$796,199	\$700,000	\$353,084	\$1,499,750
Title II/RAC	\$42,500		\$50,000	
OWEB	\$537,000	\$537,000		
ODFW Mule Deer Initiative	\$50,000	\$35,000		
FS Sage Grouse Funding	\$125,000	\$50,000		
FS State and Private	\$336,500			
Total	\$3,209,199		\$1,902,834	



North Warner Project restoration priorities

form of ODF staff), while financial compensation was returned to ODF for its personnel time assisting NRCS on forestry-related projects. The ODF employee helped NRCS conduct all the field work necessary for NRCS involvement in this landscape project, which included landowner interaction and creating the silvicultural prescriptions and units. In addition to the statewide agreement between NRCS and ODF, another agreement was created for ODF personnel to provide technical forestry assistance to the LCUWC, as forest activities are typically not the focus of this group. The roles associated with assisting the LCUWC were the same as the role ODF has with NRCS.

In addition to project-specific agreements, the partners used state and federal agreements to accomplish work on the landscape. One of these agreements, the Good Neighbor Authority, allowed ODF to administer and conduct work on federal ground for small tree thinning and slash treatment. The state of Oregon also created a Federal Forest Restoration (FFR) program which was funded through state dollars to assist the USFS with increasing the pace and scale of restoration. Within the North Warner Project, the FFR program helped the USFS in timber presale activities, such as flagging and tagging of sale units and boundaries.

Lesson learned: The importance of land management plans for guiding landowners

Developing a management plan takes time. With very limited resources available to write multiple management plans, the Partnership decided to collectively develop land management plans (meeting the Oregon Forest Management Planning System Guidelines) for each landowner. This was completed by providing each landowner with maps, data, and treatment recommendations from the mapping and assessment. In addition, each member of the Partnership, who had an area of expertise, developed a recommended prescription for each vegetation type, which was also included in the land management plans. With all of this information, most of the land management plan was completed for each landowner.

After completing the draft land management plans, a workshop was hosted to assist each landowner with completing their portion of the plan. The Partnership encouraged and assisted landowners in identifying their own goals and objectives based on their desires for their property. By the end of the workshop, each landowner had a plan that meets the specific requirements of various agencies and entities, and, if they choose to, provides a way for them to become members of the Oregon Tree Farm System.

7. Implementation

In the implementation phase of a landscape-scale project, all the hard work between partners and landowners comes to fruition. For the North Warner Project, this involved getting together with individual landowners to discuss the grants they had access to and to help landowners understand that monies coming from the LCUWC may have slightly different objectives compared with those coming from NRCS. It was important to talk with the landowners about the different grants, explain which agency would administer each award, and identify who would be in the field conducting the work of the granting agency. This discussion was important for the landowners, as many different agencies were working hand in hand to carry out the objectives for the landscape.

Once landowners were clear on which partner they would be working with, and in what capacity, the next step was to determine the landowners' objectives, as referenced in their management plans, and any forest health issues they were aware of. Through discussion with the participating landowners, three main forest health issues emerged as common across the landscape: creating fire resilient stands, decreasing juniper presence (and as a result returning water to their lands), and providing healthy forest habitat and forage for wildlife and livestock. Conifer thinning (reduction in stocking levels of submerchantable material) and juniper cutting treatments were carried out to facilitate these objectives.

Two main grant sources worked to achieve these treatments: Joint Chiefs funding through the NRCS Environmental Incentives Program (EQIP) and Oregon Watershed Enhancement Board funding through LCUWC. In addition, the USFS provided state and private funding to ODF for treatments on private land.

The next step was to get boots on the ground to assess forest health issues. During this phase of implementation, field staff used a combination of maps developed through the private land rapid assessment to address landowner objectives. At this point, it was important to observe forest health as a whole and note where isolated issues were causing degradation as a result of species encroachment or insect or disease presence. When conducting field reconnaissance, it was also important to observe any features present that would help with creating the logistical plan for carrying out treatments; these features typically consisted of roads on the property, skid trails associated with previous harvest activities, streams, and natural stand boundaries. During the field aspect of the project, it was critical to establish monitoring points and collect

Acres Accomplished in the North Warner Project:
2015-2018

	Private	USFS
Total acres treated or in progress 2015-2018	5,082 acres	21,351 acres
Total acres left to treat	12,806 acres	10,190 acres

the necessary data to be monitored before and after the completion of the project.

Once the field reconnaissance was complete, a follow-up meeting with the landowners and granting agencies was scheduled to discuss treatments, acreages, and responsibilities. Once treatment options and units were created, the next step was to discuss who the landowner wanted to hire to complete their project treatment. A list of local contractors was provided at this time. To assist the landowner with this process, the project manager can conduct a bid tour with interested contractors or the landowner can hire a contractor directly. A bid process can provide valuable information regarding contractor experience and an opportunity to select a fair price for the project treatment. Either method is acceptable as long as it meets the needs of the contracting/granting organization. As work was initiated on the treatment units, it was essential to visit the site within one or two days to verify that the silvicultural prescription is being met, that the operator was clear about the expectations, and that the landowner agreed with the prescription and activities being conducted.

After completion of the project, it was time to visit the monitoring points to collect follow-up data. The schedule for posttreatment monitoring occurred at different times, depending on the granting agency; however, this data will be collected at a minimum of three times post-treatment.

8. Ecological, social, and economic benefits

Ecologically, this project has resulted in forest health treatments at a scale commensurate with the challenge of reducing the risk of wildfire and the risk of insect and disease on USFS, private nonindustrial, and private industrial land. On USFS land, in particular, this will reduce the risk of loss of old legacy ponderosa pine and greater sage grouse focal habitat. On private land, this reduces the risk to high-priority land used for timber production, livestock grazing, wildlife habitat,

and aesthetics. Aspen stands will be restored for wildlife habitat, juniper cutting will increase water capacity, and noxious weeds will be treated.

Through this landscape-scale project, thousands of acres of typically nonmerchantable renewable forest products will be cut and piled, with the final action being burning them once they have cured. However, when dealing with the landscape, opportunities may arise to use this typically nonmerchantable material and create jobs to facilitate the completion of this work.

Specifically, within the North Warner project, numerous acres of juniper will be cut. Traditionally, this material would then be piled and burned. Juniper is a very tough wood and, as a result, is underutilized for its potential as a renewable wood product; however, niche markets exist across Oregon to mill juniper and provide products. Juniper trees in Lake County are reported to have a higher degree of desirability among those who sell milled juniper when compared with juniper sourced elsewhere within the state. As a result of better juniper quality in Lake County, opportunities have evolved to market these trees for dimensional lumber use, and create markets and jobs for a traditionally nonmerchantable species. Along with specialty and dimensional lumber, juniper can be used for producing bio-fuel. Biomass facilities convert juniper to electricity or convert it to biochar (a soil additive to aid in water retention in arid and sandy soils).

Along with direct economic benefit from using the products created from a landscape-scale restoration project, new jobs are created to carry out the work across thousands of acres. Within a given area there is typically an equilibrium in place that balances the demand for forestry work with the number of local operators. However, when a landscape-scale project comes online for a given area, there will usually be a need to increase the local workforce to achieve the goals and timelines put in place. This increase in needed manpower provides an additional economic benefit to the community, as more workers will be in the area contributing to the economic viability of the community by purchasing goods and services.

Looking ahead

There are several landowners interested in the use of controlled fire, including pile burning and prescribed fire, so the Partnership is preparing for this opportunity. There are several concepts in progress to advance cross-boundary prescribed fire:

- A pile burning and prescribed fire workshop for private landowners
- Landscape cross-boundary burn plans
- Creation of a South Central Oregon Prescribed Fire Chapter of the Oregon Prescribed Fire Council
- Preparing the necessary agreements between agencies or between agencies and private landowners

“It was very rewarding to be a part of a project where a variety of entities—from federal, state, and local governments to nonprofit organizations to other private landowners—came together to contribute in any way they could to achieve a common vision for accomplishing multiple forest restoration and management objectives on private forest lands. Everyone involved has a connection to the land and desires to see positive forest management across the landscape, benefiting all ownerships and all resources. This project is a win-win for everyone.”

Kellie Carlsen, retired ODF Stewardship Forester



CASE STUDY 2.

Chiloquin Community Forest and Fire Project

Overview

The Chiloquin Community Forest and Fire Project is composed of approximately 32,000 private landowner acres owned by about 2,850 individuals and includes numerous subdivisions and the town of Chiloquin (population 734). The landscape is very diverse, with 60 percent forested land. The entire area is high-risk for wildland fire as identified in the Chiloquin Community and Klamath County Wildfire Protection Plans (CWPPs). Dense stands of ponderosa pine and areas of thick bitterbrush dominate the landscape. Chiloquin was a bustling lumber and railroad center with over 2,000 residents and three sawmills in the 1930s. The closure of the railroad depot, the overlogging of the nearby forests and subsequent decline of the lumber industry, and in 1954, termination of the Klamath Indian Reservation, brought about the community's decline. Today, the community infrastructure and safety of its residents are at extreme risk of potential wildland fire.

Goals and objectives

The goal for this project is to collaborate across ownership boundaries to implement forest health treatments. This cross-boundary approach creates a seamless, healthy, forested landscape that is resilient to natural disturbance while supporting a partnership to implement work across private and public lands. The Partnership has identified three objectives:

1. Wildfire risk reduction
2. Safety of communities
3. Forest health

Methods

1. Identification of landscape

The Fremont-Winema National Forest identified large landscapes for planning and implementation, and prioritized each landscape for restoration based on USFS regional and national priorities (such as the Watershed

Condition Framework and Terrestrial Restoration and Conservation Strategy), past management in the Wildland Urban Interface (WUI), current stand structure by plant association, and likelihood of crown fires in forests. The USFS Lobert and East Hills Integrated Restoration Projects (noted as Lobert and Black Hills on the Fremont-Winema National Forest in Appendix M, page 109) are large-landscape, accelerated-restoration projects on the Fremont-Winema National Forest.

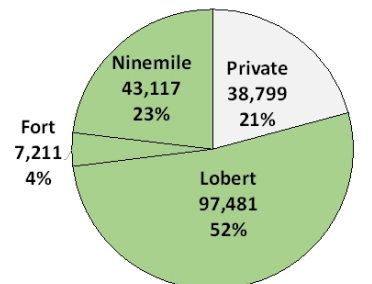
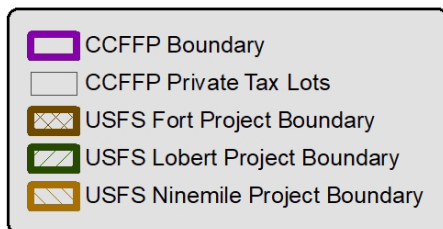
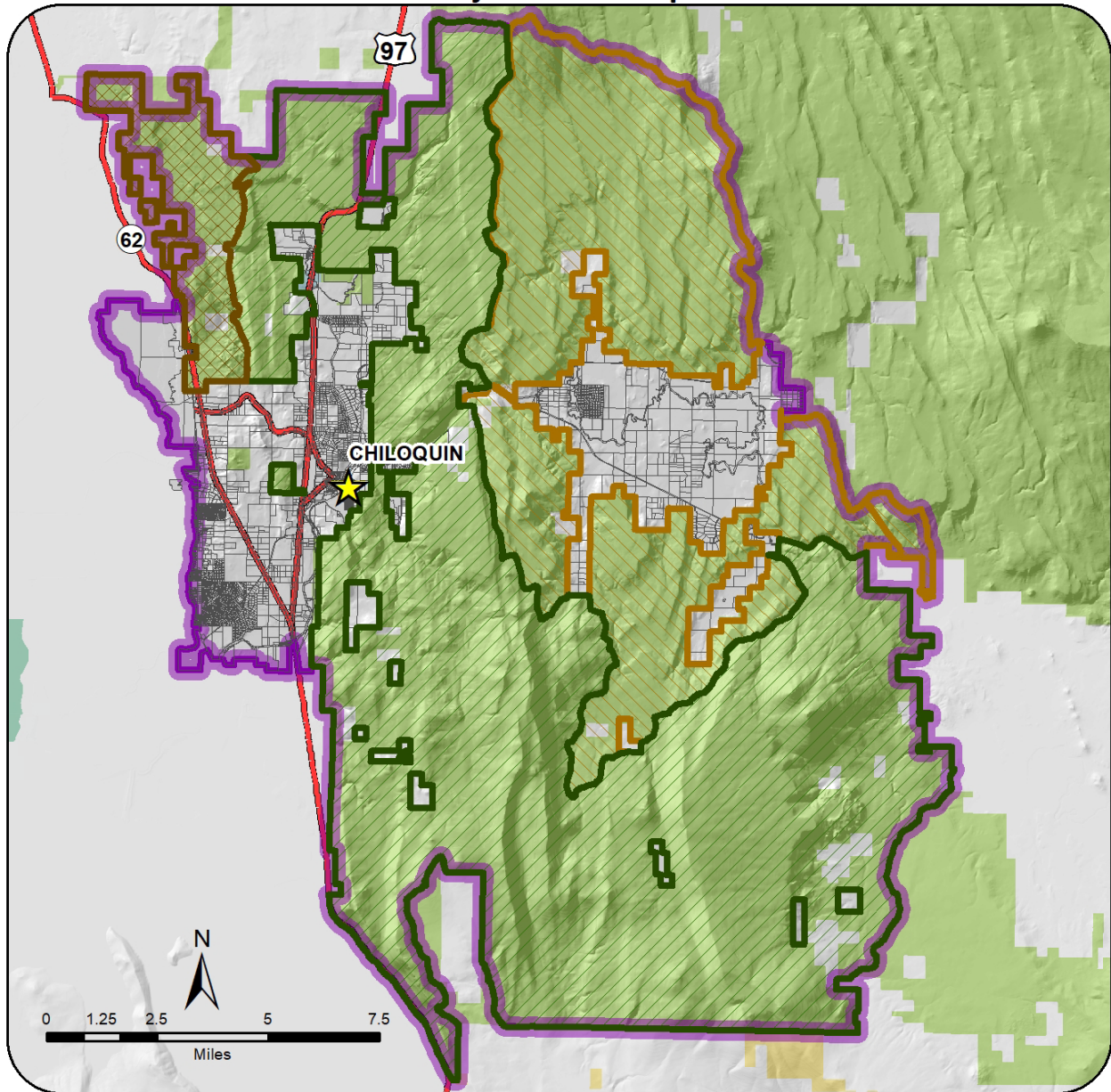
Partners within the KLFHP conducted a risk assessment in February 2016 of all private lands in Klamath and Lake counties to determine which landscape to focus on in the pending NEPA-ready Lobert (100,000 acres) and East Hills (140,000 acres) project areas. A variety of risk rating criteria included: land ownership, broad vegetation classes, fire history, communities at risk identified in the Community Wildfire Protection Plans and the Oregon State Communities at Risk Project, and personal knowledge of the landowners and communities. Based on the risk assessment, two landscapes were selected to the west and east of Chiloquin, totaling approximately 32,000 acres of private land.

2. Landowner outreach and education

Private landowners in the project area follow state trends in forest ownership identified by researchers Woodward and Cloughesy. Many owners have other occupations, one out of four lives outside the local area, and many have goals and objectives that do not focus on timber production. The perspective of landowners in Klamath County also reflects the findings in *Western Water Threatened by Wildfire: It's not Just a Public Land Issue*. Most landowners want to do what's right for the land and are concerned about forest health, wildlife habitat, fuels reduction, livestock grazing, and safe and efficient fire response and protection. Landowners are motivated to take action on their land; however, many lack a working understanding of forestry and fire science, in spite of wanting to do the right thing.

The American Forest Foundation (AFF) (\$17,000) and the Oregon Forest Resources Institute (OFRI) (\$17,000) provided OSU Extension Service grants to organize an education and outreach effort that is concurrent with the private land mapping and assessment.

Chiloquin Community Forest and Fire Project Project Area Map



USFS & Private Ownership (acres)

CCFFP area

The outreach effort was organized by creating an Excel spreadsheet of landowners in the project area based on tax lot records for Klamath County. The database consisted of nearly 4,850 tax lot entries that were extensively cleaned and sorted to: 1) merge parcels with the same ownership; 2) to use one naming convention for the tax lots owned by the same landowner; and 3) make sure the entry is current. This consolidated the number of entries from 4,850 taxlots to a concise list of 2,850 unique landowners, some of whom own multiple taxlots. For project tracking, columns were added to the spreadsheet with headings like “Permission for Inventory” and “Requests Site Visit from a Forester.” Based on county records, the only means of initial contact with landowners was by mail.

From that foundation, landowners were stratified into four categories to allow development and execution of tailored outreach strategies:

- Category 1 - Subdivisions with homeowners association (HOA) or road district (RD)
- Category 2 - Subdivisions without homeowners association (HOA)
- Category 3 - Mid-sized tax lots (<10 acres)
- Category 4 - Larger tax lots (>10 acres)

Category 1 included subdivisions with multiple, small tax lots with a homeowners association or road district, or with a city council and mayor. There were 13 Category 1 subdivisions, including the town of Chiloquin. Project partners contacted the governing board to do a one-on-one meeting to discuss the project and provide information, including project and subdivision maps. When the board had buy-in, they contacted the homeowners through targeted meetings to provide an overview of the project with educational components (1 to 2 hours) and maps of the project and subdivision. Partners followed up with the board to develop a plan for the subdivision.

Category 2 included subdivisions with multiple small tax lots without a homeowners association; there were five Category 2 subdivisions. Outreach began with mailings to all of the landowners following a similar method used by OFRI: an initial mailing, a second mailing, a postcard return, and follow-up personal contact. Mailings included site-specific information gathered on fire risk and forest health, including project and subdivision maps. Partners conducted a 1- to 2-hour workshop tailored to this category, and provided an overview of the project with educational components and maps of the project and subdivision. Partners

looked to develop advocates from within the subdivision who would personally contact their neighbors and help spread the word. Partners worked to gain buy-in from a majority of the landowners and develop a plan for the subdivision.

Category 3 and Category 4 included mid-sized tax lots (1 to 10 acres) owned by local and absentee landowners. Category 4 included larger-sized tax lots (>10 acres) that were often owned by livestock producers or are private industrial land.

Category 3 and Category 4 represents three-fourths of the project acreage, with 269 landowners. With no organizational structure and an abundance of absentee landowners, outreach for Categories 3 and 4 was heavily dependent on personal relationships, supplemented by mailings. Partners with relationships to landowners were asked to make direct contact to explain the project. Mailings were sent to all landowners following OFRI’s method of an initial mailing, secondary mailing, postcard return, and follow-up personal contact. Partners also went door to door and used other strategies, such as contact during implementation activities, phone calls, or other means. Landowners were encouraged to reach out to adjoining neighbors. Education in these categories occurred primarily through site visits with engaged landowners and community meetings about the project.

Landowners were contacted using a variety of tools such as phoning, mailings, workshops, newsletters, webpage, and social media to describe the project, build interest, request landowner information (i.e., contact information), and offer to complete a forest and fire risk mapping and inventory of their property. The Partnership created a variety of outreach materials for this effort, including a trifold brochure, door hangers, and folders of information about the project, forest health, and wildfire preparedness. A fact sheet was created for partners to reference in conversations with interested landowners. The KLFHP website included the Chiloquin Project prominently with contact information for key partners and a notice for community meetings and workshops. The website also included an option to contact the Partnership via email.

3. Private land mapping and assessment, and wildfire response preattack plan

Through a participating agreement between the Fremont-Winema National Forest and OSU Extension Service, \$50,000 was allocated to complete a GIS map and assessment for the vegetation and natural resources, using a protocol similar to the North Warner project (see to Appendix C, page 72). A \$33,058 grant



Chiloquin Community Forest and Fire Project





Community Meeting

Wednesday, August 16th

2:00 - 4:00 pm

Chiloquin Community Center

Have you seen crews working on wooded lots north of town?

It is the beginning of a multi-year collaborative effort to reduce the wildfire risk for our community!

If you own acres within the areas **highlighted** in the map, please come to our community meeting to learn about how we can help you make your property more fire resilient.



Learn more at www.KLFHP.org



WHY MANAGE YOUR FOREST?



By working
together we can make
our **community safer** and
more **beautiful**.

-Mike Cook
Fire Chief, Chiloquin Fire and Rescue



map: duc, 07



The Chiloquin Community Forest and Fire Project is bringing technical and financial support to achieve fire resistance, fire response, forest health, wildlife habitat, and grazing objectives on private land on a landscape scale --

we need your involvement to make a difference for our community!



If you own land within the **Project Area** highlighted in the map, then **we'd like to talk with you!**

**NO COST
NO OBLIGATION
JUST PEOPLE HELPING PEOPLE**

Give us a call or come to one of our meetings to ask the questions you need answered.

541-883-7131 (OSU KBREC)
or visit
www.KLFHP.org
to learn what we can do for you.

CCFFP workshop flyer (above); front and back sides of door hanger (right)

from OWEB to the Klamath Watershed Partnership enabled additional mapping and assessment for the Wildfire Risk Assessment (see Appendix D, page 75). A matrix and map were developed to identify both treatment recommendations and priority for forest stand restoration. A separate matrix was developed to identify and prioritize fire response needs.

For this project, the rapid assessment conducted to meet ecosystem restoration goals costs approximately \$1.25/acre (around 1,000 acres per week were mapped and assessed). Approximately 6 to 10 homes were assessed per day (which included landowner outreach) for the wildfire risk assessment.

In 2017, the 32,000 acres in the project area were mapped for overstory cover type, density, and age using 1-meter resolution NAIP imagery and field verification. Additional data were also collected in the field on such things as shrub species/height/density and noxious weeds. Prioritization of areas was developed based on vegetation condition and community wildfire risk (e.g., population density, limited ingress/egress, critical telecommunication or transportation infrastructure). The local fire chief and USFS fire staff contributed significantly to the community wildfire risk priority mapping.

This process identified 13,110 acres or 40 percent of the project area as high priority. Based on this prioritization, ODF crews began wildfire risk assessments in the high-priority implementation area in early 2018. These risk assessments provide additional information regarding structures, water sources, and other variables critical to wildfire response, and the data collected are being incorporated into local emergency response mapping software (see to Appendix E, page 79). The crews are accomplishing outreach objectives concurrently; they leave project door-hangers and, when possible, have one-on-one conversations with landowners and provide project folders with additional information. All vegetation data and wildfire risk assessments are georeferenced and linked to the database of outreach contacts described above.

4. Support to private landowners

To date, the project has mailed nearly 6,200 pieces of mail ranging from general Chiloquin Community Forest and Fire Project brochures for the entire project area to subdivision-specific meeting announcement flyers. More than 200 landowners have become engaged through these initial efforts. Five separate community meetings have been held during the last year. More than 150 individuals have had site-specific discussions or field visits from an OSU Extension Service forester and/or ODF forester, making individual site visits with some turning

Tools to success: Beyond the mailing list—managing a contact database for project accountability

It can be a daunting task tracking landowners and associated information within a landscape-scale restoration project. Gone are the days of handwritten ledgers, but don't let the ease of spreadsheets, or even online services, lull you into setting up a database without careful planning. Thinking through your data needs and uses from project initiation to completion will help ensure you develop a useful tool that doesn't require hours of reworking and reformatting later.

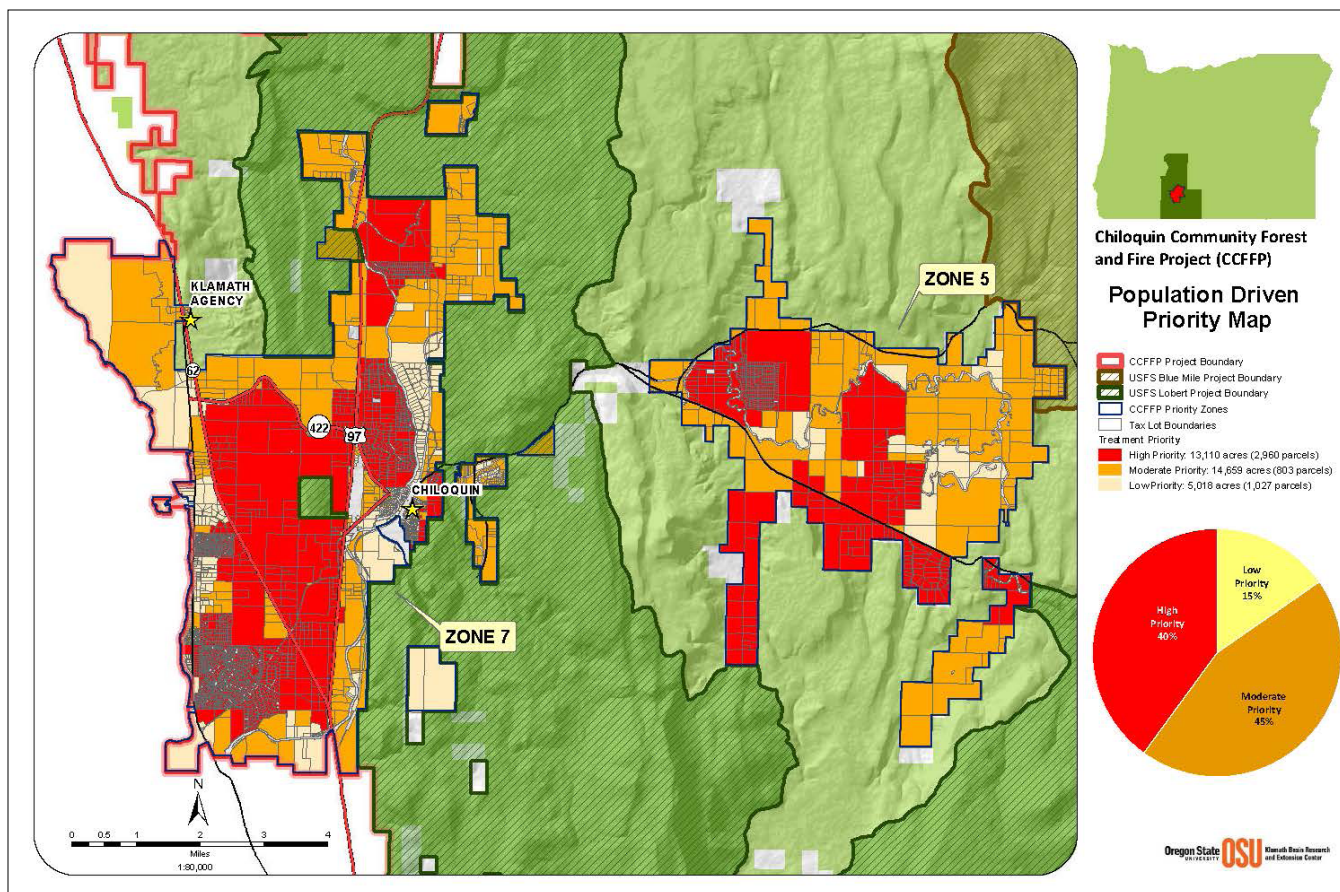
A functional contact database is more than a mailing list—it provides everything from the foundation for stakeholder development to tracking project accomplishments. Its development is a critical component of a landscape-scale project. Whether starting with an existing list, such as tax lot owners, or from scratch, consider that you may need to sort by various attributes, map your data, and create summary tables or charts. A sustainable database is user-friendly and in a platform that can be transferred to or accessed by project partners.

For the Chiloquin Project, Excel provided shareable spreadsheets that integrated with GIS software, pivot tables that sorted and summarized data, and online support that could help even novice users organize and display information. Portions of these spreadsheets were also imported into an online Sharepoint site for workflow tracking. Keep in mind that although some property information is publicly accessible, privacy issues regarding personal information must be respected and reflected in the database. A dynamic contact database will provide efficiency and accountability, which are critical elements for projects using public or grant funds.

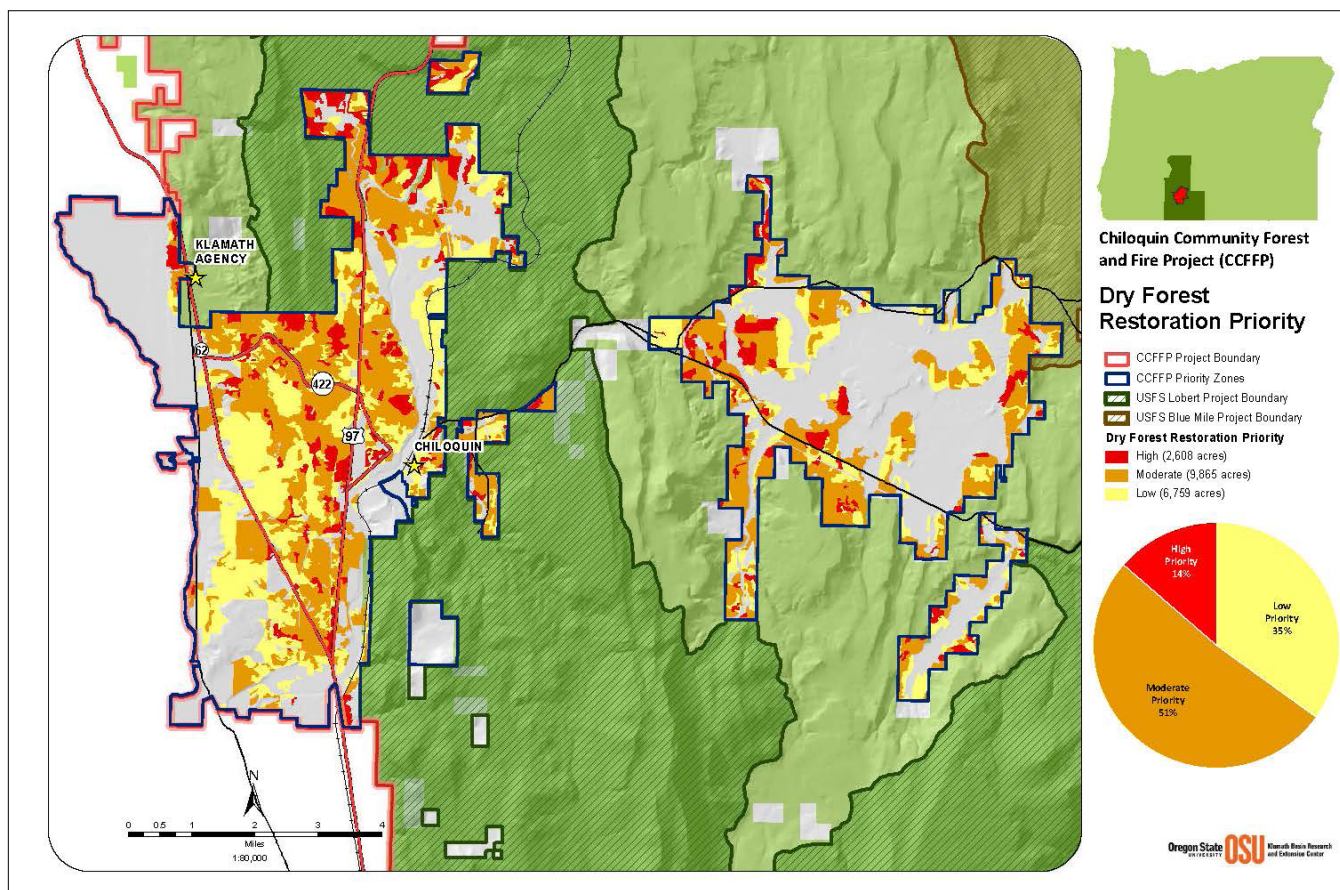
into impromptu forest health and/or fire risk workshops.

Assistance to landowners for forest restoration practices began in summer 2017 with pruning, thinning, and brush clearing in high-priority areas. A 2009 FEMA grant supplied funding. With the additional outreach and mapping that has occurred during the last nine months, treatment maps and forest management plans are being developed on the subdivision scale, where appropriate, and for private parcels where landowners have become engaged.

Project partners assisting landowners included the ODF, Chiloquin Fire and Rescue, NRCS, OSU Extension



Chiloquin Community Forest and Fire Project fire risk priority



Chiloquin Community Forest and Fire Project forest health priority



Forest health workshop in Klamath County

Service, USFS, TNC, and the Klamath Watershed Partnership (KWP). Partners have ensured that projects are completed to specifications of the site/subdivision plan, with additional consideration for the sources of the funding (e.g., certification of conservation practices for NRCS-funded projects). Over the next five years, partners will provide ongoing monitoring through spot checks and inspections to ensure prescriptions are being maintained and will provide technical assistance to landowners when needed.

5. Grant writing for implementation

Support to continue outreach and planning activities for the next 24 months may be available from OWEB, OFRI, AFF, and the NFF, in conjunction with substantial in-kind support from project partners. Support for implementation is or will be sought from OWEB, State Fire Assistance WUI Grant(s), NRCS EQIP USFS Joint Chiefs or Supplemental Fuels, National Fish and Wildlife Foundation, and Pre-Disaster FEMA.



Implementation in the Chiloquin Project Area

Looking ahead

As funding is gained for implementation, the Partnership will develop agreements and implement them on private land, similar to the approach used in the North Warner Project (see pages 40–46). As funding is gained for implementation, this will allow for added capacity within the Partnership to oversee the entire project (i.e., ODF forester). There is a backlog of landowners who have requested a site visit and have a desire to manage their property. In this complex landscape with multiple landowners, long-term project oversight and coordination will be extremely important.

A challenge discussed within the Partnership is the long-term maintenance of forest treatments. Prescribed fire as a tool may be limited in some areas due to the structures throughout the landscape and prolific shrub growth. The Partnership will need to be creative with long-term funding and resources for private landowners.

The Partnership is currently developing a wildfire risk mitigation and response preattack plan for the project area, in partnership with state and county emergency management authorities. This planning will further strengthen the fire-adapted communities and the safe and effective wildfire response goals of the Cohesive Strategy.

Looking ahead

Change in culture

To carry out the current vision of landscape-scale management, while putting the land and its people first, cross-boundary land management needs to become a part of the culture in agencies and second nature to the public. Agencies and the public need a common mindset to manage resources sustainably and reduce the threat of large-scale, undesirable events.

The concept of cross-boundary restoration needs to become institutionalized within each agency. Meaning, it becomes part of our official organization and common practice for each agency involved. A key lesson learned by the KLFHP is that the coordination, planning, and implementation of landscape-scale cross-boundary projects takes time, commitment, and follow through to be successful. Each principal agency needs to identify the right point person and allow them to dedicate the time, energy, and support to planning and implementing cross-boundary projects to meet the public's needs. Specifically, the following capacity or realignment of duties for each agency or organization is recommended to assist with cross-boundary, landscape-scale projects:

Oregon Department of Forestry

- Assistant district forester—The Klamath-Lake District has all four programs of the Oregon Department of Forestry: Administration; Protection from Fire; Private Forests; and State Forests. The workload associated with cross-boundary, landscape-scale restoration projects, Good Neighbor Authority, and the Federal Forest Restoration Program has created the need for coordinated communication and planning at the district level across all four programs. ODF has identified the need for an assistant district forester to develop long-range planning, coordinate the programs at the district level, and facilitate communications that currently do not occur under the current management model.
- One interagency OSU Extension Service and ODF forester position per district to focus on landowner outreach, education, and landowner site visits.

Recommendation:

The concept of cross-boundary restoration needs to become institutionalized within each agency. Meaning, it becomes part of our official organization and common practice for each agency involved.

- Current ODF foresters should incorporate into their duties planning, outreach, and working with the landowners associated with selected project areas.
- Project forester—ODF should designate a project forester for each cross-boundary project to act as the project lead.

Oregon State University Extension Service

- OSU Forestry and Natural Resources Extension Fire Adapted Community coordinators—Hire one position per area to lead the agencies with cross-boundary project planning, community wildfire preplanning, and partnership coordination.
- Interagency OSU Extension Service and ODF forester—Hire one position per district to focus on landowner outreach, education, and site visits.

Forest Service

- USFS cohesive strategy coordinator—Each national forest should hire one position dedicated to coordination of cross-boundary project planning, use of new authorities and agreements (such as Good Neighbor Authority), implementation, and partnership coordination.

Watershed councils

- To incorporate forest health restoration into the suite of restoration activities conducted on private land through partnership coordination, project planning, grant writing, and implementation.

NRCS

- To support current district conservationists in partnership coordination, project planning, outreach, and grant writing
- To fully use the cooperative agreement between NRCS and ODF to provide forestry expertise to landowners.

Organizational structure and adaptation within federal and state agencies

Organizations need to be more nimble to adapt to changing partnerships and opportunities and fulfill the obligation to be forestry leaders in Oregon. The structure of the organization needs to adapt quickly to current opportunities and continuously seek out and support the leaders in science and restoration. National legislation, state legislation, and local agreements need timely alignment and support to be successful on the ground. Managers need to seek opportunities to partner for larger, more effective treatments and build organizational capacity to support those projects. The organizations must seek out and support employees who work well in partnerships while representing their specific authorities to develop landscape-scale, cross-boundary projects.

Recommendation:

The key agencies must seek out and support employees who work well in partnerships while representing their specific authorities to develop landscape cross-boundary projects.

Advancements within Oregon Department of Forestry (ODF)

ODF is the most appropriate agency to coordinate a cross-boundary, landscape-scale project, but: 1) additional capacity is needed, 2) ODF is not specifically funded or coordinated to administer the smoke management program in the field and facilitate landscape-scale prescribed fire that allows fire to be an effective management tool, and 3) Oregon Fire Protection laws and support to landowners should be revised to further support the use of fire as a land management tool.

Recommendation:

ODF should consider opportunities to build capacity to coordinate cross-boundary projects, broaden objectives to allow the use of prescribed fire as an effective management tool, and consider revisions to state laws.

Local fire districts, fire protection areas, and emergency management authorities

Local fire districts and/or fire protection areas (where they exist) are a key component to landscape efforts to reduce and mitigate fire risk, and to working with landowners. Local fire districts and/or fire protection areas (including Oregon Department of Forestry, county fire defense boards, and county emergency management authority) are valuable partners when implementing the CWPPs at the local level and need to be integrated into the landscape assessment, planning, and implementation process. This is especially important when looking at long-term maintenance of fuels-reduction projects and communicating with landowners.

Recommendation:

Local fire districts and/or fire protection areas need to be a key partner when implementing the CWPPs at the local level, the assessment and planning process, and long-term maintenance of fuels-reduction treatments.

Capacity needed for landowner outreach and education

ODF and OSU Extension Service have an increased role in technical outreach and education for private landowners during landscape-scale projects, including site visits and land management planning assistance. However, there is not enough capacity to conduct this level of service. There are 11 OSU Extension Service foresters in the state of Oregon, each assigned to several counties to work on programming to fulfill the Extension Service mission. ODF foresters are also

assigned to specific areas and cannot keep up with a landscape-level workload as larger, more complex projects extend across ownerships.

Recommendation:

Consider filling interagency ODF/OSU Extension Service positions to fulfill of the need for outreach and education.

Economic market investments

The biomass material that needs to be reduced on the landscape does not have an economically viable market. The alternative to commercial markets is government subsidies; however, these are not sustainable or big enough to deal with today's challenges. Market investment needs to be part of the landscape-scale treatment plan.

Recommendation:

As cross-boundary projects are developed and funding is secured, the partnership should pursue opportunities to develop markets and off-set subsidies.

Model success

As the Partnership looks towards the future, it would be exciting to see this forest health model utilized throughout the state of Oregon and other regions that are contending with similar issues. Large, landscape-scale projects that work seamlessly across private and public lands are effective and long lasting, and have a beneficial impact to communities. Encouraging continued stakeholder involvement is crucial to building relationships, establishing trust, and getting things accomplished on the ground.

Recommendation:

Consider using the process described in this publication to plan and implement cross-boundary projects in other areas of the country.

Monitoring

As more cross-boundary landscape-scale projects are implemented across the nation, it will be important to monitor the ecologic, social, and economic outcomes. Agencies should consider developing region-wide monitoring strategies across broad areas. The monitoring could be funded by multiple agencies and led by research stations or area ecology programs.

Recommendation:

Consider developing region-wide monitoring strategies across broad areas, funded by all agencies, and led by the research station or area ecology programs.

Working towards the use of landscape-scale fire

The Partnership is working towards using fire as a restoration tool at larger scales, across ownership boundaries, and in collaboration between the agencies and landowners. The investment in mechanical treatments requires maintenance over time; low intensity managed fire is the most economical and ecologically appropriate tool.

Several advancements are needed to meet this goal:

1. A cultural acceptance of fire as a management tool among agencies and the public
2. Greater public education on the use of fire for resource benefit
3. Changes in smoke management policies
4. Consideration for private landowner concerns about liability
5. Agencies need to pursue opportunities to apply fire in partnership with private landowners who are willing
6. Increased use of mass ignition, prescribed lighting techniques at larger scales
7. Agencies and partners working together cohesively to preplan and implement large-scale fire

Recommendation:

Use fire as a restoration tool at larger scales, across ownership boundaries, and in collaboration between the agencies and landowners.



Conclusion

Wildfires today are larger and more severe, starting earlier and ending later, and resulting in loss of homes, forests, and other resources. Forests are stressed from drought, overstocking, and insect and disease outbreaks. Ecological, social, and economic damage is occurring at a faster, more intense rate due to high severity wildland fire and forest health issues. Across the Intermountain West, these are the issues many are challenged to address. This paper describes a scientific process for planning and implementing cross-boundary projects to address these issues and meet the goals of the Cohesive Strategy. Ultimately, managing for wildfire risk is a shared responsibility between federal, state, county, cooperative extension, city, local fire districts, fire protection areas, emergency management authorities, local NGOs, communities, and private landowners.

A partnership designed to meet these objectives is an organization that focuses on cross-boundary projects. Individuals and agencies work together to build the relationships needed to accomplish a lofty goal. Individuals are not involved for personal gain or recognition but because they have a deep understanding and passion for restoring and protecting the forest resources that are so important to the people in our communities. Their commitment becomes apparent when each person is focused on getting acres restored, regardless of whether it is private or federal land, for the betterment of the community and the forest.

The tools are available; now it is up to all necessary agencies and organizations to focus on action by following these five steps:

1. It starts with a partnership.

If you don't have a partnership that focuses on cross-boundary restoration of public and private lands, provide the leadership and form one.

2. Understand the issues and challenges.

Read and understand these two publications: *Western Water Threatened by Wildfire: It's not Just a Public Land Issue* and *How do We Accomplish All-Lands Management? Direct Insights from a Survey of Practitioners*. These publications clearly

explain common challenges and outline attainable recommendations.

3. Become fully aware of all authorities and funding sources available to complete cross-boundary restoration.

The guidebook *From Ideas to Actions: A Guide to Funding and Authorities for Collaborative Forestry* is an excellent resource.

4. Use this guide as a reference to plan and implement cross-boundary, landscape-scale restoration projects, where applicable and appropriate.

5. Keep the focus on getting acres restored on public and private lands.

The KLFHP started as a small group of concerned practitioners and landowners in the mid-1990s. The Partnership now has a monthly attendance of 30 to 40 members and interested parties. Projects have transitioned from concepts to implementation as legislative changes and funding sources have been acquired. The forest health issues in Klamath and Lake counties took nearly a century to evolve; it is likely to take at least as much time to correct them.

“Early efforts at implementing landscape-scale management started in the late 1980s. In 1992, a new wave of ecosystem management planning on national forests began. Since then, various efforts—focusing on historic adaptations, ecologic integrity, forest health improvement, fuels reduction, fire risk abatement, economic return to communities hit hardest by declines in timber processing, and a social need to live in and around all the benefits of a healthy forest—have risen, but none have succeeded at a scale and style of management to make a difference. Over that time, private land (especially adjacent to public land) has been managed separately from its land neighbors—public and private—using a full range of management quality. It’s taken 30-plus years to be a part of a landscape-scale, ecosystem restoration project that truly meets the intent of public/private land. The Partnership’s focus is ridge-to-ridge, top-to-bottom management that is beneficial to the ecology, local landowners, public stakeholders, and the social/economic needs of a local community. The KLFHP partners have succeeded. The individual partners have focused on the strengths and shored up the weaknesses of their agencies and entities, overcoming barriers to work together for the greater public and private good. They have succeeded and should be proud. I’m proud to be part of it.”

Daniel Leavell, OSU Extension Service Forester

A photograph of a forest with many tall, thin tree trunks, likely pines or firs, standing closely together. The lighting is soft, suggesting a slightly overcast day or a shaded forest interior. The word "References" is overlaid in large white text on the left side of the image.

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Appendices



Appendix A. KLFHP brochure



KLAMATH-LAKE FOREST HEALTH PARTNERSHIP








How do you accomplish forest restoration projects across ownership boundaries on a landscape scale?

It starts with a partnership.



The Klamath-Lake Forest Health Partnership (KLFHP) is a cooperative network of diverse local and regional partners who have come together to develop and maintain sustainable forestry and productive forests. Within Klamath and Lake Counties, opportunities exist to address ecological restoration and wildfire risk while providing quality jobs for local workers. KLFHP is committed to information sharing, strategic planning, cooperation, and the use of innovative partnerships and funding.

The right partners, personalities, and timing play into the success of a collaborative effort, but as an example, the following table lists some of the key players and their role in the KLFHP.

KLHP PARTNER	ROLES	MECHANISMS
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can partner with NRCS under a Joint Chiefs' Landscape Restoration Partnership Can work with ODF through Good Neighbor Authority on federal land Can work with ODF and others on public and private land through the Wyden Authority
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can serve as arbitrator, facilitator, and coordinator Can provide support, administration, and technical assistance through cooperative agreements Can conduct outreach, education, and technical expertise as programmatic objectives Can serve as a conduit from OSU to partners/communities Can provide direct support to landowners through Extension Foresters
	Technical support, outreach/ education, planning, and implementation through stewardship foresters and natural resource specialists	<ul style="list-style-type: none"> Can provide technical forestry support to NRCS through a cooperative agreement Can provide support to the USFS through the Good Neighbor Authority (e.g. timber sales), the Federal Forest Restoration program, and Supplemental Project Agreements Can provide direct support to landowners through Stewardship Foresters and the Protection from Fire Program
	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can apply for Farm Bill funding to be used on private lands for restoration and/or easements Can provide technical support to landowners
 Watershed Councils	Landowner outreach, grant writing, fiscal administration, planning, contracting, and implementation	<ul style="list-style-type: none"> Can apply for funding sources restricted to 501(c)(3) entities Can contract and administer some funding sources for greater project efficiency Can act as a liaison to the community and private landowners
 Other agencies, NGO's, consultants	Technical support, outreach/ education, planning, implementation, and funding	<ul style="list-style-type: none"> Can provide technical expertise and valuable insight as stakeholders in landscape planning Can apply for diverse and/or restricted funding sources Can contract and administer some funding sources for greater project efficiency Can conduct forest restoration and fire management workshops on managed lands (TNC)
 Private Landowners	Planning, outreach/ education, and stakeholder insight	<ul style="list-style-type: none"> Can be a valuable tool for engaging the private sector and ensuring project goals are in line with the community needs

PRIVATE FORESTLAND RESTORATION - AN 8 STEP PROCESS

KLFHP has developed a process to address and overcome challenges to implementing forest restoration across public and private lands. Our all lands strategy can and should be modified to suit each project, but the general tenets provide the necessary foundation for large-scale efforts.

1. Identification of the Landscape –

KLFHP has tied private lands projects with Accelerated Landscape Restoration Projects on the Fremont-Winema National Forest. By focusing on restoring all lands, private property adjacent to the USFS areas for which NEPA is being completed can be identified for greater understanding of threats and opportunities. Cross-boundary planning and implementation can foster trust and cooperation, increasing efficiency and cost-effectiveness.



2. Landowner Outreach and Education –

Outreach efforts within the project area must be scaled appropriate to the number and characteristics of the landowners involved, as should time and budgets. Forest stewardship should be the ultimate goal for project sustainability.



3. Mapping and Inventory –

Understanding that forest and understory conditions are largely unknown on private lands, a combination of remote sensing and ground verification can be used to create maps for planning and communication purposes.

4. Support to Private Landowners –

For landowners that are engaged and interested in implementing forest practices on their land, project partners use the maps and inventory and work one-on-one with landowners to develop a forest management plan. Consistent information, formats, and prescriptions are the foundation for efficiency and incorporation into the landscape plan.



5. Grant Writing for Implementation –

With acres mapped and prescriptions developed for landowners, the objectives and budgets can readily be plugged into the numerous and diverse grant applications that will be necessary for implementation. Federal, State, local, and private funds may be available to the project depending on the resources involved and the projected benefits.

6. Agreements –

A diverse partnership of Federal and State agencies, educational institutions, NGO's, and private entities must have agreements in place to facilitate their collaboration. From cooperative agreements between Federal and State agencies to contracts for services, innovative approaches can increase project efficiency and reduce costs.

7. Implementation –

Prioritized, funded, and managed implementation of forest restoration projects on private land represents the culmination of the previous steps. Although implementation is a critical point for landowner and funder buy-in, it is a mechanism to restore forest health in the short term. There is also a critical need to think long-term regarding maintenance of forest health treatments, community engagement and commitment, and wildfire preparedness.

8. Ecological, Social, and Economic Benefits –

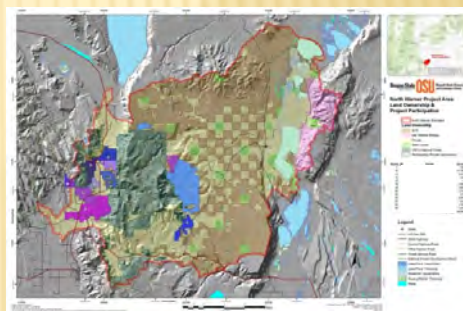
Landscape restoration is pre-disaster mitigation that will protect and preserve resources beyond the forest. Communities may benefit through job creation, decreased insurance rates, and collaboration toward a common vision. Development of forest stewards across the landscape will ensure sustainability for long-term benefit.



NORTH WARNER FOREST HEALTH PROJECT

OVERVIEW

The North Warner Landscape covers 150,000 acres where private landowners and agencies are working across ownership boundaries to promote forest health and fire resiliency in dry-type forests. This Project is unique due to the extensive stands of old legacy ponderosa pine intermixed with aspen and meadows, with greater sage grouse focal habitat immediately adjacent to the north and east. The landscape is at a severe risk of uncharacteristically intense disturbance due to heavy fuel loading and stand densities.



OUTREACH

In 2015, with funding from the Oregon Department of Fish and Wildlife Mule Deer Initiative, partners began an outreach and education effort that included multiple meetings, workshops, and tours. The purpose was to engage landowners in the inventory and planning process that would facilitate eventual cross-boundary implementation of forest health practices. To date 25 landowners have become engaged, allowing for treatment planning on more than 32,000 acres.

MAPPING

Extensive GIS analysis and field inventories of forest resources on private lands in 2016 allowed project partners to develop stand by stand treatment prescriptions. These maps, prescriptions, and additional resources were provided to landowners as the foundation of individual forest management plans.



PROJECTS

Concurrent with mapping and treatment planning, partners pursued implementation funding through numerous Federal, State, and private sources. Funding will focus on forest health treatments in dry ponderosa pine/mixed conifer forests and aspen stands through commercial harvest, small tree thinning, and slash treatments. As of 2018, more than \$4.5 million has been secured for implementation projects across private and public land associated with the North Warner project. On the ground treatment of private forest lands began in late spring 2017.

By working **together**
we can make **our community**
safer and more beautiful.

-Mike Cook
Fire Chief, Chiloquin Fire & Rescue



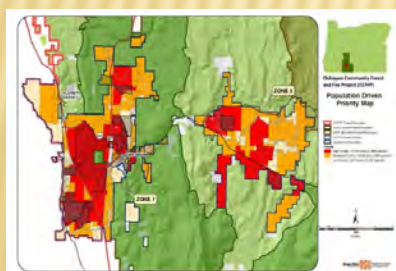
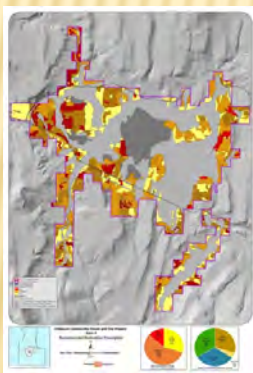
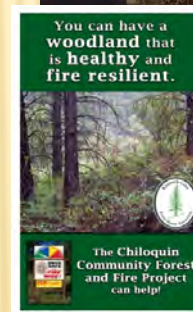
CHILOQUIN COMMUNITY FOREST & FIRE PROJECT

OVERVIEW

The Chiloquin Community Forest and Fire Project (CCFFP) will restore forest health and resiliency on 32,000 acres of private forestland near Chiloquin, Oregon, by engaging the community and implementing phased treatment of overstocked dry-type forests. The entire area is high-risk for wildland fire as identified in the Chiloquin Community and Klamath County Wildfire Protection Plans.

OUTREACH

Outreach, education, and engagement of the 2,850 landowners in the project area is a multi-year effort that will build a stakeholder base to promote forest management and maintain treated areas for long-term community benefits. KLFHP reaches out to landowners through mailings, meetings, workshops, phone calls, social media, and in-person discussions. All outreach contacts, permissions, and site-visits are captured in a project database that is georeferenced and linked to taxlot information, vegetation data, and wildfire risk assessments.



MAPPING

In spring 2017, a preliminary analysis of all private lands in the project area was completed using high resolution aerial imagery. This mapping, done at 1:15,850 scale, delineates stand boundaries and includes an initial classification of overstory cover type, age, and density. In summer and fall 2017, field validation of forest mapping was conducted by public roads and on properties where landowners were engaged and had granted permission. Stands were classified as high, moderate, and low priority for forest health and fire risk to communities.

In partnership with Chiloquin Fire and Rescue, maps were expanded to include areas of greatest concern for wildfire risk based on population density, ingress/egress, and other community variables. This process identified 13,110 acres, or 40% of the project area, as high priority. In 2018, forestry crews conducted wildfire risk assessments in conjunction with door-to-door outreach starting in high priority areas. As landowners, and in some cases subdivisions, become engaged, KLFHP will work with them to identify forest treatments as a foundation for land management plans.

KLFHP is currently working to identify and secure funding to implement projects for those landowners that are ready to go.

Appendix B. Chiloquin Community Forest and Fire Project landowner outreach and education plan



Chiloquin Community Forest and Fire Project Landowner Outreach and Education Plan May 2017

Klamath Lake Forest Health Partnership (KLFHP) Mission

To facilitate restoration projects on public and private forestland in Klamath and Lake counties through education outreach and diverse partnerships.

Introduction

The purpose of this project is to assist in achieving fire resistance, fire response, forest health, wildlife habitat, and grazing objectives on private land on a landscape-level scale, in association with public lands. This private land within the project area is composed of approximately 32,000 acres owned by approximately 3,200 individual landowners and includes eight subdivisions and the city of Chiloquin (population 734, 2010 census). The landscape is very diverse, with 60 percent forested land. The entire area is high-risk for wildland fire as identified in the Chiloquin Community and Klamath County Wildfire Protection Plans (CWPPs). These private lands are immediately adjacent to forest health projects on the Fremont-Winema National Forest offering opportunities for landscape-level, cross-boundary risk reduction. The outreach and education efforts outlined in this plan will include a multipronged approach using multiple tools and methods.

Goals and Objectives of the Landowner Outreach and Education Plan

The goal is to contact landowners within the project area to communicate and educate about fire resistance, fire response, forest health, wildlife habitat, and grazing objectives, with the ultimate goal of working together as a partnership to implement work on the ground across private and public lands to achieve the objectives.

The objectives are to:

1. Create a map and landowner list for all properties;

2. Bring outreach and educational opportunities to landowners using a variety of tools;
2. Complete a forest and fire response map and inventory;
4. Prioritize areas for treatment and incorporate into landowner outreach and education;
5. Assist landowners with land management planning and implementation; and
6. Acquire funding and implement to display success to other landowners.

Outreach and Education Plan

Objective 1: Create a Map and Landowner List for All Properties

Create a map and landowner list for all properties within the project area. Use public domain sources in GIS to map relevant data sets (i.e., geology, soils, cover type, etc.) across the larger project area. Delineate all stands on private land with a preliminary classification of overstory cover type, age and density.

In GIS and on spreadsheets, stratify landowners into four categories:

1. Category 1: Subdivisions with Home Owners Association (HOA) or Road District (RD)
2. Category 2: Subdivisions without Home Owners Association (HOA)
3. Category 3: Mid-sized Tax Lots (<10 acres)
4. Category 4 Larger Tax Lots (>10 acres)

Create a landowner spreadsheet for each category. This enables the partners to track information over time. Include the following column headings in the spreadsheet:

- Name
- Address
- Phone number
- Email
- Partner contact name
- Permission for inventory (yes or no)
- Inventory completed (yes or no)
- Interested in a land management plan (yes or no)
- Land management plan completed (yes or no)
- Ready for implementation (yes or no)
- Comments

Objective 2: Bring Outreach and Educational Opportunities to Landowners Using a Variety of Tools

The project area is diverse with different property sizes and landowner types. Partners will use this information to stratify the landowner list and to develop outreach strategies tailored for each category. The first category (Category 1) are subdivisions with multiple small tax lots with a homeowners

association or road district—or with a city council and mayor. The second category (Category 2) are subdivisions with multiple small tax lots without a homeowners association. The third category (Category 3) are mid-sized tax lots (1–10 acres) owned by local and absentee landowners. The fourth category (Category 4) are larger-sized tax lots (>10 acres) often owned by livestock producers or industrial private land.

Outreach and education are based on property type and size. Landowners would be contacted using a variety of tools such as phoning, mailings, workshops, newsletters, webpage, social media, etc. to describe the project, gain interest, request landowner information (i.e., contact information), and offer to complete a forest and fire risk mapping and inventory of their property. The website will include an option to contact the Partnership through email. An email inbox will be set up specifically for the partnership.

The very first mailing would be an informative postcard with basic information on the project and will be used as a method to validate addresses. If this initial postcard is “return to sender,” the Partnership will pursue finding the correct address.

Develop a project fact sheet with key messages that incorporate information gathered during the inventory and displayed on maps. The partners will use this information when calling individual landowners.

Category 1: Subdivisions with homeowners association (HOA) or road district (RD)

Chiloquin Fire Department and OSU Extension Service to contact the Homeowners Board to do a one-on-one meeting to discuss the project and provide information,

Category	Subdivision Name	HOA/RD	Contact	Forested Parcel Acreage	Number of Landowners w/Forested Parcels
Zone 7					
1	Oregon Shores Beach Club 1	HOA		114	287
	Oregon Shores Beach Club 2	HOA		162	261
	Woodland Park	RD		186	79
	City of Chiloquin	City Council		166	361
	Rainbow Bow Park	RD		755	248
	Train Mountain			2,221	1
2	No Name 1			334	145
	No Name 2			133	95
	No Name 3			34	72
3				1,442	239
4				9,189	132
Zone 5					
2	No Name 4			311	119
	No Name 5			326	27
3				525	86
4				10,910	108

including project and subdivision maps. If the board has buy-in, they would then contact the homeowners through regular meetings. Designate one of the regular business meetings for the Partnership to provide information to the larger homeowner group. The Partnership will design presentations, handouts, demonstrations, and opportunities for funding.

The partners will give a short informational presentation to the board president and request presentation to HOA. At an HOA meeting, the partners will provide an overview of the project with educational components (1–2 hours). Provide maps of the project and subdivision. The partners will follow-up with the board to develop a plan for the subdivision.

Category 2: Subdivisions without HOA

Send mailings to all the landowners. The outreach mailing will follow a similar method used by Oregon Forest Resources Initiative (OFRI); that is, an initial mailing, secondary mailing, postcard return, and follow-up personal contact. Mailings will include site-specific information gathered on fire risk and forest health, including project and subdivision maps.

The partners will conduct a 1–2 hour workshop tailored to this category, and provide an overview of the project with educational components. They will provide maps of the project and subdivision. The partners gain buy-in from the group to develop a plan for the subdivision. The partners will develop a recommended plan for the subdivision.

Category 3: Mid-sized Tax Lots (<10 acres) and Category 4: Larger Tax Lots (>10 acres)

If a partner has a relationship with a landowner, they would call the landowner individually to inform them about the project using the fact sheet. If the landowners are Category 4, ask if they are interested in having the inventory completed on their property.

Send mailings to all other landowners. The outreach mailing will follow a similar method used by Oregon Forest Resources Initiative (OFRI); that is, an initial mailing, secondary mailing, postcard return, and follow-up personal contact. Mailings will include site-specific information gathered on fire risk and forest health. If mailings were not successful, the Partners would go door-to-door or use other strategies such as contact during implementation activities, phone, or other means. Landowners would be encouraged to reach out to adjoining neighbors.

If a landowner requests one-on-one assistance from the Partnership, organize a meeting to provide education and discuss land management planning. Maps would be provided to landowners if the inventory was completed. If the landowner prefers attending a workshop, the Partners will conduct a 1–2 hour workshop, tailored to this category, and provide an overview of the project with educational

components. Hand out maps to landowners, if the inventory was completed. Through a workshop format or one-on-one, partners will work with landowners to develop or update land management plans, if needed.

Objective 3: Complete a Forest and Fire Response Map and Inventory

For those properties where landowners gave permission, complete a forest inventory following these steps:

1. Gain funding for private land mapping and inventory.
2. Modify North Warner protocol as needed and add fire risk and fire response attributes.
3. Complete preliminary stand delineation and overstory classification.
A GIS analyst completes a preliminary analysis of all private lands within a designated project boundary by delineating stand boundaries and doing an initial classification of overstory cover type, age, and density. Develop maps with the data viewed by and processed with field tablets.
4. Private land forest and fire response inventory and data collection.
OSU Extension Service will oversee the private land inventory. The OSU Extension Service contractor completes the private land forest and fire response validation and inventory. The information is collected using tablets and Avenza software. Collect waypoints using a drop-down menu, and then individually update polygons based upon the waypoint data. Some areas may not need landowner permission if there is good road access and a drive-by used.

All maps will be created at 3 different scales:

Project: 1:~100,000

Property: 1:~15,850

Stands by Property: 1:~3,600

Objective 4: Prioritize Areas for Treatment and Incorporate into Landowner Outreach and Education.

Develop crosswalks to classify each stand as high, moderate, and low priority for forest health and fire risk, and to identify recommended treatments. Pass on private land data to the GIS analyst to summarize the data, prioritize the data, and identify recommended treatments in GIS. Print maps and summaries of data. Provide this information to landowners for incorporation into land management plans. Develop map books and binders for landowners as needed.

Objective 5: Assist Landowners with Land Management Planning and Implementation

The Partners will take the results of the outreach, education, and inventory to assist landowners with land management planning for subdivisions, groupings of Category 3 properties, or individual Category 4 properties by working with a landowner one-on-one or through a workshop format.

Objective 6: Acquire Funding and Implement to Display Success to Other Landowners

The Partners pursue grant funding to implement projects on private lands for those landowners who are ready to go. Some funds are currently available, such as the Western States Funding (\$300,000) available through the Oregon Department of Forestry. Implementation on properties will provide a showcase and success story for other landowners. If appropriate, ask the landowner for permission to visit their completed project for educational purposes.

Roles and Responsibilities

Incident Commander: Responsible for all aspects of the project as organized via task forces; including developing project objectives, managing all operations, application of resources as well as responsibility for all persons involved. The incident commander sets priorities and defines the organization of the task forces and the overall project action plan. **Task Force Leaders (TFL)** are designated for each project team and will be the lead for that team.

Landowner Outreach and Education Task Force: Responsible for landowner outreach and education including assisting the OSU Extension Service with workshops and coordination of door-to-door or phone outreach. The **Agency Lead** organizes the outreach efforts for the specific areas indicated. The **Landowner Lead** is the local landowner liaison between the Partnership and the landowners. Agency Leads can request assistance through the Task Force Leader for **Phone Calling** and **Door-To-Door Assistance**.

Design, Website, and Public Affairs Task Force:

Responsible for outreach product design and production, updating the website, coordinating the landowner responses received via mail or website, updating landowner spreadsheets, and public affairs with local entities including contact with newspapers, submission of articles, etc.

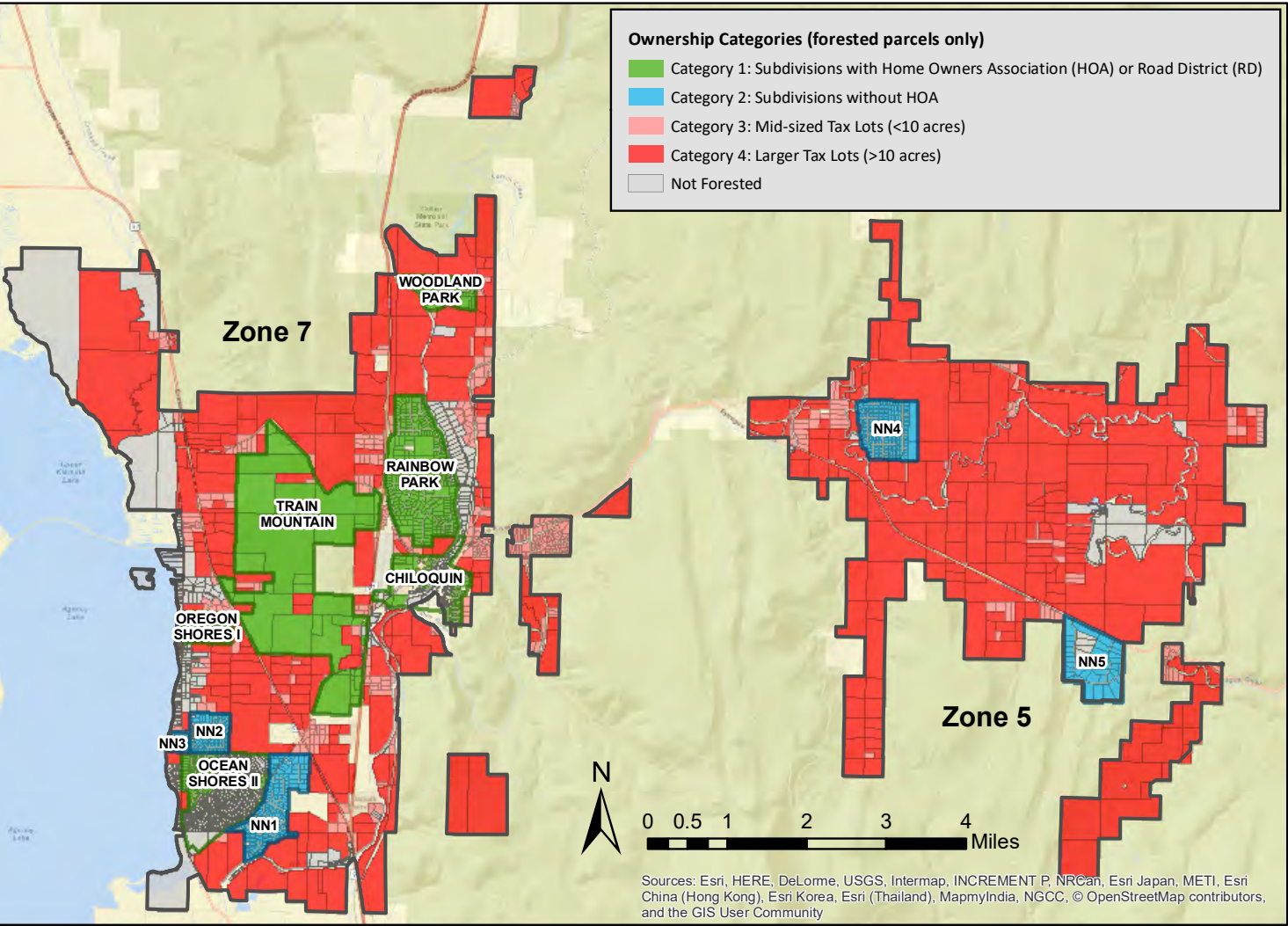
Wildfire Response Task Force: Responsible for coordination of Intterra data collection on private lands (including obtaining access and mediation between this team and Intterra), development of subdivision wildfire response plans, and identification of potential projects or needs within the project area. TFL coordinates with the Private Land Inventory TFL to maintain consistency with the Avenza-ESRI-based map and inventory protocols and obtains access and operation within Intterra.

Private Land Inventory Task Force: responsible for coordination of the forest health/wildlife habitat inventory of private lands, including protocol update, field contractor training, coordinating map development with GIS contractor, and day-to-day assistance to field contractor and GIS contractor.

Implementation Task Force: Responsible for working with landowners to develop land management plans and implementation of projects on the ground. Acquires and coordinates funding sources. Schedules projects.

Map of the Chiloquin Community Forest and Fire Project

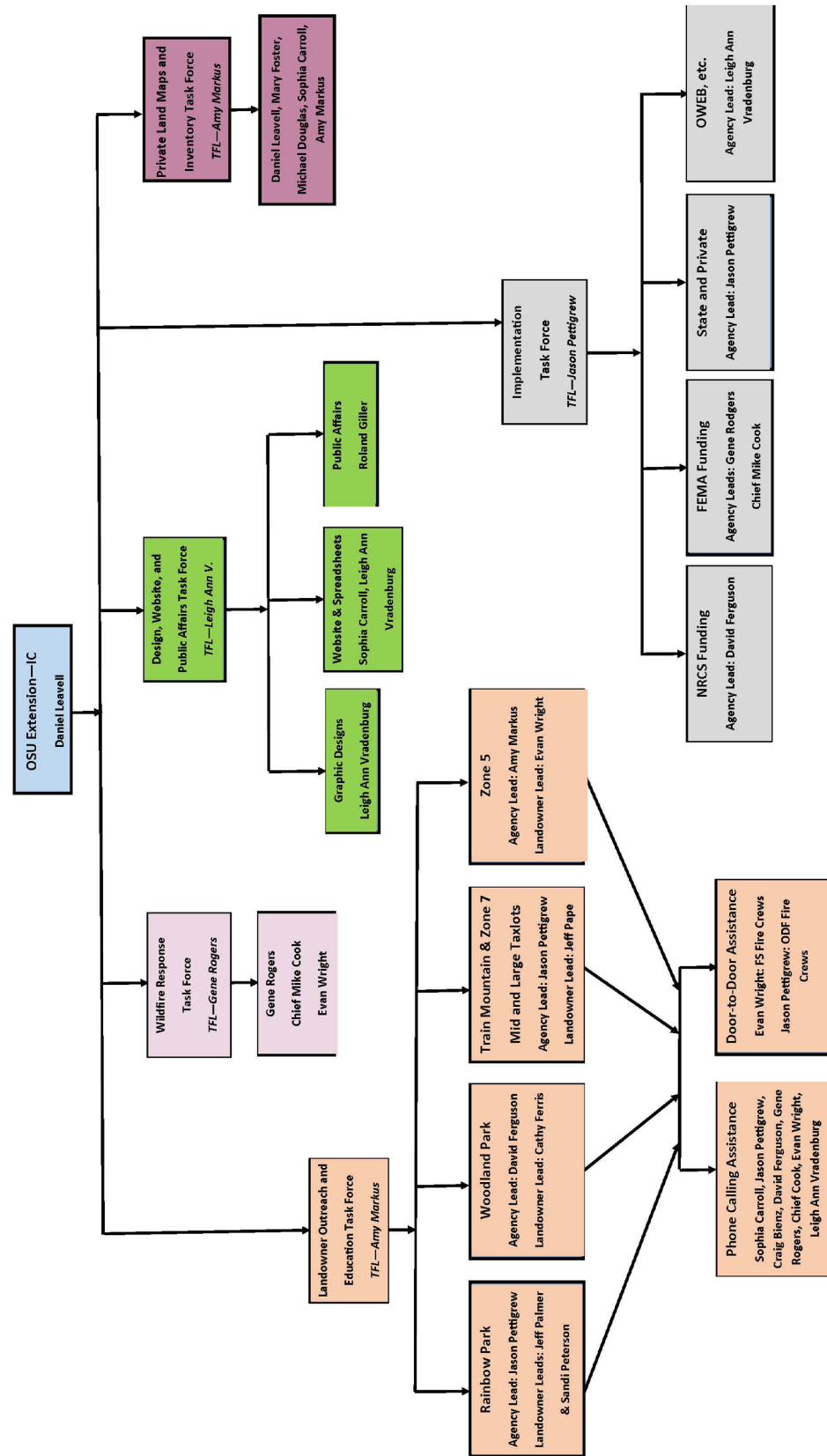
Chiloquin Community Forest and Fire Project: Landowner Outreach and Education Plan



Tasks and timeline

Objective	Task	OSU	USFS	ODF	NRCS	KWP	TNC	Wildland Fire Tech	Chiloquin Fire Dept.	Mike Douglas	Mary Foster	OFRI	HOA Board	Target Date	Completed
1	Create a map and landowner list for all properties	X								X				4/15/2017	Yes
1	Create maps for public sources (i.e. geology, soils, cover type, etc)									X				5/30/2017	
1	Delineate stands and classify overstory cover type, age and density	X								X				4/15/2017	Yes
1	In GIS and on spreadsheets, stratify landowners into 4 categories	X								X				5/15/2017	
2	Webpage organization and design, or other social media	X				X						X		5/31/2017	
2	Set up partnership email	X												5/31/2017	
2	Graphic design of mailings					X						X		6/16/2017	
2	Logistics of mailings - copies, labels, stamps, etc.	X												6/16/2017	
2	First mailing of information post card to inform of project and validate address	X										X		5/12/2017	
2	Contact HOA Boards, set up education meeting	X							X					5/26/2017	
2	Board to contact homeowners. Partners to assist if needed.	X											X	6/23/2017	
2	Development of project fact sheet for landowner phone calls	X	X											5/18/2017	
2	Partners will call landowners they have a relationship with for Categories 3 and 4	X	X	X	X	X	X							6/16/2017	
2	Preliminary mailing sent to category 3 and 4 landowners	X										X		6/16/2017	
2	Secondary mailing sent to category 3 and 4 landowners	X										X		7/14/2017	
2	Follow-up phone calls to category 3 and 4 landowners if needed	X	X	X	X	X	X							8/11/2017	
2	If mailings are not successful, partners go door-to-door, phone or other means	X	X	X	X	X	X							ongoing	
2	Category 1 do presentation to HOA landowners	X	X	X	X	X	X	X	X					6/30/2017	
2	Category 1 develop plan for subdivision	X	X	X					X	X			X	7/29/2017	
2	Category 2 organize and conduct workshop	X	X	X	X	X	X	X	X					7/29/2017	
2	Category 2 develop plan for subdivision	X	X	X	X				X	X				9/15/2017	
2	Category 3 aggregate tax lot grouping in GIS	X								X				5/19/2017	
2	Category 3 and 4 develop and conduct workshop(s) tailored for this category	X	X	X	X	X	X	X	X					9/15/2015	
2	Category 3 and 4 assist or develop plans	X	X	X						X				9/30/2017	
3	Gain funding for mapping and inventory	X	X											5/15/2017	
3	Modify protocol and add fire risk and response	X	X	X	X	X	X	X	X					6/15/2017	
3	Preliminary stand delineation and overstory classification	X								X				4/15/2017	Yes
3	Managing private land validation and inventory	X	X											ongoing	
3	Private land validation and inventory									X	X			9/30/2017	
3	Data summary and prioritization									X				10/14/2017	
4	All private land data is given to the GIS analyst to summarize the data, prioritize the data, and identify recommended treatments in GIS.	X	X							X				10/14/2017	
5	Maps and summaries of data will be printed.	X	X											10/31/2017	
5	Map books and binders will be developed for individual Category 3 landowners, subdivisions, or Category 3 groupings as needed.	X												11/17/2017	
5	One-on-one land management planning with individual Category 3 landowners, subdivisions, or Category 3 groupings as needed.	X	X	X										ongoing	
5	Land management planning workshop Category 3 groupings or individual properties	X	X	X	X	X	X	X						1/10/2018	
6	Grant writing for implementation	X	X	X	X	X	X							ongoing	
6	Coordinate implementation on private land		X	X	X	X	X		X					summer 2018	

Chiloquin Community Forest and Fire Partnership organizational structure



Appendix C. Rapid assessment protocol example

1. The base map for the entire project area will be the 1:100,000 scale for ownership, transportation, topography, and gross vegetation.
2. Individual landowner maps will be at the 1:15,840 scale for more detailed information about landowners and vegetation.
3. Individual landowner maps will also be created at the 1:3,600 scale and will have the highest level of detail. These will be used for collecting ancillary information, and will be part of the PDF Maps (Avenza Systems, Inc.) software and will have ability to create waypoints that can be annotated.

Note: minimum polygon size is 3 to 5 acres for any stand delineation.

Stand Number ID	
00_00_0000_00	<ol style="list-style-type: none"> 1. Project area = 01 2. Landowner number within each Project Area <ul style="list-style-type: none"> 01 = landowner name 02 = landowner name 03 = landowner name 3. Number for each stand polygon in consecutive order using a four-digit system 4. Consecutive waypoints taken during reconnaissance stand by stand
Overstory Condition	
overstory_1_cover_type (based on highest percent cover)	<ul style="list-style-type: none"> • Ponderosa pine = dominant ponderosa pine • Fir/Pine= dominant white fir, includes ponderosa pine • Pine/Fir = dominant ponderosa pine, includes fir • Ponderosa pine/juniper = may change dominance between PP and juniper • Juniper = dominant juniper stand • Riparian = ephemeral and year-round stream courses • Wet meadow = high water table, see page • Dry meadow • Shrub-steppe = open area dominated by sagebrush, bitterbrush, or a mix
overstory_2_age	<ul style="list-style-type: none"> • Young = seedling to 20 to 30 years old • Mid = 30 to 150 years old • Old = 150 years old and older
overstory_3_density (based on plurality)	<ul style="list-style-type: none"> • Sparse = 50 to 100 feet apart or greater • Intermediate = 20 to 50 feet apart • Dense = less than 20 feet apart
overstory_4_condition_comments	Note any additional species, stand condition, or other comments relevant to either habitat or timber stand management.
Understory Condition	

understory_trees_1_species	<ul style="list-style-type: none"> • Juniper • Lodgepole pine • Ponderosa pine and White fir • Ponderosa pine • White fir • Juniper/Ponderosa • Ponderosa/Fir/Juniper
understory_trees_2_density	<ul style="list-style-type: none"> • Sparse • Intermediate • Dense
understory_trees_3_comments	Note any additional species not listed above, note any other pertinent information about the understory trees (including juniper encroachment).
Ancillary attribute information	
aspen_mm:	<ul style="list-style-type: none"> • Aspen • Mountain mahogany
aspen_mm_size	<ul style="list-style-type: none"> • <¼ acre • ¼–1 acre • 1–5 acres • >5 acres
aspen_mm_conifer_encroachment	<ul style="list-style-type: none"> • Low • Moderate • High
aspen_mm_comments	Note stand condition, age of mahogany, or other relevant information about the stand.
noxious_weeds_approx_size	<ul style="list-style-type: none"> • <¼ acre • ¼–1 acre • 1–5 acres • >5 acres
noxious_weeds_species (Note: If multiple species are present in the same geographic location, note the dominant species here, add any additional species in the comments for this section)	<ul style="list-style-type: none"> • Dyers woad (<i>Isatis tinctoria</i>) • Scotch thistle (<i>Onopordum acanthium</i>) • White top (<i>Cardaria draba</i>) • Mediterranean sage (<i>Salvia aethiopsis</i>) • Canada thistle (<i>Cirsium arvense</i>) • Yellow starthistle (<i>Centaurea solstitialis</i>) • Dalmatian toadflax (<i>Linaria dalmatica</i>) • St John's wort (<i>Hypericum perforatum</i>) • Medusa Head (<i>Taeniatherium asperum</i>) • Musk thistle (<i>Carduus nutans</i>)
noxious_weeds_comments	Note details about the weed stand, note any other species of weeds that may be present at this location.
understory_shrub_1_species	<ul style="list-style-type: none"> • Fire-tolerant mix • Sagebrush • Bitterbrush • Sagebrush/Bitterbrush mix • Fire-tolerant mix/Sagebrush • Fire-tolerant Mix/Bitterbrush

understory_shrub_2_condition	<ul style="list-style-type: none"> • Healthy • Fair • Dead/dying
understory_shrub_3_abundance	<ul style="list-style-type: none"> • Numerous • Moderate • Sparse
understory_shrub_4_comments	Note any additional comments on understory shrubs, also note if limited bitterbrush or sage brush are present in an otherwise fire-tolerant mix.
spring_seep_1_placement	<ul style="list-style-type: none"> • Spring = surface water present • Seep = boggy area without surface water
spring_seep_2_comment	Note condition of spring/seep, restoration needs, potential for water development, additional information needed.
surface_fuel_loading (Only include dead fuel (e.g., logs, limbs, etc.) on the ground. Do not include “green fuels” such as shrubs and other ladder fuels.)	<ul style="list-style-type: none"> • Low • Moderate • High
General_comments	Use this section for general comments about the polygon, note skid trails, important habitat, stand, or landscape features.

Appendix D. Wildfire risk assessment protocol example

Wildfire Risk Assessment Protocol	
data collector:	enter your name
street #	enter the street number
street name	enter the street name
# of occupants	enter the number of occupants
structure being surveyed	Commercial facility Lodge/hotel/camp Other Outbuilding Primary residence Residential care facility Seasonal residence
additional structures	0 1 2 3 4 5 6-10 >10
landowner was contacted	In person Phone No
gave folder	Yes No
landowner requests follow-up	Yes No
visibility	Yes No
Go kit	Yes No
registered with Fire Department	Yes No
vegetation management	Yes No
landowner contact notes	enter any misc. notes regarding landowner contact
other notes	enter any other misc. notes not covered within schema

Wildfire Risk Assessment Protocol <i>(continued)</i>	
locked gate blocking access	No Yes and Fire Department does not have access Yes and Fire Department does have access Yes and unknown if Fire Department has access
Ingress Egress	One road in/out Two or more roads in/out
road condition	All weather (2wd), grade <10% All weather (2wd), grade >10% Dry weather (4wd), grade <10% Dry weather (4wd), grade >10%
bridge weight load sufficient	No Not applicable Unknown Yes
width of driveway	15.9 feet or less 16 feet or greater Inaccessible
length of driveway	Less than 50 feet 50–150 feet 150–500 feet Greater than 500 feet Inaccessible
adequate FD turnaround	Yes No
access notes	enter any misc. notes regarding access
roof material	Asphalt Composition Metal Other noncombustible Tile Unrated wood shakes
roof cleanliness	Clogged gutter combustible material, >0.5 inches deep Noncombustible material Scattered combustible material, <0.5 inches deep
eaves	Box or fire-treated Non-boxed and non-treated Not used
vents	Baffled or 8-inch mesh Quarter-inch mesh Not protected Not used

Wildfire Risk Assessment Protocol <i>(continued)</i>	
walls	Log Heavy timbers Smooth wood Vinyl Noncombustible stucco or metal siding Wood shake or ember receptive siding
Decks, porches	Combustible material sheathed in Combustible material not sheathed in None or fire resistant sheathed in
structure notes	enter misc. notes with regards to the structure
location of woodpiles/combustibles	<30 feet from structure >30 feet from structure None
Zone 1 canopy	Continuous Separated None
Zone 1 surface veg	Brush Dead and down woody material (abundant, heavy, and/or continuous) Dead and down woody material (scattered, light, not continuous, includes bark and mulch) Lawn, mowed or noncombustible material Wild grass, not mowed or cut
Zone 1 ladder fuels	Absent Abundant Scattered
Zone 2 canopy	Continuous Separated None
Zone 2 surface veg	Brush Dead and down woody material (abundant, heavy, and/or continuous) Dead and down woody material (scattered, light, not continuous, includes bark and mulch) Lawn, mowed or noncombustible material Wild grass, not mowed or cut
Zone 2 ladder fuels	Absent Abundant Scattered
surface fuel continuous fire path	Yes No
slope	0–10% 10–25% even 10–25% gullied > 25% even >25% gullied

structure setback	Adequate (choose if on flat ground) Inadequate
position on slope	Mid-slope Ridgetop Upper-slope Valley bottom, lower slope
predominant aspect around structure	East Flat North South West
defensible space notes	enter misc. notes regarding defensible space
propane tank fuel clearance	No Yes Not present
water source	Accessible swimming pool Dry hydrant Pressurized hydrant Other useable source None present None sufficient
aligned with dangerous topography	Yes No
Wildfire Risk Assessment Protocol <i>(continued)</i>	
Assess risk	Yes No
propane/gas risk	Yes No
overhead power risk	Yes No
pets risk	Yes No
HazMat risk	Yes No
poor escape risk	Yes No
solar electricity risk	Yes No
safety notes	enter misc. notes regarding safety
summary fire risk assessment	Low Moderate High
assessment comments	enter misc. notes with regards to summary fire risk assessment

Appendix E.

Example of wildfire risk assessment conducted on a structure

Homeowner Wildfire Risk Assessment



Property Surveyed:

Address	38500 HIGHWAY 97 N
City	Chiloquin
State	Oregon
Owner	UNITED STATES, Forest Service
Owner address	
City	Chiloquin
Zip	
Fire district	Chiloquin
Structure vulnerability	Low

Your home has been identified as being located within a Wildland Urban Interface hazard area. Please read the following personalized home assessment survey to learn more about your home's susceptibility to wildfire and what you can do.

ACCESS

Emergency response personnel do their best to respond to calls for assistance in a timely manner. Planning for access by emergency equipment allows for a more efficient response, improving safety for residents as well as firefighters and paramedics that arrive to help. Access is especially important during a wildfire as fire equipment responds to an area while residents are evacuating.

Visible address: Providing a visible address sign allows emergency personnel to quickly locate your house in an emergency. Highly visible numbers on a contrasting background should be plainly visible and legible from the street or road fronting the property. For homes that are not visible from the street or road, an additional address marker should be used.

Is your address visible?	No
--------------------------	----

Clearance: Providing adequate clearance on the sides and above the driveway allows emergency vehicles to locate and access your property quickly and safely. A minimum of 15 feet horizontal and 12 feet vertical clearance is required to allow access for emergency vehicles.

Width of your driveway?	15 Feet or less
--------------------------------	------------------------

Driveway length: Driveways greater than 150 feet in length pose extra challenges to firefighters. If you have a driveway over 150 feet in length it is even more important for you to maintain adequate access for emergency vehicles.

Length of your driveway?	500 feet or more
---------------------------------	-------------------------

Adequate turnaround: Especially for driveways greater than 150 feet in length, it is important that there is adequate space for emergency vehicles to turn around.

Does your property have an adequate turnaround?	Yes
--	------------

Locked gate: Walls, gates and fences do a great job of keeping people out but these physical barriers also delay help from first responders during an emergency. Have you provided emergency access to your fire department?

Is there a locked gate blocking access?	No
--	-----------

CONSTRUCTION

Investigations of homes threatened by wildfire indicate that houses with effective defensible space, and those built with noncombustible exterior walls such as masonry, stucco, metal, and composite siding, have an increased chance of survival during a wildfire. Proper maintenance of your house and property is the homeowner's responsibility.

Roofing: Noncombustible roofs such as concrete tile, metal or asphalt improve your home's ability to withstand a wildfire. Proper maintenance of your noncombustible roofing material will increase your home's ability to withstand a wildfire.

Type of roof your home has:	Metal or tile
------------------------------------	----------------------

Vents: Vent openings around your home are designed to regulate the heat and moisture for your structure. Unfortunately, these vent openings on your home are a point where wind-driven burning embers can potentially enter your home and cause a fire to ignite. Protecting your vents from these embers is an important part of any home-hardening plan to reduce your risk from approaching wildfire.

Type of vents your home has:	Not used
-------------------------------------	-----------------

Eaves: The eave is the part of the home that extends from the homes' outer wall to the roof's edge. The primary purposes of the eaves are to prevent rain from pouring down the sides of the house and to protect structure footings from erosion. Embers and hot gasses can swirl and gather in the area under open eaves and ignite a fire. Open eaves are much more susceptible to fire ignition than closed or 'boxed' eaves.

Type of eaves your home has:	Boxed or fire-treated
-------------------------------------	------------------------------

Exterior walls: During a wildfire your home’s exterior walls are at risk from radiant heat, burning embers, and direct flames. The type of exterior wall material you have affects your risk of embers and flames being able to ignite a fire on your home.

Type of exterior walls your home has:	Log, heavy timbers, smooth wood, or vinyl siding
--	---

Combustible structures: Combustible structures attached to your home including decks, awnings, and patio covers will affect fire behavior. A homeowner may increase their home's survivability by limiting the amount of combustible structures attached to their home, by properly maintaining the condition of those attached and ensuring vegetation, wood piles, and other combustible debris are clear from your home. Keep woodpiles as far from your home as possible.

Decks and porches:	None or fire-resistant material, sheathed in
Location of combustible material around your home:	None or > 30 feet from structure

Propane tank: Propane tanks should have a clearance of 10 feet from vegetation and be located 30 feet from any structure.

Does your propane tank have adequate clearance?	Yes or not present
--	---------------------------

VEGETATION

Many people do not view the plants growing on their property as a threat. But in terms of wildfire, what is growing adjacent to their homes can have considerable influence upon survivability of the home. All vegetation, including naturally occurring native plants and ornamental plants in the residential landscape, is potential wildfire fuel. If vegetation is properly modified and maintained, a wildfire can be slowed down, the length of flames shortened, and the amount of heat reduced, all of which contribute to a house surviving a wildfire. You can help protect your property by creating a defensible space around your house and being aware of the conditions surrounding your home.

Mitigation: Fire needs fuel to burn and the vegetation around your house is this fuel. By reducing the fuel load around your home you can improve the survivability of your home during a wildfire.

Zone 1	0–30 feet
Forest Vegetation	Separated
Surface Vegetation	Lawn, mowed or noncombustible material
Ladder Fuels	Absent

By adequately mitigating Zone 2 (30–100 feet), a homeowner can prevent a continuous fire path from occurring between the structure and wildland fuels.

Zone 2	30–100 feet
Forest Vegetation	Separated
Surface Vegetation	Lawn, mowed or noncombustible material
Ladder Fuels	Absent

Defensible space: Defensible space is an area around your home where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire toward your home. Ideally, one should maintain defensible space in both Zones 1 and 2, but especially in Zone 1. This can be accomplished by limbing tree branches up to 6 feet, raking and mowing near the home, and clearing any brush and clutter near the home. Remember: Defensible space will help save lives and property.

Is the surface fuel a continuous path to and from wildland fuels and the structure?	No
Is your home in alignment with Dangerous topography (canyon, gully, saddle or chute)?	

Roof cleanliness: Vegetation near the roof of your home is a hazard. Keep tree limbs trimmed at least 10 feet from any chimney and remove all branches that hang within 5 feet of the home and garage. Remove all build up of needles and leaves from your roof and gutters.

Your roof was found to have	No combustible material
------------------------------------	--------------------------------

HOMEOWNER MITIGATION and SAFETY NOTES

Listed here are specific actions the homeowner can take to increase the safety of their family and home in the event of an emergency.

Prepare for emergencies before they happen by creating a Homeowner Go Kit
Register with the fire department for notifications important to you—in particular if you have special needs
Prepare for emergencies before they happen by discussing emergency plans with your family.
Clean under home/decks, remove firewood/combustibles, mow/rake near home, remove surface/ladder fuels.
Develop evacuation plan.

Appendix F. Example of NRCS conservation practice job sheet



Forest Stand Improvement (PCT/Harvest)

Conservation Practice Job Sheet

666A-OR-Specification

Natural Resources Conservation Service, Oregon

MARCH 2017

Client: _____



Forest Stand Improvement

The manipulation of species composition, stand structure, and stocking by cutting or killing selected trees and understory vegetation.

Purposes

- Reduce wildfire hazard.
- Improve forest health.
- Harvest forest products.
- Initiate forest stand regeneration.
- Restore natural plant communities.
- Achieve/maintain a desired understory plant community.
- Improve aesthetic and recreation values.
- Improve wildlife habitat.
- Alter water yield.
- Increase quantity/quality of forest products by manipulating stand density and structure.
- Increase carbon storage in selected area.

Where Used

All forest land.

Forest Land Management System

Forest Stand Improvement is a practice that is part of an overall conservation management system for forest lands or lands that have established seedlings/trees that need managing. The practice is used to manipulate an existing stand of trees to achieve a desirable tree composition; to control unwanted vegetation that is competing with the desired tree or shrub species; to harvest and extract trees; and to achieve a stand structure for desired regeneration. A post-treatment assessment is usually needed to determine if desired conditions were achieved and if future treatment is needed.

Plans and Specifications

Plans and specifications will be developed in each field or management unit where the practice will be applied. Depending upon the practice purpose the document will contain the tree species being managed for, site index, current trees per acre, desired trees per acre, number of tree per acre to be removed; plant species being controlled or removed; and treatment method. When harvesting trees the document will include the harvest method, logging system, road conditions/ needs, skid trail and slash treatment needs. Use Forestry Technical Note 33 for information in writing the treatment description.

It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with Oregon Forest Practices Act and local ordinances and laws pertaining to the application of this practice.

For chemical treatments, the landowner will provide the following:

- Chemical Name
- Rate of Application
- Dates of Application
- Any special techniques, timing, or other factors that need to be considered to ensure a safe and effective application.

Note: Chemical recommendations and rates will be made by licensed chemical applicators, Oregon Department of Forestry forester, or OSU Extension Service.

FOREST STAND IMPROVEMENT SPECIFICATION SHEET

Client		Farm/Tract	
Location		County/ SWCD	
Planner		Date	
Project Size		Topo Map	

DESIGN APPROVAL:

Practice Code No.	PRACTICE	LEAD DISCIPLINE	CONTROLLING FACTOR	UNITS	JOB CLASS				
					I	II	III	IV	V
666	Forest Stand Improvement	BCSD For	Acres	Acres	20	80	160	640	All
This practice is classified as Job Class (check one):									

Design Approved By: /s/ _____ Date: _____

Job Title: _____

Natural Resources Conservation Service, Oregon

FOREST STAND IMPROVEMENT SPECIFICATION SHEET

666A OR-Specification

MARCH 2017

Forest Stand Improvement Specification Requirements Practice Purpose (Check All That Apply)			
	Reduce wildfire hazard.		Restore natural plant communities.
	Achieve a desired level of tree stocking and density.		Improve forest health by reducing damage from pests or moisture stress.
	To improve wildlife habitat.		Increase carbon storage in selected trees.
	Increase quality of forest products.		Improve aesthetics and recreation values.
	Alter water yield.		

All forest activities shall comply with Oregon Forest Practices Act. It is the landowner's responsibility to contact ODF a minimum of 15 days prior to activity commencement.

Treatment Description:

Trees to Manage For		Douglas fir		Western hemlock		Ponderosa pine		Red alder
		Sitka spruce		Western red cedar		Lodgepole pine		Western larch
		Oregon white oak	Other (Describe)					

Soil (Number/Name)

Tree Species	Site Index/Base Age	Tree Species	Site Index/Base Age
	/		/
	/		/
Current Number Trees Per Acre	Desired Number Trees Per Acre	Number of Trees Per Acre to Remove	Tree Size to Remove

Average Tree Spacing: ft. (Spacing is the average distance, some trees will be closer, some farther apart.)

Pre-commercial Thinning (PCT)

Thinning Method		Chainsaw/Hand		Heavy Equipment*
		Other (Describe):		

FOREST STAND IMPROVEMENT SPECIFICATION

Forest Harvest						
Forest Harvest System		Commercial Thinning		Shelterwood Cut		Group Selection
		Clearcut		Single Tree Selection		Seed Tree
Woody Residue Treatment (Use 384 Specification for detailed requirements)						
Slash Disposal		Yes	Disposal Method		Pile	Lop/Scatter
		No			Other:	
*Determine if and/or when soils are capable of handling heavy equipment.						
Additional Information:						

Associated Practices:

Access Control (472)
 Brush Management (314)
 Critical Area Planting (342)
 Dust Control on Unpaved Roads and Surfaces (373)
 Firebreak, Forest Trails and Landings (394)
 Fuel Break, Herbaceous Weed Control (383)
 Integrated Pest Management (595)
 Prescribed Burning (338)
 Prescribed Grazing (528)

Riparian Forest Buffer (391)
 Sediment Basin (350)
 Silvopasture Establishment (381)
 Structure for Water Control (587)
 Tree/Shrub Establishment (612)
 Tree/Shrub Pruning (660)
 Tree/Shrub Site Preparation (490)
 Upland Wildlife Habitat Management (645)
 Woody Residue Treatment (384)

CLIENT'S ACKNOWLEDGEMENT STATEMENT:

The client acknowledges that:

- They have received a copy of the specification and understand the contents and requirements.
- It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws (Oregon Forest Practices Act) pertaining to the application of this practice.

Accepted By: /s/ _____ Date: _____

FOREST STAND IMPROVEMENT SPECIFICATION SHEET**CERTIFICATION:**

The client has provided one or more of the required **certification documentation options** (acceptable forms of documentation are listed below), it has been reviewed, meets the specifications, and will be placed in the case file, and/or the site has been inspected, documented, and meets the specification.

	Receipts from Contractor
	Map(s) – Including Field Numbers, Fields Treated, and Acres Treated
	Photo Monitoring
	Post Treatment Inventory:
Brief Description (Types of equipment and date of application.)	

I have completed a review of the information provided by the client and certify this practice with field verification has been applied according to this specification.

Certified By: /s/ _____ Date: _____

Job Title: _____

FIELD LEVEL CERTIFICATION			
Land Unit/CIN	Acres Completed	Date	Certifier

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider, employer, and lender.

Appendix G. Example of matrix for treatment recommendations and priority

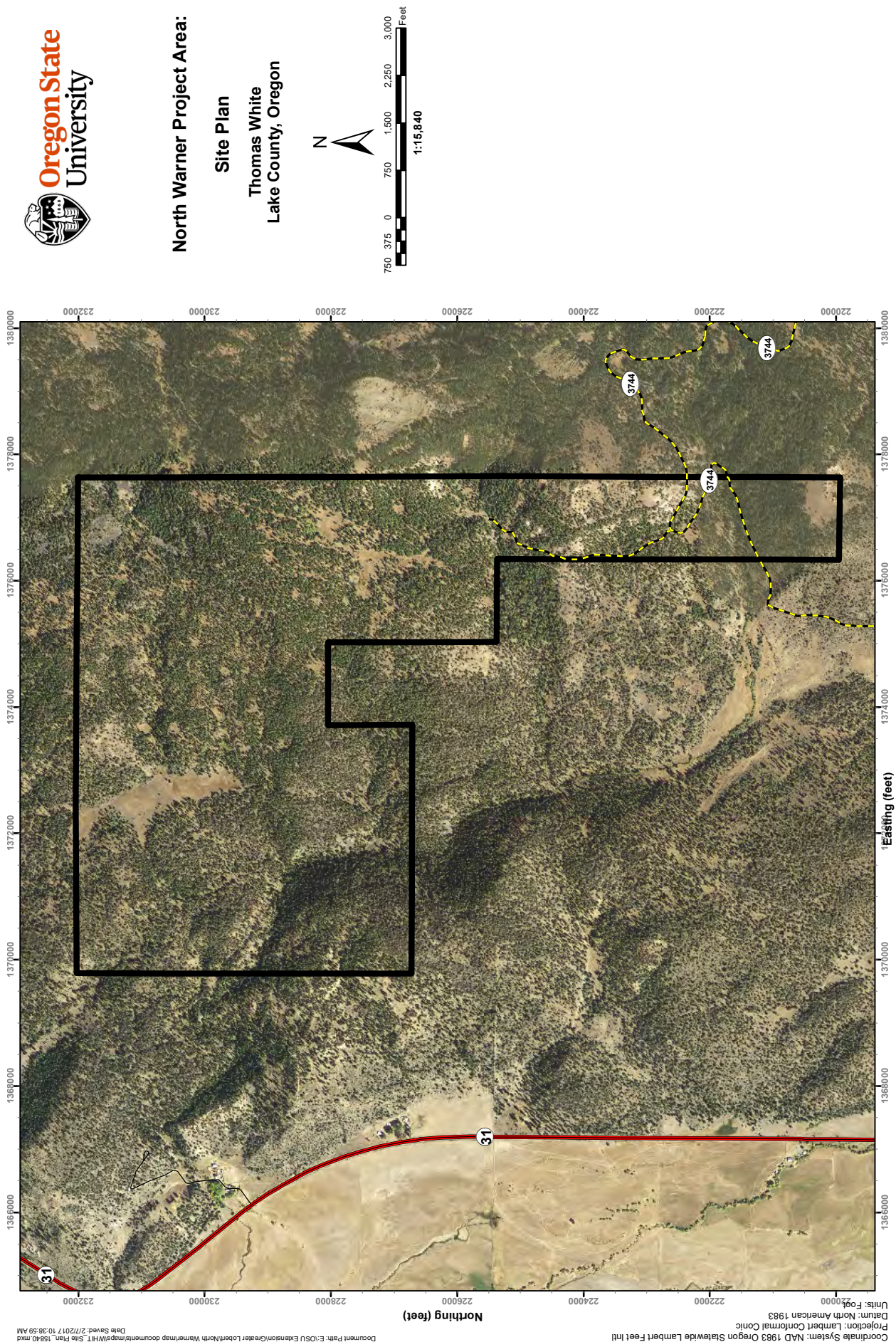
Cover Type	Overstory Age	Overstory Density	Understory Tree Density	Fuel Loading	Priority	Commercial thinning	Non-commercial Thinning	Juniper Cutting	Slash Treatment	Prescribed Fire
Aspen					based on level of conifer encroachment	X	X		X	X
Mountain Mahogany					based on level of conifer encroachment	X	X		X	X
PP or Mixed Con	old or mid	dense	dense or intermediate		high	X	X		X	X
PP or Mixed Con	old or mid	dense	sparse		high	X			X	X
PP or Mixed Con	young	dense	dense or intermediate		high		X		X	X
PP or Mixed Con	young	dense	sparse		high		X		X	X
PP or Mixed Con	old	sparse	intermediate	mod or high	high		X		X	X
PP or Mixed Con	old	sparse	intermediate	low	mod		X		X	X
PP or Mixed Con	old	sparse	sparse	low or mod	low				X	
PP or Mixed Con	old	sparse	sparse	high	mod					
PP or Mixed Con	old	intermediate	sparse	low or mod	mod					
PP or Mixed Con	old	intermediate	sparse	high	mod					
PP or Mixed Con	old	intermediate	intermediate	low or mod	mod					
PP or Mixed Con	old	intermediate	intermediate	high	high	X	X		X	X
PP or Mixed Con	mid	sparse	intermediate	mod or high	high		X		X	X
PP or Mixed Con	mid	sparse	intermediate	low	mod		X		X	X
PP or Mixed Con	mid	sparse	sparse	low or mod	low					
PP or Mixed Con	mid	sparse	sparse	high	mod					
PP or Mixed Con	mid	intermediate	sparse	low or mod	mod					
PP or Mixed Con	mid	intermediate	sparse	high	mod					
PP or Mixed Con	mid	intermediate	intermediate	low or mod	mod					
PP or Mixed Con	mid	intermediate	intermediate	high	high	X	X		X	X
PP or Mixed Con	mid or old	sparse	sparse	low or mod	low					
PP or Mixed Con	mid or old	sparse	sparse	high	mod				X	X
PP or Mixed Con	mid or old	intermediate	dense or intermediate	high	mod				X	X
PP or Mixed Con	mid or old	intermediate	intermediate	low or mod	high	X	X		X	X
PP or Mixed Con	mid or old	intermediate	sparse	low, mod, or high	mod	X			X	X
PP or Mixed Con	young	sparse	no understory trees	low or mod	low					X
PP or Mixed Con	young	intermediate	no understory trees	low, mod, high	low		X		X	X
PP or Mixed Con	young	sparse	no understory trees	high	mod				X	X
PP or Mixed Con	young	dense	no understory trees	low, mod, or high	mod		X		X	X

Appendix H. Example of recommended treatments diagnosed from the rapid assessment information

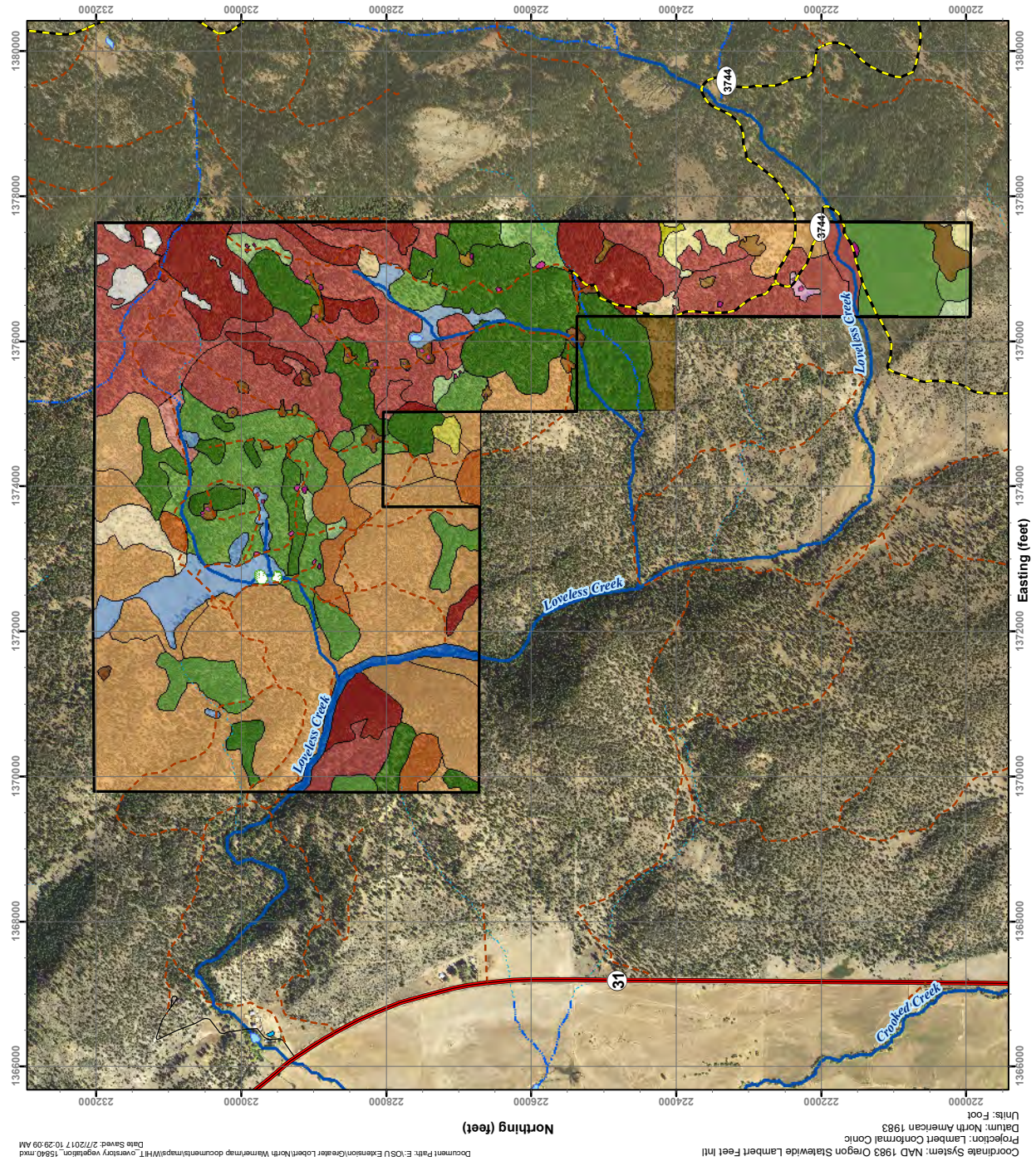
Prescription	Priority	Unit (Acres/ Feet, etc)	NRCS Practice Code*	Treatment Activity Short Description (or reference to description in Plan)	Dates		Incentive Program (s) Used?	Net Cash Flow (optional)	
					Planned	Completed		Cost	Income
Commercial Thinning		645 acres							
	High	384 acres							
	Moderate	255 acres							
	Low	6 acres							
Non- Commercial Thinning		420 acres							
	High	230 acres							
	Moderate	177 acres							
	Low	13 acres							
Juniper Cutting		424 acres							
	High	53 acres							
	Moderate	369 acres							
	Low	- acres							
Slash Treatment		1,110 acres							
	High	458 acres							
	Moderate	630 acres							
	Low	19 acres							
Prescribed Fire		1,145 acres							
	High	458 acres							
	Moderate	632 acres							
	Low	52 acres							
Seeding		424 acres							
	High	52 acres							
	Moderate	372 acres							
	Low	- acres							

Appendix I. Example of private land mapping in the North Warner Project

Map 1. Property boundary



Map 2. Overstory vegetation



North Warner Project Area: Overstory Vegetation

Thomas White
Lake County, Oregon



Legend

COVER_TYPE, DENSITY, AGE

COVER TYPE	DENSITY	AGE															
Dry Meadow	None, NA																Ponderosa Juniper, Intermediate, Middle
Dry Meadow																	Ponderosa Juniper, Intermediate, Young
Dry Meadow	Sparse, Middle																Ponderosa Juniper, Sparse, Middle
Dry Meadow	Sparse, Young																Ponderosa Juniper, Sparse, Young
Dry Meadow	Sparse, nd																Ponderosa Pine, Dense, Middle
Dry Meadow	Intermediate, Young																Ponderosa Pine, Dense, Young
Dry Meadow	dense, na																Ponderosa Pine, Intermediate, Middle
Juniper	Dense, Old																Ponderosa Pine, Intermediate, Young
Juniper	Intermediate, Old																Ponderosa Pine, Sparse, Middle
Juniper	Sparse, Middle																Ponderosa Pine, Sparse, Young
LP Clearing	Sparse, young																Riparian
Mixed Conifer	Dense, Middle																Rock Outcrop
Mixed Conifer	Dense, Old																Shrub-Steppe
Mixed Conifer	Intermediate, Middle																Shrub-Steppe, Sparse, Various
Mixed Conifer	Sparse, Middle																Slash Pile
Mixed Conifer	Sparse, Old																Wet Meadow
Ponderosa Juniper	Dense, Middle																Wet Meadow, none, na
Ponderosa Juniper	Dense, Young																

Document Path: E:\OSU Extension\Greater LobsterNorth Warner\map documents\maps\WHT_dry forest priority_15840.mxd
 Date Saved: 1/25/2017 12:03:33 PM

Coordinate System: NAD 1983 Oregon Statewide Lambert Conformal Conic
 Datum: North American 1983
 Projection: Lambert Conformal Conic
 Units: Feet

North (feet)

East (feet)

Loveless Creek

3624

3744

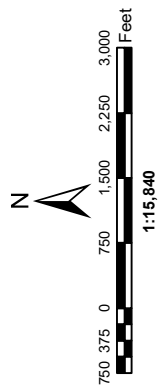
3744


31

Crab Creek






Thomas White
Lake County, Oregon






Owner  WHITE THOMAS L

Restoration Priority

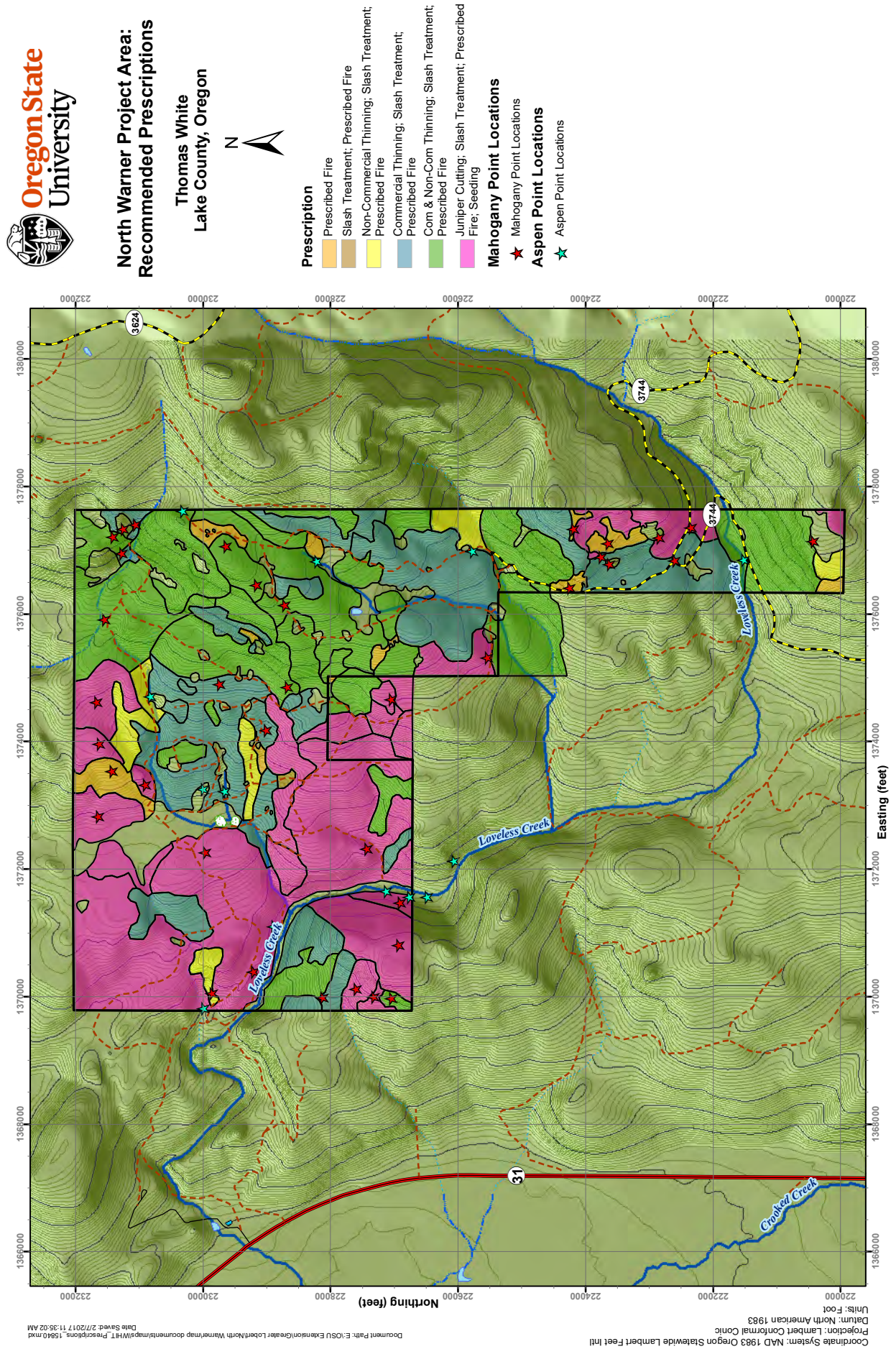
-  high (464 acres)
-  moderate (638 acres)
-  low (121 acres)

Overstory Type

-  Ponderosa Juniper (364 acres)
-  Ponderosa Pine (364 acres)
-  Mixed Conifer (347 acres)

Dry Forest Restoration Priority Matrix				
Overstory Age	Overstory Density	Understory Tree Density	Fuel Loading	Restoration Priority
N/A	Dense	N/A	N/A	High
Mid or Old	N/A	Dense	N/A	High
Old	Sparse	Int.	Mod. or High	High
Old	Sparse	Int.	Low	Mod.
Old	Int.	Int.	High	High
Mid	Sparse	Int.	Mod. or High	High
Mid	Sparse	Int.	Low	Mod.
Mid	Int.	Int.	High	High
Mid or Old	Sparse	Sparse	Low or Mod.	Low
Mid or Old	Sparse	Sparse	High	Mod.
Mid or Old	Int.	N/A	High	High
Mid or Old	Int.	Int.	Low or Mod.	Mod.
Mid or Old	Int.	Sparse	Low, Mod., High	Mod.
Young	Sparse or Int.	None	Low or Mod.	Low
Young	Sparse or Int.	None	High	Mod.
Young	Dense	None	Low, Mod., High	Mod.

Map 4. Preliminary recommended prescriptions





Appendix J. Implementation checklist

Grant Writing for Implementation

- Seek a combination of state and federal grants that offer funding for forest health treatments.
- Obtain match funding; most granting organizations require a 25% match. This can be cash and/or in-kind contributions.
- Utilize organizations that are good at leveraging project dollars. Work with partners within collaborative to determine which organizations have funding to contribute.
- Determine who will manage project funding and who has the ability to develop contracts, hire contractors, and manage projects.
- Understand grant timelines and requirements.

Meet with Property

- Contact property owners within project area individually to establish relationships and interest in the project. Define your role in the project.
- Define opportunities for project development (technical assistance, project focus, grant funding).
- Understand the property owner's goals for the project (livestock, wildlife, fire prevention, etc.)
- Discuss issues (noxious weeds, disease, insect infestation, mistletoe, overstocked stands, erosion).
- Discuss management plans and identify vegetation types.
- Outline options for project treatment pre- and post (hand fell, machine cut, commercial thinning, noncommercial thinning, hand-pile, machine pile, chipping, future pile burning)

Field Assessment—Boots on the Ground

- With the property owner or on your own, assess the project area for stocking levels, vegetation type, natural stand delineation, disease, insect infestation, etc.
- Identify natural barriers, fire breaks, access routes (streams, roads, structures).
- Identify landowner priorities (juniper encroachment, overstocked conifer stands, aspen groves).
- If need be, conduct a follow up meeting with the property owner. Review field assessment and establish final treatment areas. Determine final acres to be treated and preferred treatment type.

Establish Contracts & Other Required Documents

- The organization that is administering the project typically requires a contract agreement between itself and the property owner. This includes a description of the acres, treatment type (pre- and post), a description of who is responsible for what, a project timeline, and the grant dollars available to the landowner.
- Cultural resource surveys and/or NEPA may be required for the project. This must be cleared by the property owner.
- Some organizations require grazing plans or other documentation before project implementation can begin.

Project Layout

- Flag entire project boundary with bright colored ribbon.
- GPS unit to identify and confirm final acres to be treated.
- Establish monitoring points (one for each major change in vegetation type). This may vary with each organization.
- Take photo points—preproject to assess change over time.
- Number the leave tree (monitoring point) with spray paint. Flag the tree so the contractor clearly understands that this is a monitoring point.

Secure project contractor

- Discuss contracting options with the property owner. Typically, a list of local resources is made available to the landowner to review and select from. Support local economy if possible.
- Several options exist for hiring contractors. Depending on the requirement of the granting organization, the landowner can directly select a contractor, or a contract bid tour can be given to select a quality bid price
- Select the contractor based on experience, reputation, timeliness, and price.
- Once the contractor has been selected, a contract will be either created directly with the landowner or to the granting organization. This is dependent on the organization's requirements.
- Make sure the property owner has been introduced to the contractor prior to implementation. One pre-work meeting is important to make sure everyone involved completely understands the process.
- Final contracts should include treatment prescriptions, timelines, cost per acre, specifics regarding machinery, property entrance, landowner requirements, etc.

Implementation oversight

- Once the project has started, visit the site within a couple of days to verify that treatments follow objectives and prescriptions established in the contract.
- Answer and clarify questions and/or concerns that arise from the contractor or landowners.
- Continue to check in with the contractor weekly to assess progress and stay in communication with all involved. Depending on the agreement established for payment, the contractor may request that the unit is evaluated and acres determined every 2 weeks so they can procure partial payments.
- Prior to final payment, the landowner and project manager should walk the project area and determine if all tasks and expectations have been met. Once that happens, the unit will be measured one more time and final payment will be issued.

Posttreatment monitoring

- Once the project is complete, revisit monitoring points and collect pertinent information (pictures, stand structure, etc.)
- Depending on granting organization's requirements, conduct monitoring 1 year after project completion, 3 years after completion, and 5 years after completion.
- Monitoring effectiveness is essential to measure success of the project. Make sure the property obtains a copy of your reports for their files.

Appendix K.

Example of a recommended prescription for land management plans

Stand Level information



For each stand, record your management objectives, a brief description of the stand, its current and desired future conditions, and the management activities. Further detailed inventory/plot data can be included if desired.

Stand name: ponderosa pine

STAND OBJECTIVES

Stand: See attached spreadsheet Acres xxxx

Objectives:

1. To create healthy stands resilient to insects, disease, and fire,
2. To improve and maintain forage for wildlife and livestock,
3. To reduce surface and ladder fuel loadings,
4. To increase distance between tree-crowns thereby reducing the probability of crown fire.

STAND CURRENT CONDITIONS:

1. These stands are composed of predominantly ponderosa pine with occasional aspen, juniper, or mountain mahogany.
2. These stands are dense and overstocked; there is a high potential for catastrophic loss due to insect, disease, wildfire, or a combination thereof.
3. There is a lack of understory ground vegetation due to a dense forest canopy, affecting wildlife and livestock values.
4. There is a heavy accumulation of surface and/or ladder fuels.

Example photo of current stand conditions



Forest type, age, density – see attached spreadsheet

DESIRED FUTURE STAND CONDITION

1. To have a healthy, vigorous, variably spaced, uneven-aged ponderosa pine stand composed of a variety of age classes and sizes, capable of resisting insect attack, resilient to disease, and reducing the risk of catastrophic loss to wildfire.
2. Improving forage for wildlife and livestock.

Example photo of a resilient stand



Desired species to naturally regenerate: ponderosa pine

Note: In order for natural regeneration to occur there must be a mineral soil seed bed; opening of the seed bed could occur through disturbance during forest operations, or through prescribed burning after forest operations, or a combination of both. Opening of the canopy, through adequate thinning, will also allow sunlight and moisture to penetrate through to the seed bed.

Desired species to plant: ponderosa pine

Note: Planting most likely will not be necessary, however, the landowner may want to consider creating openings (up to a half acre) during harvest operations that would seed in naturally over time, or where planting could occur, creating diversity and an uneven-aged stand. This should be coordinated with the Oregon Department of Forestry forester, in order to avoid the potential of a reforestation obligation.

Wildlife considerations:

The Oregon Forest Practices Act requires retaining a minimum of two wildlife trees and two downed logs, or trees per acre, on projects 25 acres or more:

The wildlife trees can be a snag, or a green tree, meeting the following requirement of at least 30 feet in height and 11 inches DBH or larger.

The two downed logs, or downed trees, must be no less than 6 feet long, comprising at least 10 cubic feet gross volume.

The Oregon Forest Practices Act also has snag and down wood retention requirements specific to riparian management areas of wetlands, lakes, and streams.

Coordinate your activities with a forester at the Oregon Department of Forestry.

Consider leaving 1 to 3 small slash piles per acre for small mammal habitat.

STAND FOREST MANAGEMENT ACTIVITIES

If a subset of the stand is being treated, the general area can be described or you can identify the impacted areas on your map

Forest health management activities:

♦ Commercial thinning:

Remove commercial-sized ponderosa pine trees exhibiting signs of insect, disease, root rot, poor form (unless leaving as a wildlife tree), and fading crowns.

Remaining trees should be of good form (except for a wildlife tree), free of disease (i.e., mistletoe), dominant/codominant, vigorous, with crowns that are full, healthy, and symmetrical (40 percent live crown ratio or better).

Remaining trees should be in a variety of sizes and age classes. Minimum basal area to remain, per the Oregon Forest Practices Act, to meet minimum stocking levels is 40 square feet of basal area per acre (Site Class VI). To achieve best stand resiliency leave no more than 120 square feet of basal area per acre.

Leaving less basal area per acre will open up the stands allowing more sunlight and moisture to penetrate through the canopies, improving tree growth, but also improving forage availability for wildlife and livestock.

♦ Noncommercial thinning (generally 9" DBH and less):

Thin ponderosa pine trees to an average spacing of 16–20 feet in a variety of size classes, leaving the best trees considering size, crown, vigor, growth rate, condition and form.

Leave trees free of disease (i.e., mistletoe), damage (i.e., porcupine, squirrel), and insect activity (bark beetle).

♦ Slash management:

Slash management may consist of mechanical piling, hand piling, mechanical treatments such as slash busting, chipping, or mastication. Lopping and scattering, or crushing could be an option for noncommercial thinning projects. The method chosen may depend upon the method of cutting (i.e., chain saw vs. feller-buncher), size of the project, use of the land after the project (i.e., livestock), and meeting Oregon fire laws concerning additional slash and fire hazard.

◆ **Prescribed burning:**

Prescribed burning could include pile burning, jackpot burning, under-burning, or a combination thereof.

Consider under-burning, where feasible, in conjunction with the U.S. Forest Service and neighboring landowners.

All burning should be coordinated through the Oregon Department of Forestry; depending upon the type of burning, an approved burn plan may be required, a notification and/or permit for the use of fire will be required, and following smoke management forecasts is recommended.

Example photo of an underburn on private land

**Stand maintenance:**

Following your management activities, continue to monitor for insects, disease, and damage.

Permits:

Forest management activities require a Notification of Operations, and use of equipment and fire requires a Permit to Operate Power Driven Machinery (PDM).

Please contact the Oregon Department of Forestry to ensure you have the correct notification and/or permit for your forest activity. 541-947-3311

All notifications and permits are free.

Best management practices:

Following and adhering to the Oregon Forest Practices Act and Rules are minimum standards providing for forest tree species, hydrologic functions, fish and wildlife protection, infrastructure (i.e., roads) management, slash management, soil protection, and more. Landowners are encouraged to go above and beyond the minimum requirements of the law.

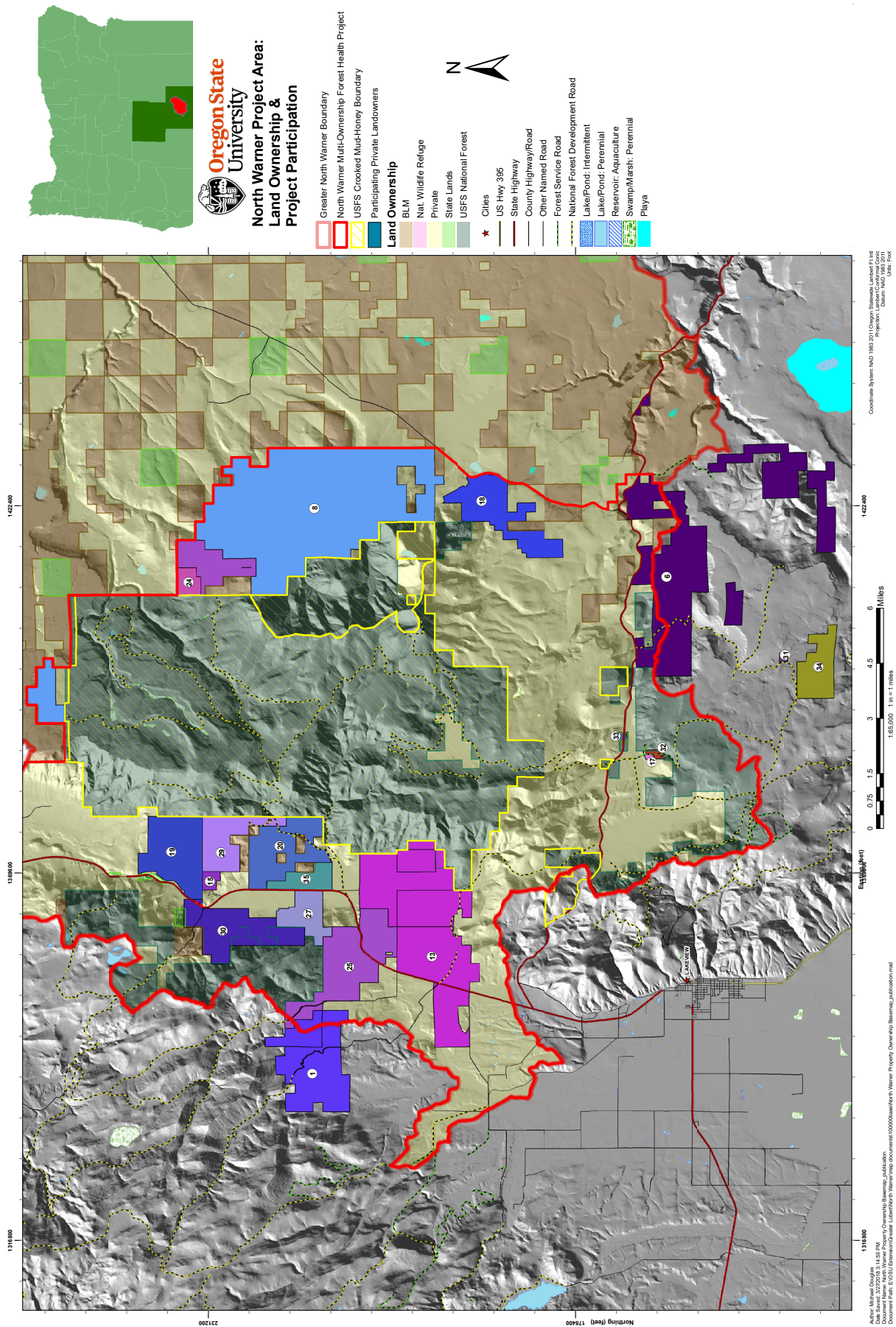
Coordinate with a forester at the Oregon Department of Forestry.

Monitoring:

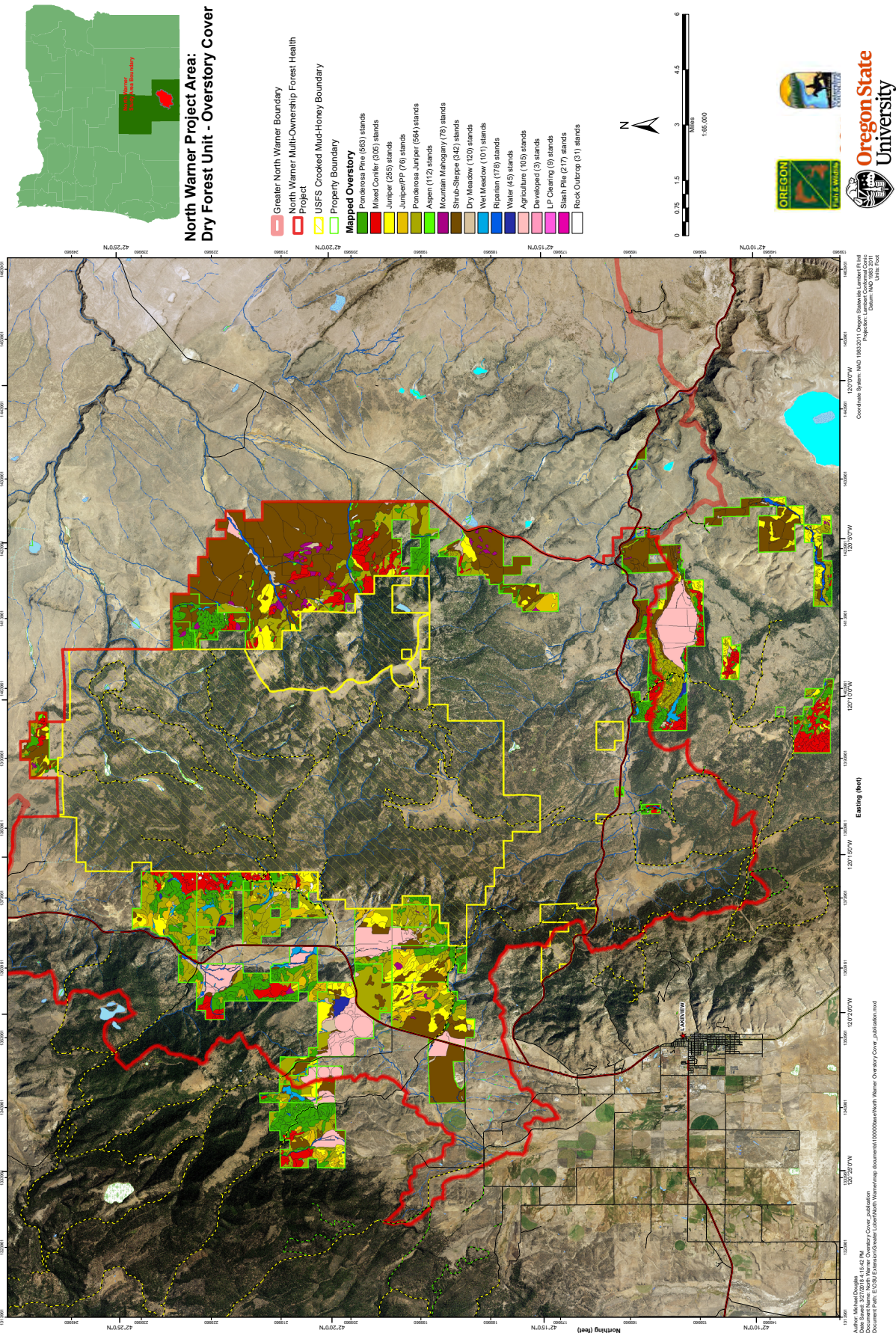
Establishing photo points is an easy way to visually observe and track changes in the stand over time. Take pictures prior to any management activity, immediately following a management activity, and then every 3 to 5 years over time. Photos should be printed and kept with your management plan.

Appendix L. Landscape level private land mapping for the North Warner Project

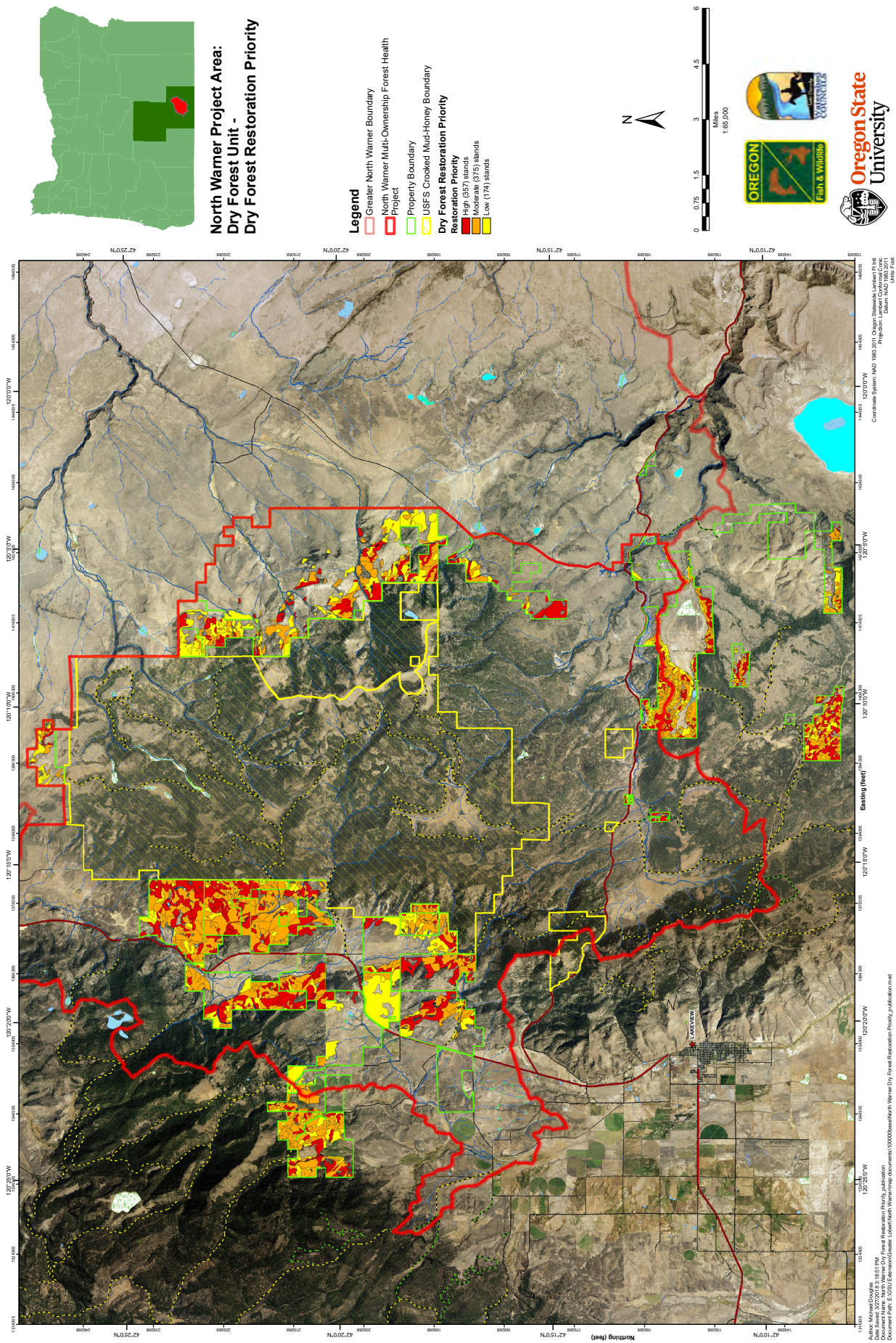
Map 1. Participating private landowners



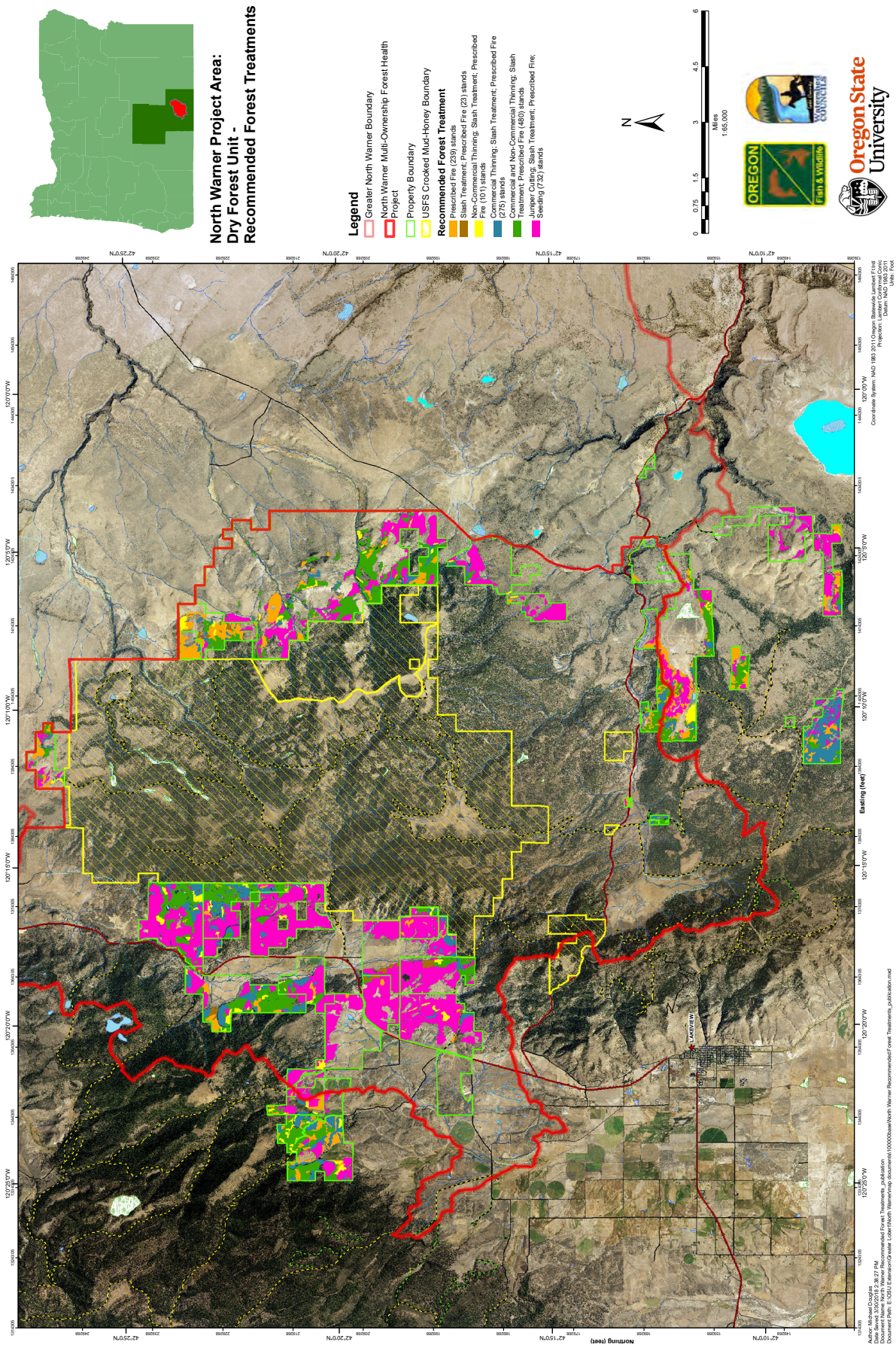
Map 2. Overstory vegetation



Map 3. Restoration priority



Map 4. Preliminary recommended prescriptions

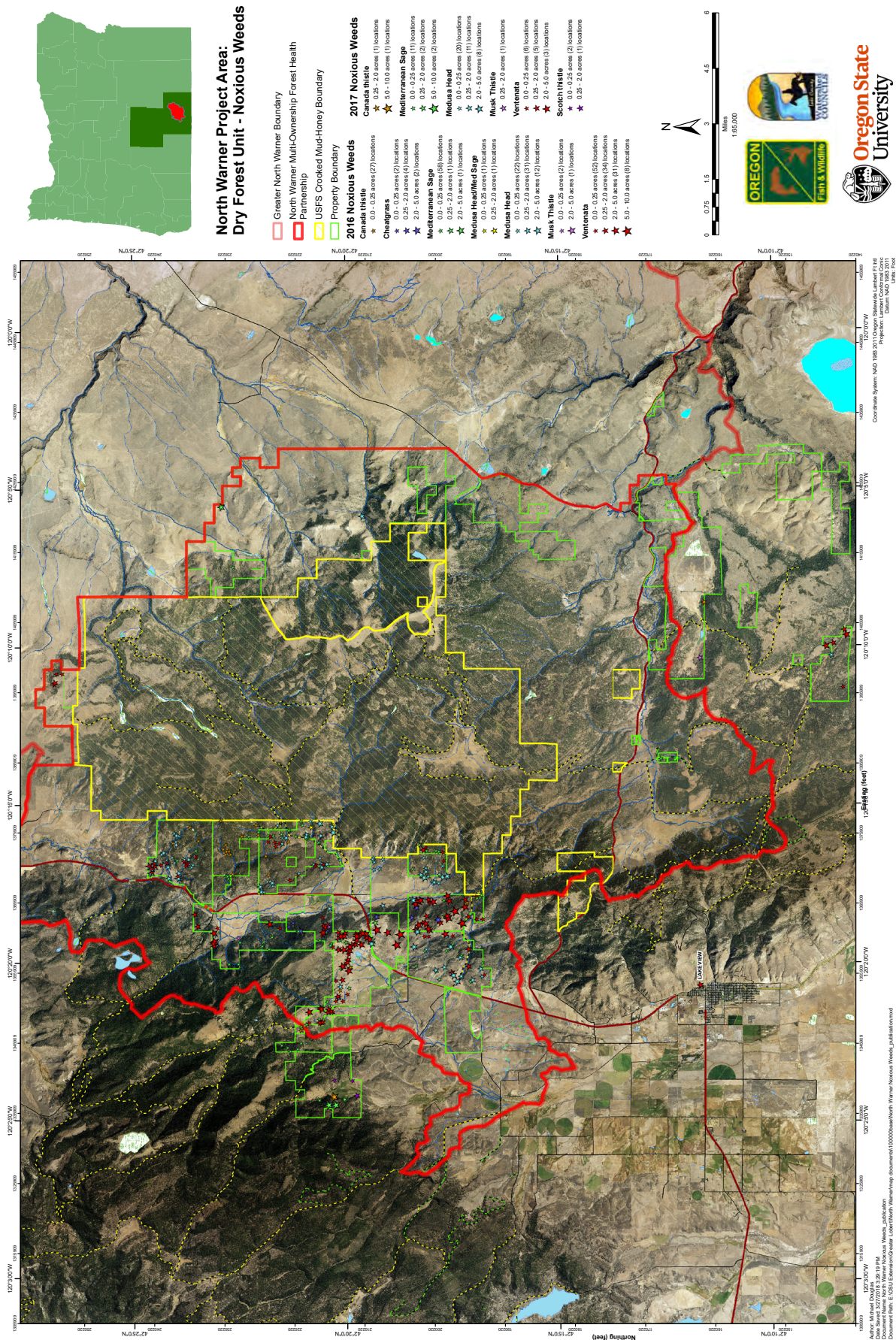


Map of Lakeview, Oregon, showing various land parcels and management zones. The map includes a coordinate grid with latitude and longitude markings. The legend indicates the following categories:

- Red outline: Boundary of the Lakeview area.
- Yellow outline: Specific land parcels or management zones.
- Green outline: Other land parcels or management zones.
- Blue outline: Water bodies (lakes, rivers).
- Red dots: Specific locations or data points.
- Yellow dots: Specific locations or data points.
- Orange dots: Specific locations or data points.
- Blue dots: Specific locations or data points.

The map shows a complex network of roads and rivers, with the Lakeview area highlighted in red. The surrounding landscape is a mix of forested areas, open land, and water bodies. The map is titled 'Lakeview' and includes a legend for the colored polygons and dots.

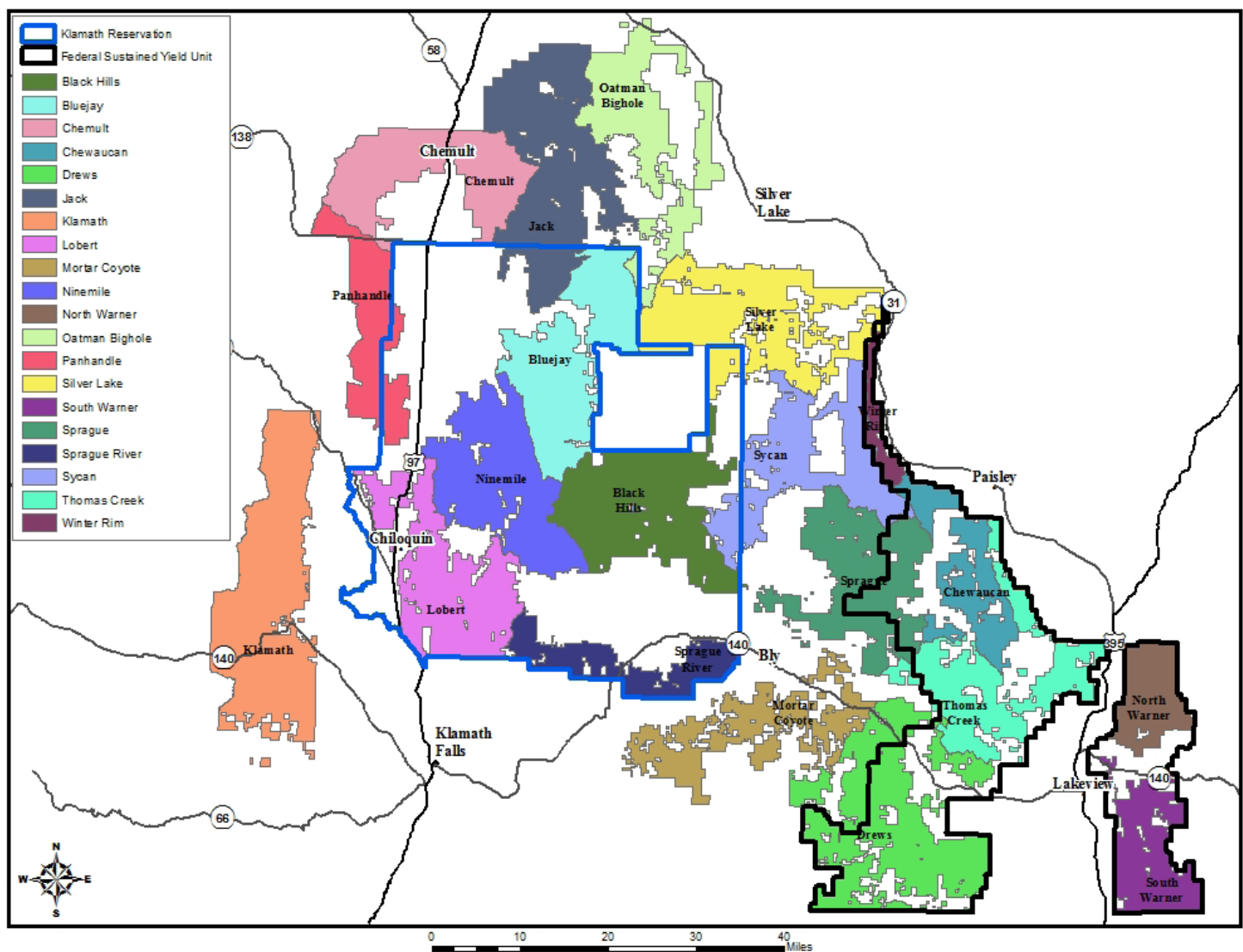
Map 6. Noxious weed locations



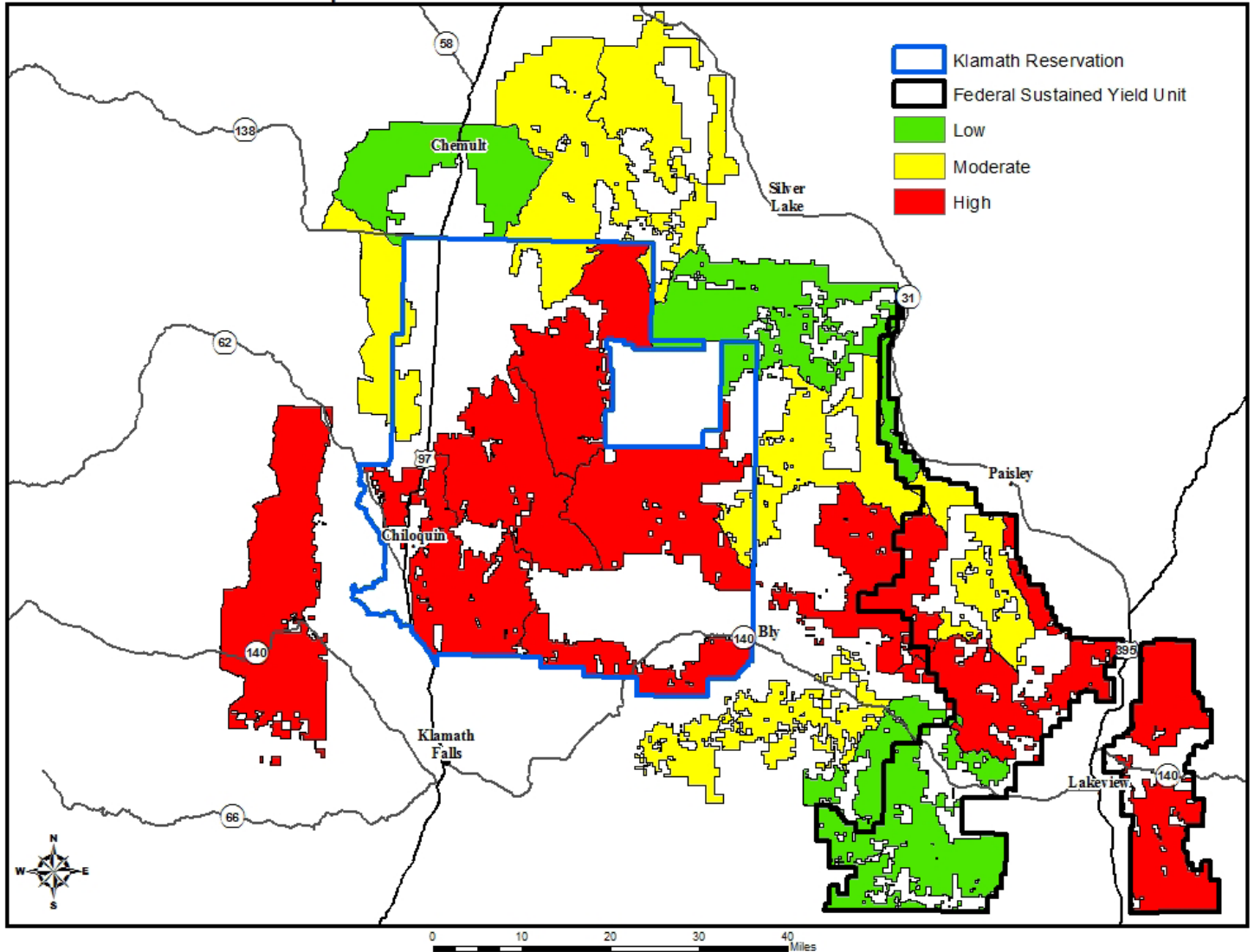
Appendix M. Fremont-Winema National Forest landscape prioritization

In 2014, the Fremont-Winema National Forest developed *Accelerated Restoration and Priority Landscape*, a document to help support and guide decisions at the forest and local level. This process delineated large landscapes (generally >100,000 acres) and prioritized them based on the following variables: regional and national priorities (i.e. Watershed Condition Framework, Terrestrial Restoration and Conservation Strategy, Oregon Conservation Strategy, and R6 Aquatic Restoration Strategy), past management, large tree structure, Wildland Urban Interface, crown fire potential, and landscape fire opportunities. Landscapes were then prioritized as high, moderate, or low. <https://static1.squarespace.com/static/590a4a012994caa0d307dd6f/t/5bacff10c83025f84658bffd/1538064179613/Fremont-Winema+NF+Accelerated+Restoration+and+Priority+Landscapes+Final.pdf>

Landscape Restoration Areas on the Fremont-Winema National Forest



Priority for Restoration **Landscape Restoration Areas on the Fremont-Winema National Forest**



Appendix N. Resources

OSU Extension Service

The **OSU Extension Catalog** (<https://catalog.extension.oregonstate.edu/>) has many useful resources, including:

Basic Forest Inventory Techniques for Family Forest Owners (PNW 630)
<http://cru.cahe.wsu.edu/CEPublications/PNW630/PNW630.pdf>

Fire-Adapted Communities: The Next Step in Wildfire Preparedness (EM 9116)
<https://catalog.extension.oregonstate.edu/em9116>

Fire Science Core Curriculum (EM 9172)
<https://catalog.extension.oregonstate.edu/em9172>

Management Planning for Woodland Owners: Why and How (EC 1125)
<https://catalog.extension.oregonstate.edu/ec1125>

FIRE FAQs—Air quality impacts from prescribed fire and wildfire: How do they compare? (EM 9203)
<https://catalog.extension.oregonstate.edu/em9203>

There are many other publications, videos, and other references in the **OSU Forestry and Natural Resources Extension Program** website (<http://extensionweb.forestry.oregonstate.edu/>)

Basic Forestry Shortcourse
<http://extensionweb.forestry.oregonstate.edu/basic-forestry-shortcourse>

Master Woodland Manager
<http://extensionweb.forestry.oregonstate.edu/mwm>

Ties to the Land
<http://tiestotheLand.org/>

Women Owning Woodlands
<http://extensionweb.forestry.oregonstate.edu/WOWNet>

Informational resources

A New Approach to Evaluate Forest Structure Restoration Needs across Oregon and Washington, USA
<https://www.sciencedirect.com/science/article/pii/S0378112714005519>

American Tree Farm System
<https://www.treefarmssystem.org/>

Biochar for Forest Restoration in Western States
<https://forestry.usu.edu/files/utah-forest-facts/biochar-for-forest-restoration-in-western-states.pdf>

Chiloquin Community Wildfire Protection Plan

https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/4013/Chiloquin_Wildfire_Protection_Plan.pdf;jsessionid=4E604553BAC0BFE1E0D15508064BD48A?sequence=1

Economic Impacts of Wildfire

https://fireadaptednetwork.org/wp-content/uploads/2014/03/economic_costs_of_wildfires.pdf

Ecotrust Forest Planner

<http://forestplanner.ecotrust.org>

Engaging Communities in Prescribed Fire and Smoke Best Management Practices Guide

https://static1.squarespace.com/static/590a4a012994caa0d307dd6f/t/5acd578f88251ba3fcb98b28/1523406767871/Final_Prescribed+Fire+and+Smoke_2017_Mar_21.pdf

Family Forests

https://oregonforests.org/sites/default/files/2017-06/OFRI_LandownerGuide_WEB2.pdf

Federal Forestland in Oregon

https://oregonforests.org/sites/default/files/2017-08/Federal_Forestlands.pdf

Fremont-Winema National Forest Accelerated Restoration and Priority Landscapes

<https://static1.squarespace.com/static/590a4a012994caa0d307dd6f/t/5bacff10c83025f84658bffd/1538064179613/Fremont-Winema+NF+Accelerated+Restoration+and+Priority+Landscapes+Final.pdf>

Fire Danger PocketCard

https://famit.nwcg.gov/applications/WIMS/PocketCards?field_gacc_value%5B%5D=Northwest

Gradient Nearest Neighbor

<https://lemma.forestry.oregonstate.edu/data>

How Do We Accomplish All-Lands Management? Direct Insights from a Survey of Practitioners (Rural Voices of Conservation Coalition)

<https://static1.squarespace.com/static/562e839ee4b0332955e8143d/t/59ede7cafe54ef255de3c9e0/1508763595768/RVCC+Land+Report+WEB.pdf>

Human-started Wildfires Expand the Fire Niche across the United States

<http://www.pnas.org/content/early/2017/02/21/1617394114>

Klamath County Ready, Set, Go!

<http://www.kcrsg.org/>

Klamath County Community Wildfire Protection Plan

https://static1.squarespace.com/static/590a4a012994caa0d307dd6f/t/5ac514a888251b080f839ac3/1522865331452/Klamath_County_Community_Wildfire_Protection_Plan_2016.pdf

Klamath Lake Forest Health Management Guide

https://static1.squarespace.com/static/590a4a012994caa0d307dd6f/t/5aa6dce98165f5f80180fc31/1520885103288/Klamath+Lake+Forest+Health+Management+Guide_1999web.pdf

Klamath Lake Forest Health Partnership sample list of contractors

<https://www.klfhp.org/professional-contacts/>

Know Your Forest

<https://knowyourforest.org/index.php>

LANDFIRE

<https://www.landfire.gov/>

Managing Your Woodlands: A Template for Your Plans for the Future

https://www.treefarmssystem.org/stuff/contentmgr/files/1/811656e8116af1c86571cbbf51851fac/files/aff_managing_your_woodlands_lo.pdf

Oregon Forest Management Plan Template

<http://blogs.oregonstate.edu/forestplanning/templates/>

Oregon Tree Farm System

<http://www.otfs.org/>

The National Strategy: The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy

<https://www.forestsandrangelands.gov/strategy/thestrategy.shtml>

U.S. Forest Service Terrestrial Restoration and Conservation Strategy

https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5410708.pdf

U.S. Forest Service watershed condition framework

https://www.fs.fed.us/naturalresources/watershed/condition_framework.shtml

Western Water Threatened by Wildfire: It's Not Just a Public Issue

https://www.forestfoundation.org/stuff/contentmgr/files/1/3d98bbe1b03a0bdf4c726534d438b0ab/misc/final_fire_report.pdf

Wildlife-Friendly Fuels Reduction in Dry Forests of the Pacific Northwest

<http://woodlandfishandwildlife.com/wp-content/uploads/2016/09/WildlifeAndFuelsPNW2016Final.pdf>

Grant funding information and sources

Collaborative Forest Landscape Restoration Program

<https://www.fs.fed.us/restoration/CFLRP/overview.shtml>

Community Capacity and Land Stewardship Program

<https://www.nationalforests.org/grant-programs/ccls>

Conservation Innovation Grants

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/>

Conservation Stewardship Program

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/>

Council of Western State Foresters

<https://www.westernforesters.org/>

Environmental Quality Incentives Program

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

FEMA Fire Prevention & Safety Grants

<https://www.fema.gov/fire-prevention-safety-grants>

FEMA Pre-Disaster Mitigation Grant Program

<https://www.fema.gov/pre-disaster-mitigation-grant-program>

Forest Legacy Program

<https://www.fs.fed.us/managing-land/private-land/forest-legacy>

From Ideas to Action: A Guide to Funding and Authorities for Collaborative Forestry

https://static1.squarespace.com/static/562e839ee4b0332955e8143d/t/5817880febbd1a05831b7d99/1477937178241/RVCC+Guidebook_Web.pdf

Joint Chiefs Landscape Restoration Partnership

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/features/?cid=stelprdb1244394>

National Fish and Wildlife Foundation Resilient Communities Program

<http://www.nfwf.org/resilientcommunities/Pages/home.aspx>

National Forest Foundation Grant Programs & Resources

<https://www.nationalforests.org/grant-programs>

Oregon Watershed Enhancement Board Grant Opportunities

<http://www.oregon.gov/oweb/grants/Pages/grant-programs.aspx>

Regional Conservation Partnership Program

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/rcpp/>

Organizations and agencies

American Forest Foundation

<https://www.forestfoundation.org/>

Bureau of Land Management

<https://www.blm.gov/>

Ecotrust

<https://ecotrust.org/>

Klamath Watershed Partnership

<http://www.klamathpartnership.org/>

Klamath-Lake Forest Health Partnership
<http://klfhp.org>

Lake County Umbrella Watershed Council
<http://lakecountywsc.com/>

Natural Resources Conservation Service
<https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/>

Oregon Department of Forestry
<http://www.oregon.gov/odf/working/pages/findaforester.aspx>

Oregon Forest Resources Institute
<https://www.oregonforests.org/>

Oregon State University Extension Forestry & Natural Resources Program
<http://extensionweb.forestry.oregonstate.edu/>

The Nature Conservancy
<https://www.nature.org/en-us/>

U.S. Forest Service
<https://www.fs.fed.us/>