Lake County All Lands Restoration Initiative

OWEB Focused Investment Partnership Strategic Action Plan

Klamath Lake Forest Health Partnership
April 2020

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1. Introduction

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. To further compound the issue, humans have caused 84 percent of the 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. To address these issues, the National Cohesive Wildland Fire Management Strategy 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 (WFEC 2014).

The Klamath-Lake Forest Health Partnership (KLFHP) is a 501(c)(3) nonprofit organization in South Central Oregon actively working to address these challenges. With a mission to “facilitate restoration projects on public and private forestland in Klamath and Lake Counties through education, outreach, and diverse partnerships,'' the KLFHP has been extremely successful in planning and implementing cross-boundary landscape-scale restoration and wildfire risk reduction projects following a basic process. This process has been documented in an Oregon State University Extension Publication (Leavell et al. 2018). https://catalog.extension.oregonstate.edu/pnw707

In 2016, the KLFHP started developing landscape, cross-boundary efforts with the North Warner Multi-Ownership Forest Health Project (North Warner Project). The North Warner Project spans 162,400 acres of public and private land with 30 private landowners in Lake County. The KLFHP has mapped and assessed 32,000 acres of private land, leveraged $7 million of funding (over four years), and restored dry forests on approximately 21,292 acres of private land and 15,249 acres of Forest Service (USFS) managed public land through various thinning (commercial and pre-commercial) treatments (Map 5). Preparations are in place to reintroduce and maintain this landscape with prescribed fire. https://www.klfhp.org/northwarner

The second project area, titled the Chiloquin Community Forest and Fire Project (Chiloquin Project), covers 187,000 acres of public and private land with 2,800 landowners in Klamath County including the city of Chiloquin and eight subdivisions. The KLFHP has mapped and assessed 32,000 acres of private land, procured $7 million in funding (over three years), and implementation began in 2019 with a goal to restore public and private lands. https://www.klfhp.org/chiloquin

The third project, titled the Thomas Creek All Lands Project (Thomas Creek Project), covers 240,000 acres in Lake County. Through funding from OWEB and the USFS in 2019, the KLFHP completed mapping and assessment of 48,565 acres of private lands (175 landowners) with a goal to inform priorities and land management planning for each landowner. Implementation of dry forest restoration projects will begin in 2020. https://www.klfhp.org/thomas-creek

The success of these projects is based on a few key factors: 1) the KLFHP is a high-performing partnership that operates under a shared vision with a priority of restoration across Lake and Klamath counties; 2) projects are designed around National Environmental Policy Act (NEPA)-ready USFS projects creating long-lasting partnerships and opportunities for implementation (i.e. prescribed fire) across private and public land; 3) KLFHP partners dedicate time and resources to private landowner outreach, engagement, and assistance with land management planning; 4) there is an up-front investment in private land mapping and assessment to understand current dry forest conditions and develop recommendation; 5) KLFHP partners use all authorities, agreements, and tools to accomplish work, and most importantly; 6) the KLFHP focuses on action on-the-ground to accomplish ridgetop to ridgetop restoration (restoring uplands down to the water bodies).

Within the Lake County All Lands Restoration Initiative:

- Mapping and assessment completed on 80,565 acres of private land
- 100+ landowners engaged
- $7,000,000 leveraged in outside funding
- 21,292 acres of private land thinned
- 15,249 acres of USFS land thinned
- Preparing for cross-boundary prescribed fire

The Lake County All Lands Restoration Initiative will focus on the North Warner and Thomas Creek Projects located immediately adjacent to each other (Map 2). The focus on dry forest restoration will be to complete thinning treatments in forested communities and to utilize prescribed fire as a follow-up within the North Warner Project, while beginning thinning treatments within the Thomas Creek Project in preparation for future prescribed fire. The total area covers 402,400 acres and includes: 317,000 acres of wildland urban interface (WUI) as identified in the Lake County Community Wildfire Protection Plan (CWPP) near the communities of Lakeview, Valley Falls, and Paisley (Map 4); high concentrations of old legacy ponderosa pine forests; and habitat for priority species including sage grouse, gray wolf, Warner sucker, Great Basin redband trout, Modoc sucker, northern goshawk, Lewis' woodpecker, black-backed woodpecker, and white-headed woodpecker.

The Lake County All Lands Restoration Initiative Strategic Action Plan was developed at the local level by the core partners listed below. This same group co-authored the Leavell et al. 2018 publication mentioned above. Through several coordinated meetings, this high-performing partnership worked together to write this Strategic Action Plan which sets goals, objectives, and a course of action for the Lake County All Lands Restoration Initiative landscape.

2. Partnership Roles

Core partners for implementation:

Klamath-Lake Forest Health Partnership (KLFHP) – The mission of the KLFHP is to facilitate restoration projects on public and private forestland in Klamath and Lake Counties through education, outreach, and diverse partnerships. The KLFHP, formed in 1995, is a cooperative network of diverse local and regional partners who cooperate together in order to address forestland management/restoration in Klamath and Lake Counties. The KLFHP is committed to: 1) providing technological and ecological information on forest health; 2) serving as a resource for all forest landowners in diagnosing and addressing forest health problems (including management recommendations based on the latest science); 3) working cooperatively with landowners, the general public, and forest operators to educate and encourage best management practices on forest lands; and 4) using innovative partnerships and

funding sources to increase the pace, scale, and scope of restoration across public and private lands. The core partners mentioned below are members of the KLFHP and attend monthly KLFHP meetings and project-level subcommittee meetings. Coordination for the Lake County All Lands Restoration Initiative will occur through the KLFHP. More information on the KLFHP can be found at klfhp.org.

Lake County Umbrella Watershed Council (LCUWC) – The mission of the LCUWC is to promote cooperative, holistic restoration across jurisdictional boundaries, to better Lake County's watersheds and people. The LCUWC is instrumental in assisting private landowners with developing project plans, acquiring funding, and implementing restoration treatments on private lands within the project area. The LCUWC would oversee the administration and implementation of a Focused Investment Partnership grant for the Lake County All Lands Restoration Initiative.

Fremont-Winema National Forest (USFS) – The mission of the USFS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The USFS provides leadership in environmental policy, collaborative forestry, project planning, and implementation. The USFS is responsible for completing the environmental analysis and implementing thinning and prescribed fire treatments on public lands within the USFS Crooked Mud Honey (North Warner Project) and USFS Thomas Creek Landscape Restoration (Thomas Creek Project) Projects (Map 2). The USFS will also take the lead in developing a strategy to guide short- and long-term prescribed fire strategies and assist the Lake County CWMA in developing and implementing a noxious weed management plan to minimize and reduce noxious weeds for the Lake County All Lands Restoration Initiative project area.

Oregon Department of Forestry (ODF) – The mission of ODF is to serve the people of Oregon by protecting, managing, and promoting stewardship of Oregon's forests to enhance environmental, economic, and community sustainability. ODF assists private landowners through the fire protection program and administering the Oregon Forest Practices Act. ODF provides forestry expertise and implements projects on USFS land through Good Neighbor Authority agreements and on private land through Stewardship Forester positions and the statewide cooperative agreement between NRCS and ODF when expending Environmental Quality Incentives Program (EQIP) funding. ODF also gains funding, such as USFS State and Private funding, for implementing restoration on private lands. ODF is the lead agency in providing forestry expertise to private landowners within the Lake County All Lands Restoration Initiative project area.

Oregon State University, College of Forestry Extension (OSU Extension) – The mission of OSU Extension is to create opportunities for people to explore how science-based knowledge can improve social, economic, and ecological conditions across the State of Oregon. OSU Extension is the lead agency in connecting science and research, in the area of fire and forestry, with land management. The OSU Extension Forestry and Fire Specialists for Lake and Klamath County coordinate science-based outreach and education for landowners and provides technical expertise and assistance with land management planning in the area of forestry and fire science/management. With the newly approved OSU Extension Fire Initiative, there is also a local OSU Extension Fire Specialist who will assist in educating landowners and promoting the use of prescribed fire on private lands.

Natural Resources Conservation Service (NRCS) – The mission of NRCS is to provide resources to farmers and landowners to aid them with conservation. NRCS works collectively with partners to help maintain healthy and productive working landscapes benefitting both environmental and agricultural needs. NRCS provides financial and technical assistance to voluntary farmers, ranchers, and forest landowners to implement conservation practices on private lands, mainly through the EQIP program. In keeping with the Oregon NRCS Strategic Approach to Conservation, the Lake County District Conservationist will be submitting a Conservation Implementation Strategy in 2020 for the Lake County All Lands Restoration Initiative landscape to prepare for private land treatments to improve forest health, reduce the risk of high severity fire, and improve wildlife habitats.

Lake County Resources Initiative (LCRI) – The mission of LCRI is to demonstrate an economic, ecological, and sustainable approach to natural resource management, climate disruption solutions, youth and community education, and increased economic development in the pursuit of continual improvement of the quality of life for present and future generations. LCRI works to bring economic and environmental prosperity to Lake County through biophysical monitoring and renewable energy. LCRI provides assistance through hiring of seasonal employees to oversee the mapping and assessment of private lands, multi-party ecological monitoring, and coordination with the Lakeview Stewardship Group Collaborative. LCRI has a long standing monitoring program that began in 2002. Each year, a crew of high school and college students collect data that informs management on USFS lands. The LCRI monitoring crew will implement the monitoring for the Lake County All Lands Restoration Initiative project.

Forest Stewards Guild (FSG) – The mission of FSG is to practice and promote responsible forestry as a means of sustaining the integrity of forest ecosystems and the human communities dependent upon them. FSG envisions ecologically, economically, and socially responsible forestry as the standard for professional forest management, from coast to coast. FSG will be directly involved with organizing and coordinating forestry and prescribed fire engagement opportunities for private landowners. FSG will be taking the lead to coordinate a prescribed fire workshop for landowners, and there is also the opportunity for FSG to provide a 14-person, Type 1 capable Module focused primarily on prescribed fire and fuels management. FSG is also funded through a grant with the Oregon Department of Environmental Quality to develop a Community Response Plan (CRP) for the Lakeview Smoke Sensitive Receptor Area.

Lake County Cooperative Weed Management Area (Lake County CWMA) – The mission of the Lake County CWMA is to control noxious weeds in Lake County, Oregon. The Lake County CWMA assists private landowners with noxious weed treatments and coordinates with federal agencies to manage across public and private lands. The Lake County CWMA will be the lead in developing and implementing a noxious weed management plan for the Lake County All Lands Restoration Initiative project area to minimize and reduce noxious weeds within the project area.

Oregon Department of Fish and Wildlife (ODFW) – The mission of ODFW is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. ODFW provides financial assistance to the project for mapping, assessments, and restoration of private lands mainly through the Mule Deer Initiative. ODFW also provides input on the implementation of the conservation measures identified in the Oregon Conservation Strategy for the Warner Mountains and Thomas Creek-Goose Lake Conservation Opportunities Areas and opportunities to improve habitat for Oregon Conservation Strategy species.

Additional core partners:

The Nature Conservancy (TNC) – The mission of TNC is to conserve the lands and waters on which all life depends. TNC provides leadership in ecological and restoration science, monitoring, science delivery, and science interpretation for a variety of audiences. TNC is a member of the KLFHP and assists with landowner outreach and education, and also provides leadership, local science, and learning exchange opportunities based upon experience and implementation of dry forest restoration practices at Sycan Marsh Preserve.

Lakeview Stewardship Group Collaborative (LSG) – LSG envisions a sustainable forest ecosystem that, through a new understanding of the interrelationships between the people and the land, will ensure quality of life for present and future generations. The goals of the LSG are to: 1) sustain and restore a healthy, diverse, and resilient forest ecosystem that can accommodate human and natural disturbances, 2) sustain and restore the land's capacity to absorb, store, and distribute quality water, and 3) provide opportunities for people to realize their material, spiritual, and recreational values and relationships with the forest. The LSG provides collaborative support and multi-party monitoring for USFS planning and implementation.

Lake County Soil and Water Conservation District (SWCD) – The mission of SWCD is to provide technical assistance to individuals, groups and other agencies for the purpose of managing and enhancing our natural resources, environment, and economy. Lake County SWCD provides leadership and technical expertise to guide the protection and conservation of the unique soil and water resources of the county. SWCD assists landowners with technical expertise and pursuing funding for restoration of private lands.

Bureau of Land Management (BLM) – The mission of the BLM is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. The Klamath and Lake District of the BLM are members of the KLFHP and provide leadership in the management of dry forest and shrub-steppe ecosystems and function. The BLM manages a small amount of land within the Lake County All Lands Restoration Initiative landscape.

Oregon Prescribed Fire Council (OPFC) – The mission of the OPFC is to serve as a venue for practitioners, state and federal agencies, academic institutions, tribes, coalitions, and interested individuals to collaboratively promote and conserve the fire adapted natural ecosystems in Oregon, and expand the responsible use of prescribed fire. The KLFHP formed a Chapter of the OPFC in South Central Oregon to coordinate cross-boundary prescribed fire in Klamath and Lake Counties.

3. Scope

In 2014, the Fremont-Winema National Forest prioritized landscape-level projects on public land for restoration based upon several important components. The USFS Crooked-Mud-Honey Restoration Project is 50,000 acres and located within the North Warner Project, while the USFS Thomas Creek Restoration Project is 104,000 acres and located within the Thomas Creek Project (Map 2). Both USFS projects are identified as a high priority for restoration for the following reasons:

1. They encompass the Warner Mountain and Thomas Creek-Goose Lake Conservation Opportunity Areas identified in the Oregon Conservation Strategy.
2. Most watersheds are rated as "fair" in the USFS Watershed Condition Framework.
3. There are watersheds, wildlife habitat, aquatic resources, and WUI adjacent to the communities of Lakeview, Valley Falls, Paisley, and private lands, at risk of high severity wildfire.
4. There are high concentrations of old legacy ponderosa pine.

In February 2015, the Fremont-Winema National Forest and OSU Extension held a Forest Summit. The purpose was to bring together professionals, practitioners, and private/public land managers to come up with cooperative ways to increase the scope and scale of landscape restoration within Klamath and Lake Counties. Over 100 people attended representing federal, state, and private agencies, private landowners, tribal representatives, and academia. At the end of the Forest Summit, the KLFHP was voted to take the lead with a pilot project in either Klamath or Lake County and to create a process leading to success.

In 2016, following the vote by attendees at the Forest Summit of 2015, the KLFHP sought out a project within Klamath or Lake County to complete cross-boundary, landscape-level restoration. In the era of mega-fires, the partnership acknowledged the need to manage at a scale commensurate with the challenge of increasing health of vegetation communities while decreasing fire risk. In other words, to manage a landscape at the scale of a typical mega-fire (>100,000 acres). The KLFHP also acknowledged the need to manage across ownership boundaries recognizing that wildfire, wildlife habitats, streams, and forests span across public and private lands. Other goals for a landscape effort included desired benefits to human communities and local economies.

"The KLFHP acknowledged the need to manage across ownership boundaries recognizing that wildfire, wildlife habitats, streams, and forests span across public and private lands."

The North Warner Project was the first project selected in 2016 because it included the NEPA-ready USFS Crooked Mud Honey Project and there was extensive aquatic restoration already completed on public and private land. Currently, there is a total of 42 stream restoration, fish passage, and riparian enhancement projects and nine upland thinning projects completed on private land and two fish passage projects on public land. This presented the KLFHP with a great opportunity for ridgetop to ridgetop restoration.

With the North Warner Project, the KLFHP developed a process to accomplish forest restoration at a landscape scale and across ownership boundaries. After successfully applying the process with the North Warner Project (Lake County) and the Chiloquin Project (Klamath County), the KLFHP published the work in Leavell et al. 2018. Since 2016, the KLFHP has: successfully implemented several thousand acres of thinning treatments; provided extensive outreach, engagement, and assistance for private landowners; developed multiple agreements using all available authorities; and leveraged several million dollars of funding for both restoration and additional capacity within key organizations (ODF, LCUWC, OSU Extension, and USFS).

One important key to success was the mapping and assessment completed on non-industrial private lands. The mapping includes delineation of forest stand boundaries and identifies current forest condition. In addition, data was collected on fuel loading, understory trees, aspen condition, springs, and noxious weed locations. The data was used to identify priorities for restoration based upon stand density and fuel loading (Map 6), and they provide a foundation for developing land management plans for private landowners.

Within the Lake County All Lands Restoration Initiative:

Mapping and assessment has been completed on 80,565 acres of private land.

Data collected includes:

- Stand delineation
- Stand density
- Cover type
- Fuel loading
- Understory trees
- Aspen condition
- Springs
- Noxious weeds

In 2019, the KLFHP collectively decided to start the Thomas Creek Project, which is located immediately west and adjacent to the North Warner Project (Map 2). Similar to the North Warner Project, it was selected because it included the NEPA-ready USFS Thomas Creek Landscape Restoration Project, and there was extensive aquatic restoration already completed on both public and private lands. There has been a total of 46 stream restoration, fish passage, and riparian enhancement projects and 16 upland enhancement projects completed on private lands, and eight fish passage, six miles of stream restoration, eleven miles of road decommissioning, and a riparian fence completed on USFS lands. Once again, this presents the opportunity for ridgetop to ridgetop restoration and to take advantage of investments already in place.

The Thomas Creek Project is at the beginning phases of planning for upland dry forest restoration, while the North Warner Project is moving into the maintenance stage with the use of prescribed fire. These two KLFHP- focused landscapes are now building upon each other, while increasing the geographic area of forest restoration, wildfire risk reduction, improvements in aquatic and wildlife habitat, and overall resiliency.

The geographic boundary of the Lake County All Lands Restoration Initiative is the North Warner and Thomas Creek Projects combined, totaling 402,400 acres (Map 1). This strategic action plan will outline goals and objectives for increasing resiliency within the Lake County All Lands Restoration Initiative landscape by completing high and moderate priority thinning treatments and the first entry of prescribed fire (including associated noxious weed treatments) and by outlining the long-term return interval of maintenance with prescribed fire based on the ecological site conditions. This is expected to take a minimum of 20 years.

"This strategic action plan will outline goals and objectives for increasing resiliency….by completing high and moderate priority thinning treatments and the first entry of prescribed fire (including associated noxious weed treatments)……."

4. Vision

The partnership envisions creating a healthy, resilient, and functional forest landscape maintained with fire as an ecological process, while mitigating the threat of high severity wildfire to dry forests, fish and wildlife habitat, water quality, and the surrounding human communities. This healthy and resilient landscape has abundant, productive, and diverse populations of native fish and wildlife species and contributes to the social, cultural, and economic well-being of the communities that live, work, and recreate within its boundaries.

5. Ecological Priorities and Goals

The **ecological priority** for the Lake County All Lands Restoration Initiative is dry-type forest restoration maintained with frequent low to moderate intensity fire.

Goal 1: By 2021, develop a noxious weed management plan for the Lake County All Lands Restoration Initiative landscape to guide noxious weed preventative measures and treatments.

Goal 2: By 2021, develop a short- and long-term strategy for the location and frequency of prescribed fire that would maintain the investment in thinning treatments and re-establish the historical range in the frequency of fire, while meeting private and USFS land management objectives.

Goal 3: By 2021, engage with 75% of the private landowners to increase public knowledge and understanding of dry forest restoration principles and restoration techniques, while building public support for increased use of fire as an essential restoration tool through outreach, engagement, and applied fire.

Goal 4: By 2027, restore dry forest landscape resiliency, forest health, hydrologic function, and wildlife habitat within ponderosa pine and mixed conifer habitats by re-establishing open and variable forest structure and reducing fuel loading within 40-50% of the moderate and high priority stands (see Tables 2-4 on pages 18 and 19).

Goal 5: By 2027, restore healthy aspen, meadow, and shrub-steppe habitats by reducing encroaching conifers and juniper within 40-50% of the high and moderate priority stands (see Tables 2-4 on pages 18 and 19).

Goal 6: By 2027, re-introduce low to moderate intensity fire as a key ecological process with first entry prescribed fire across public and non-industrial private lands on 40% of the area identified for prescribed fire in the North Warner Project area.

Goal 7: By 2040, re-introduce low to moderate intensity fire as a key ecological process with first entry prescribed fire across public and non-industrial private lands on 60% of the area identified for prescribed fire in the Lake County All Lands Restoration Initiative landscape (this includes the 40% completed in Goal 6).

6. Profile of the Focus Area

Biophysical Setting

The 402,400 acre Lake County All Lands Restoration Initiative landscape is located in the East Cascades Ecoregion of Oregon. The area is located within the Abert Lake, Goose Lake, and Warner Lakes closed basins and includes portions of the following watersheds: Lower Chewaucan River, Upper Chewaucan River, Drews Creek-Frontal Goose Lake, Thomas Creek, Deep Creek, Crooked Creek, and Honey Creek. The area includes the northern extent of the Warner Mountain Range on the edge of the Great Basin. The area is diverse with a mix of ponderosa pine and mixed conifer forests, aspen woodlands, flowing water, and meadow and shrub-steppe habitats.

Lake County climate is semi-arid with long, severe winters and short, dry summers. With a typical high desert climate, the County experiences over 300 days of sunshine per year and receives an average of 15 inches of annual precipitation. Warm and sunny days of summer record highs in the 80s with cool nights. Data taken from Remote Automatic Weather Stations (RAWS) show a significant increase in moisture as elevation increases. The low precipitation and high wildfire risk months are July, August, and September.

Dry ponderosa pine and mixed conifer forested lands account for about 57% (228,500 acres) of the Lake County All Lands Restoration Initiative landscape, while non-forested lands (i.e. shrub-steppe, meadow, agriculture, and water) account for 43% (173,900 acres) of the area. The landscape ranges in elevation from 4,300 feet to 8,400 feet at Drake Peak Lookout. The landscape at lower elevations includes agricultural lands that transition to shrub-steppe and conifer forests. As elevations increase, the forest type begins to change to an ecosystem dominated by various mixed conifer species including whitebark pine at the highest elevations. Forest structure ranges from young plantation forests to old growth forests containing high concentrations of old legacy pine. Aspen woodlands are present throughout the project area associated with streams and springs, and portions of the landscape are composed of moist and dry meadows, rock outcrops, and mountain mahogany.

The Lake County All Lands Restoration Initiative landscape contains portions of the Thomas Creek-Goose Lake and Warner Mountains Conservation Opportunity Areas (COA) identified in the Oregon Conservation Strategy. The recommended conservation actions for the Thomas Creek-Goose Lake COA are to: 1) maintain or enhance in-channel watershed function, connection to riparian habitat, flow and hydrology; 2) maintain or restore riparian habitat and ecological function, ensuring sufficient habitat complexity for wildlife; and 3) maintain riparian, wet meadow habitats and emergent wetlands. The recommended conservation actions for the Warner Mountains COA are to: 1) maintain or restore aspen woodland and sagebrush habitats; 2) maintain or restore riparian habitat and ecological function; and 3) use fire and thinning as needed to restore and enhance ponderosa pine habitats.

The Lake County All Lands Restoration Initiative project, in coordination with previous and ongoing aquatic restoration efforts, will benefit several priority species that are both strategy species identified in the Oregon Conservation Strategy and a species of concern for the USFS. The Conservation Strategy Species, which are Oregon's "species of greatest conservation need," are defined as having small or declining populations, are at-risk, and/or are of management concern. Species of concern for the USFS include federally threatened or endangered, Region 6 Sensitive, or management indicator species. These priority aquatic and wildlife species include: Warner sucker, Great Basin redband trout (Chewaucan, Goose Lake, Warner Lakes), Modoc sucker, gray wolf, black-back woodpecker, greater sage grouse, Lewis's woodpecker, northern goshawk, and white-headed woodpecker.

High priority aquatic and wildlife species that will benefit from the Lake County All Lands Restoration Initiative:
Warner sucker
Great Basin redband trout
Modoc sucker
Gray wolf
Black-back woodpecker
Greater sage grouse Lewis's woodpecker
Northern goshawk
White-headed woodpecker

Warner sucker is federally listed as an endangered species and found in the Honey Creek subwatershed where adfluvial runs are still present in the Honey Creek stream system. Redband trout are known to occur in Crooked Creek, Thomas Creek, and Honey Creek.

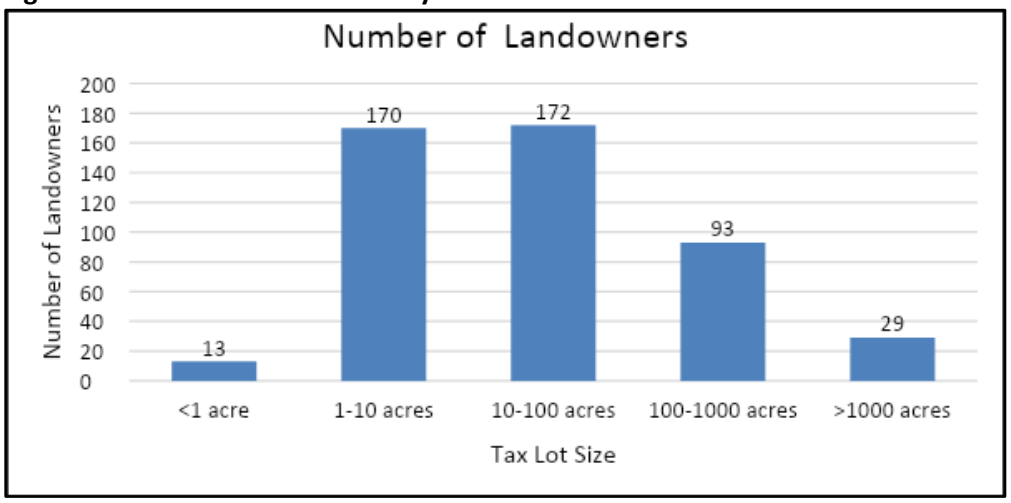
Modoc sucker are found within the Upper Thomas Creek subwatershed and were delisted from the Endangered Species List in 2015, largely due to the cooperative efforts of state and federal agencies working with landowners. The LCUWC was instrumental in working with the majority of the property owners from Goose Lake to the headwaters to fund and implement aquatic restoration work (i.e. bridges, stream enhancement, etc.). These are the same partners and landowners cooperating with this project. In addition, Thomas Creek and tributaries are a high priority for area resource managers because they provide habitat for all 9 native fish (Modoc sucker, Goose Lake redband trout, Goose Lake tui chub, Pit sculpin, Pit-Klamath brook lamprey, speckled dace, Pit roach, Pit sculpin, and Goose Lake sucker), and they provide refuge during late summer when flows are low and during years of drought/climate change. Thomas Creek itself is the largest stream in the basin at 40 stream miles in length and much of the stream has been enhanced for fish passage connectivity and genetic exchange.

Gray wolves are federally listed as an endangered species and individuals range within the project area. Priority bird species are also present throughout the Lake County All Lands Restoration Initiative landscape: black-backed woodpeckers are associated with post-fire habitats with high densities of snags; greater sage grouse are associated with sagebrush habitat on the eastern fringes of the landscape; Lewis's woodpecker are associated with open canopy ponderosa pine and post-fire habitats with large snags; northern goshawk are associated with forests with a mosaic of structural stages; and white-headed woodpeckers are associated with open ponderosa pine forests with mature trees.

Social Setting

The project area is located approximately 6 miles north of the town of Lakeview, Oregon within Lake County. There is approximately 175,700 acres of USFS, 3,820 acres of BLM, 765 acres of State, 176,160 acres of non-industrial private, and 44,780 acres of industrial private land (Map 2). Non-industrial private land tax lots range in size from small (<1 acre) to larger (>1,000 acres) properties.

Figure 1: Number of landowners by tax lot size



Lakeview, Paisley, and Valley Falls are small, rural communities that are highly dependent upon the resources within the Lake County All Lands Restoration Initiative landscape. This is a working landscape in which many of the participating private landowners have a vested interest in restoring and protecting dry forest resources across both public and private land. Collins Companies is the primary industrial private landowner within the Lake County All Lands Restoration Initiative landscape and also the owner of the one remaining mill in Lake County. Many of the participating landowners are long time generational ranchers that own non-industrial private timberland, but also hold grazing permits on USFS lands. The local community also enjoys this landscape for recreation such as fishing, hunting, biking, hiking, camping, and wildlife viewing.

The southern, eastern, and northern boundaries of the Lakeview All Lands Initiative landscape border the towns of Lakeview, Paisley, and Valley Falls, subdivisions in the Drews Reservoir area, and numerous individual homes and ranches. The Lake County CWPP identified the communities of Lakeview, Valley Falls, and Drews Reservoir as having a high-hazard risk and Paisley a moderate-hazard risk of being impacted by a wildfire.

These communities have experienced the hardships that come from large, high severity wildfires including a breakdown in community relations between private and federal agencies, impacts to livestock and fences, burned forests on public and private land, and negative impacts to water quality, wildlife and fish habitats. This first-hand experience has, and will continue to be, a strong motivator for the community to come together to address wildfire risk across ownership boundaries and through partnerships.

"These communities have experienced the hardships that come from large, high severity wildfires…..This first-hand experience has, and will continue to be, a strong motivator for the community to come together to address wildfire risk across ownership boundaries and through partnerships."

Local Economy

Historically, the local economy was driven by timber production and agriculture. The timber industry has declined since the 1980's and Collins Companies Lakeview Sawmill is the only sawmill operating in the local area and remains critical to the local economy. For comparison, seven sawmills operated in Lakeview in 1940, employing half the town at that time. Like many other small rural communities in Eastern Oregon, Lake County is heavily reliant on natural resources and the relationships between the timber and ranching industry, government and state agencies, non-governmental partners, and private landowners for economic stability. Although to a lesser extent, recreation within the Lake County All Lands Restoration Initiative landscape provides economic benefits to businesses in Lakeview, Paisley, and Valley Falls. Many people come to Lake County to enjoy the solitude and open space while camping, hunting, hiking, bird watching, biking, etc. This provides secondary benefits to these rural communities to local hotels, gas stations, grocery stores, restaurants, etc.

Lake County median age, household income, unemployment, and poverty levels continue to differ from state-wide levels. Lake County residents are older, household income is lower, there is higher unemployment, and more of the population is living in poverty than the statewide average. The median income of Lake County residents is approximate $23,350 less than the state average. The top employment sectors in Lake County include: government, wood products manufacturing, agriculture, and retail trade. Local, state, and federal government agencies account for 42% of employment in the county, and this contrasts sharply with the statewide figure of 16%. Lake County employment in wood products manufacturing, animal production, and crop rotation is also much higher than the statewide average.

Table 1. Comparison of key social and economic characteristics for Lake County

Characteristics	Lake County (2017 data)	Oregon State (2017 data)
Median age[1]	47.2	39.2
Median household income[1]	$32,769	$56,119
Unemployment rate[1]	6.90%	6.80%
Percent of population in poverty[1]	20.00%	14.90%

The Collins Companies Lakeview Sawmill has been the only remaining sawmill in Lake County since 1996. This sawmill has an annual production capacity of 70 million board feet and provides approximately 80 jobs each year. The addition of a $6.8 million small-log mill in 2007 and further improvements in 2012-2013 are an important investment in the future of the Lakeview community, as well as a turning point for restoration forestry in the local area. About 15 to 20 percent of wood product is harvested from Collins Companies private industrial lands, with the remaining from public and private sources. The Collins Companies owns and sustainably manages 43,800 acres of private, industrial timberland within the Lakeview All Lands Initiative landscape. Collins Companies is widely regarded as a timber industry leader in environmental stewardship and is certified by the Forest Stewardship Council.

"The Collins Companies Lakeview Sawmill has been the only remaining sawmill in Lake County since 1996… The addition of a $6.8 million small-log mill in 2007 and further improvements in 2012-2013 are... a turning point for restoration forestry in the local area."

[1] Source of data: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Red Rock Biofuels is currently building a processing plant to convert woody biomass into renewable diesel and jet fuel. When operational, Red Rock expects to convert 136,000 tons of waste woody biomass into 15.1 million gallons per year of renewable fuels; bring employment opportunities to Lakeview; and provide a source for non-merchantable woody biomass from the Lake County All Lands Restoration Initiative landscape.

Historical Perspective

Human activities over the past 150 years, including fire suppression and past logging practices, have radically altered the structure, composition, and disturbance regimes of dry forests within the Lake County All Lands Restoration Initiative landscape. Post World War II, selective harvest and overstory removals were implemented across much of the project area. Early management practices focused on harvesting large ponderosa pine, which opened the understory to extensive small tree regeneration and shrub growth. These management strategies coupled with effective fire suppression, allowed white fir, juniper, small-diameter ponderosa pine and lodgepole pine to encroach into areas previously dominated by large, open-spaced ponderosa pine, as well as overtaking aspen, meadow, and shrub-steppe communities.

Today, dry forests have an increased tree density that exceeds the carrying capacity of soils and environment; a shift in basal area to dominance by smaller diameter trees; an increase in surface fuels; and a shift in species composition to dominance by shade-tolerant species (i.e. white fir) relative to historical conditions. The capacity of existing dry forests to withstand current and projected stressors without undergoing significant change has been compromised.

Ponderosa pine: historic compared to current condition

(Photos taken on the Fremont-Winema National Forest)

Photo Credit: Herald and Weaver

Year: 1958

Photo Credit: Faith Brown

Year: 2012

"The capacity of existing dry forests to withstand current and projected stressors without undergoing significant change has been compromised."

7. Conservation Needs and Opportunities

Addressing Recommendations in the 2019 Governor's Council on Wildfire Response Report
In response to the increased wildfire risks affecting all Oregonians, Governor Brown signed an executive order creating the Governor's Council on Wildfire Response in January 2019. The Council was tasked with reviewing Oregon's current model for wildfire prevention, preparedness and response, and analyzing the sustainability of the current model to provide recommendations to strengthen, improve, or replace existing systems. Several recommendations within this report would be addressed with the implementation of the Lake County All Lands Restoration Initiative, including:

- Defensible Space (Highest Priority) – Treatments should include defensible space treatments near buildings and infrastructure critical to public safety. Treatments in the Lake County All Lands Restoration Initiative project would include defensible space treatments around homes and priority infrastructure such as Grizzly Peak Communication Site.
- Prioritization (Highest Priority) –There is a need to prioritize policies and investments. The OWEB dry forest restoration priority references the Haugo et al. (2015) as a guide for prioritization (Map 3). The KLFHP used this information, as well as other resources and local knowledge, to identify the Lake County All Lands Restoration Initiative as a priority landscape for focused investment.
- Near-Term Restoration Treatments (Highest Priority) – Implement priority projects near USFS NEPA-approved projects while working with willing landowners. This project is associated with the USFS Crooked Mud Honey and Thomas Creek NEPA-approved projects.
- Building Project Pipeline (Very High Priority) – To build a pipeline for future projects that include cultivating relationships with private landowners near areas where the USFS plans to complete NEPA. As described in the Introduction, the KLFHP has a long-term plan for current and future all lands projects that were identified and prioritized by the KLFHP. The Lake County All Lands Restoration Initiative builds on the North Warner Project by adding the Thomas Creek Project as the future pipeline.
- Capacity Building (Very High Priority) – In anticipation of continued increase in restoration investments, capacity-building must commence in the near-term. The KLFHP has already built capacity to plan and implement landscape restoration and will continue to build capacity as funding is acquired.
- Program Expansion (Very High Priority) – Expansion of prescribed burns via Community Resiliency and Smoke Mitigation Grant Program, invasive treatments, and use of timber sales to offset restoration costs. Lake County received a grant from the Oregon Department of Environmental Quality for the Forest Stewards Guild to develop a Community Response Plan (CRP) for the Lakeview Smoke Sensitive Receptor Area, and this project includes invasive treatments, prescribed fire, and use of timber sales on both USFS and private lands.
- Long-term Barriers (High Priority) – To increase the pace and scale of restoration, a number of policy and operation barriers must be addressed. The KLFHP has overcome a multitude of barriers in effectively implementing landscape-scale cross-boundary restoration and could be a model for other areas in the state.

Landscape-Level Dry Forest Restoration
There is a need to manage at a scale large enough to effectively restore multi-level landscape patterns, processes, and dynamics (Hessburg 2015). The Lake County All Lands Restoration Initiative project offers a unique opportunity to restore dry forests across a 402,400 acre landscape (Map 2). Currently, cross-boundary restoration is occurring across the West, but in general projects are implemented at much smaller scales. Effectively managing at this large of a scale using the process developed by the KLFHP, is very unique. The scale of this project is large enough to allow for variable stand structure and patterns

to meet the habitat needs of multiple species; to reintroduce fire as a disturbance process benefiting both wildlife and forest health; and to effectively reduce the risk of high severity fire.

Relative to the rest of Oregon, the Lake County All Lands Restoration Initiative landscape was identified by Haugo et al. as a priority for restoration due to estimates that >35% of the watersheds are in need of disturbance restoration such as thinning and prescribed fire (2015) (Map 3). This project would include the integrated use of vegetation treatments, prescribed fire, and managed fire to achieve the necessary changes in landscape patterns, at scales broad enough to be meaningful, and the reintroduction of low intensity fire would restore natural disturbance regimes to create a resilient landscape (Hessburg 2015).

Thinning to Reduce the Risk of High Severity Fire and Improve Habitat

Dry Ponderosa Pine and Mixed Conifer Habitats

There is a need to reduce the risk of high severity fire to fish and wildlife habitat, highly valued forest resources, and the communities of Lakeview, Valley Falls, Paisley and residents of the Drews Valley subdivisions. A qualitative review of the literature conducted by Kalies and Kent found that fuels treatments reduce fire severity, crown and bole scorch, and tree mortality compared to untreated forests post-fire; this finding is most consistent for thin and burn treatments (2016). Combined thinning and burning treatments are also found to result in greater survival of overstory tree structure (Kalies and Kent 2016) which is especially important to the protection of old legacy ponderosa pine. In addition, a meta-analysis by Martinson and Omi looking at the effect of fuel treatments on fire response in 19 studies found a reduction of canopy volume scorch from 100 percent in untreated stands to 40 percent in treated stands, and a reduction in scorch height from 100 feet to 52 feet (2013). This effect can be greater with increased thinning intensity, while treatments less than ten years old are more effective (Cram et al. 2006).

Combined thinning and prescribed burning within the Lake County All Lands Restoration Initiative landscape offers the opportunity to reduce fire severity to ponderosa pine and mixed conifer habitats. This would reduce the potential for loss of fish and wildlife habitat or soil erosion and sedimentation to streams as a result of high severity wildfire. In addition to the improvements in conifer habitats, defensible space treatments immediately adjacent to homes and structures will improve the potential for protecting highly valued resources during a wildfire event. Lastly, the continuity of thinning and prescribed fire at a landscape scale across ownerships will improve the effectiveness of fuels reduction treatments during wildfire response and increase firefighter safety.

To date, thinning is completed or in progress in the North Warner Project on 23,747 acres (12,670 acres of USFS land and 11,077 acres of private land) within dry ponderosa pine and mixed conifer forests (Map 5) setting the stage for subsequent prescribed fire (Map 7). The Thomas Creek Project has extensive ponderosa pine and mixed conifer forests identified for thinning (Map 6), and prescribed fire would occur after thinning is completed. Thinning prescriptions would be guided by the appropriate stand density targets based on site type and soil productivity to meet forest health objectives. The KLFHP has professional foresters (ODF, OSU Extension, and USFS) that provide recommendations for each stand. The priority for thinning will be the moderate and high priority stands. In total, there is approximately 90,821 acres (60,049 USFS and 30,772 private) identified as moderate and high priority for thinning in dry ponderosa pine and mixed conifer habitats.

Aspen and Meadow Habitats

There is a need to improve aspen, mahogany, meadow, and shrub-steppe habitat to enhance wildlife habitat by reducing encroaching conifers and juniper. Within the project area, dry ponderosa pine and mixed conifer forests are intermixed with inclusions of aspen and mahogany stands, wet and dry meadows, and sagebrush habitats, providing a diversity of habitat for a variety of wildlife species.

Avian diversity in aspen stands within a conifer matrix is much higher than in dry pine forests alone (Griffis-Kyle and Beier 2003). In Oregon, aspen stands have both a higher diversity and higher density of avian species than those found in the surrounding dry and moist conifer forests (Sallabanks et al. 2005). Conifer encroachment can suppress aspen sprouts as well as overtop and kill the aspen overstory through vegetative competition for light, water, and soil resources (Shepperd et al., 2001a; Jones et al., 2005). Historically, fire would have removed the competing conifers while also stimulating and releasing a larger number of aspen sprouts from the trees and soils that were affected by the fire (Seager et al. 2013). Fortunately, our management experience has shown that even severely suppressed aspen will respond to conifer removal with new suckering, provided that live stems are present (Seager et al. 2013).

Pre- and post-thinning of aspen in the North Warner Project

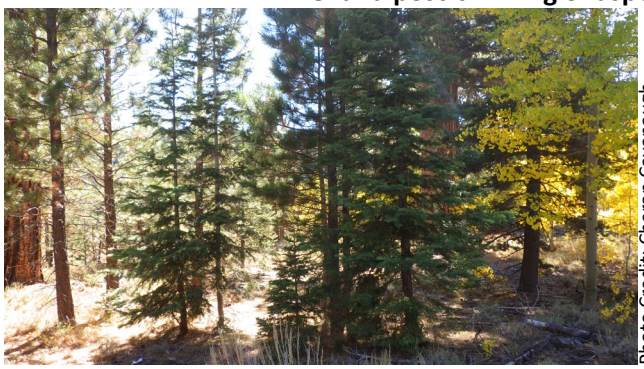


Photo Credit: Cheran Cavanaugh

Pre-thinning

Photo Credit: Cheran Cavanaugh

Post-thinning

Woody-plant encroachment threatens the biodiversity and ecosystem functioning of meadows worldwide (Celis et al. 2019). Conversion of meadows to shrublands, woodlands, or forests can have profound consequences for carbon, water, and nutrient cycling (O'Donnell and Caylor 2012); plant diversity (Ratajczak et al.2012); and for trophic interactions (e.g., plant–pollinator networks) (Hadley and Betts 2011). A recent study by Celis et al. suggests that in a landscape dominated by forests, conifer invasion of meadows can reduce the local and larger-scale diversity of plants and their insect pollinators (2019).

In the North Warner Project, conifers and juniper have been thinned within 3,189 acres (2,084 USFS and 1,105 private) of aspen and meadows habitats (Map 5), setting the stage for subsequent prescribed fire. The Thomas Creek Project has numerous aspen and meadow stands on USFS and private land in need of thinning, and prescribed fire would occur after thinning is completed, reinvigorating these sites (Map 6). The priority for thinning will be the moderate and high priority stands. In total, there is approximately 1,840 acres (208 USFS and 1,632 private) identified as moderate and high priority for thinning in aspen and meadow habitats.

Shrub-steppe Habitats

The spatial extent and number of individual western juniper has increased dramatically since the late 1800s and can have a significant impact on soil resources, plant communities, and wildlife habitat if left

to expand (Miller et al. 2005). Bates et al. showed that cutting of juniper trees was effective in increasing total understory biomass, cover, and diversity (2000). Miller et al. reports that as juniper densities increase and woodland areas continue to expand, sage grouse habitat will decline (2005). The Lake County All Lands Restoration Initiative landscape provides nesting and brood rearing habitat for greater sage grouse mainly on BLM and private lands within the project area, and brood rearing habitat on USFS lands. Sage grouse habitat is primarily on the eastern portions of the project area, where the East Cascades and Great Basin and Range Ecoregions abut.

There are often inclusions of mountain mahogany within shrub-steppe and ponderosa pine habitat types. Mountain mahogany is a very important species for wildlife foraging for species such as mule deer and elk. It also important for avian species, such as red-naped sapsuckers, that create sap-wells for feeding on mountain mahogany. The expansion of juniper and conifer within mountain mahogany woodlands has reduced the health and vigor of many stands within the project area. Combined thinning and prescribed burning within the Lake County All Lands Restoration Initiative landscape offers the opportunity to maintain and improve the health of mountain mahogany habitats.

In the North Warner Project, juniper has been reduced on 9,605 acres (495 USFS and 9,110 private) of shrub-steppe habitat (Map 5). The Thomas Creek Project has numerous shrub-steppe habitats on USFS and private land in need of thinning (Map 6). Old growth juniper would be maintained for wildlife habitat, and prescribed fire would not occur where sagebrush needs to be maintained for sage grouse habitat. The priority for juniper cutting will be the moderate and high priority stands. In total, there is approximately 18,956 acres (264 USFS and 18,692 private) identified as moderate and high priority for juniper cutting in shrub-steppe habitats.

Summary

As stated in the 2019 Governor's Council on Wildfire Response Report, research suggests that strategic treatments across 40% of a given landscape can significantly alter fire behavior for positive benefit (2019). The objective for the Lake County All Lands Restoration Initiative is to thin 40-50% (59,263 - 74,079 acres) of the high and moderate priority stands. Twenty-five percent or 36,541 acres have already been completed within the North Warner portion, leaving 15 – 25% or 22,722 - 37,538 acres to thin across private and USFS lands within the Lake County All Lands Restoration Initiative project area. Thinning treatments would be strategically coordinated, implemented, and completed between USFS and private lands within the larger landscape, which will facilitate cross-boundary prescribed fire across the landscape.

The Lake County All Lands Restoration Initiative landscape has been divided into three implementation zones. The objective is to complete all the necessary thinning within Zone 1 first to allow for expedited application of prescribed fire. Thinning and prescribed fire would then proceed in Zone 2 followed by Zone 3 (Map 6).

Table 2. All high/moderate priority stands within the Lake County All Lands Restoration Initiative (Map 6)

Ownership	Conifer	Aspen/Meadow	Shrub-Steppe	Total
USFS	72,719 acres	2,292 acres	759 acres	75,770 acres
Private	41,849 acres	2,737 acres	27,802 acres	49,094 acres
Total	**114,568 acres**	**5,029 acres**	**28,561 acres**	**148,158 acres**

Table 3. High/moderate priority stands where thinning is completed or in progress[2] (Map 5)

Ownership	Conifer	Aspen/Meadow	Shrub-Steppe	Total
USFS	12,670 acres	2,084 acres	495 acres	15,249 acres
Private	11,077 acres	1,105 acres	9,110 acres	21,292 acres
Total	**23,747 acres**	**3,189 acres**	**9,605 acres**	**36,541 acres**

Table 4. High/moderate priority stands remaining for potential thinning[2] (Map 6)

Ownership	Conifer	Aspen/Meadow	Shrub-Steppe	Total
USFS	60,049 acres	208 acres	264 acres	60,521 acres
Private	30,772 acres	1,632 acres	18,692 acres	51,096 acres
Total	**90,821 acres**	**1,840 acres**	**18,956 acres**	**111,617 acres[3]**

Reintroduce and Maintain Thinning with Fire as an Ecological Process

There is a need to reintroduce fire as an ecological process and to maintain the high investments in thinning treatments. Recent studies suggests there is an enormous deficit of frequent, low-severity fire degrading ecosystems in South Central Oregon and large low severity fires may have been critical to maintaining forest patterns resistant and resilient to fire and drought (Hagmann 2013). Dry forest restoration treatments in fire-dependent ponderosa pine forests that reduce tree density increase ecosystem resilience in the short term, while the reintroduction of fire is important for long-term resilience. (Hood et al. 2016).

Through coordinated efforts across the Lake County All Lands Restoration Initiative landscape, there is ample opportunity to reintroduce fire at larger scales and across ownership boundaries. This is supported by Hessburg et al. which suggests treatments across public and private land through the planning, implementation and monitoring process will expand options for management and create synergies that are otherwise unavailable (2015). For example, the opportunity for prescribed fire on private lands as an ecological process (Leavell et al. 2018) may become an option for landowners through coordinated efforts with adjacent federal agencies, based on coordinated cross-boundary thinning treatments. Coordinated efforts may also open the opportunity to manage a wildfire to meet resource objectives. Thinning on private land and building relationships with private landowners in advance of a wildfire, increases the possibility and likelihood for success.

In 2018, South Central Oregon formed a chapter to the Oregon Prescribed Fire Council to assist with advancing the use of fire as an ecological process within the area. The mission of the Oregon Prescribed Fire Council is to serve as a venue for practitioners, state and federal agencies, academic institutions, tribes, coalitions, and interested individuals to collaboratively promote and conserve the fire adapted natural ecosystems in Oregon, and expand the responsible use of prescribed fire. Effectively advancing the use of fire across ownership boundaries involves great coordination, expertise, agreements, and stakeholder support. The formation of the South Central Oregon local chapter, organized through the KLFHP, will assist with expanding the use of prescribed fire within the Lake County All Lands Restoration Initiative landscape.

Concurrent with this project, the USFS recently completed a strategic fire planning effort with multiple agencies and partners to delineate Potential wildfire Operations Delineations (PODs) using local knowledge and modeled data. PODs are landscape delineations whose boundary features allow for

[2] Subset of acres in Table 2

[3] Objective is to thin 15-25% or 22,722 – 37,538 acres of the total 111,617 acres remaining

better control of a wildfire. Within each POD, partners discussed values at risk and used modeled data to determine potential opportunities for direct or indirect fire suppression strategies. This exercise was completed across jurisdiction boundaries for lands associated with the Fremont-Winema National Forest. For example, the process identifies areas on the landscape where current conditions may allow for use of fire with low risk of loss to resources and includes public and private lands. This effort increased the communication and agreement between partners on: 1) the potential locations and opportunities to use fire to meet resource objectives and 2) applying a risk based response to wildfire.

With the landscape-level coordinated efforts within the Lake County All Lands Restoration Initiative landscape, there are incredible opportunities to work together between agencies, partners, and private landowners to increase the use of fire on the landscape. Extensive thinning across public and private lands will set the stage for introducing fire as an ecological process and maintaining the thinning treatments in the short- and long-term. There is a short- and long- term prescribed fire strategy in place for the North Warner Project area (Map 7) that outlines potential prescribed fire boundaries and the recommended frequency of fire of every 10-20 years, and partners are working to develop landscape prescribed burn plans and the necessary agreements that allow for prescribed fire across public and private lands. Once thinning treatments are underway in the Thomas Creek Project, a similar strategy, burn plans, and agreements will be completed.

Prescribed burning in ponderosa pine

Photo Credit: USFS

Increase Understory Abundance and Diversity

Encroachment of conifers and juniper in dry ponderosa pine, mixed conifer, aspen, meadow, and shrub-steppe habitats, combined with a lack of low intensity fire, has led to decreased understory abundance and diversity. This reduces the quality of habitat for wildlife, pollinators, and riparian resources. Additive to this, noxious weeds have spread and are found throughout the project area. A total of 1,537 noxious weed sites were mapped on the private lands during the mapping and assessment effort, and there are 1,616 known sites on USFS land (Map 8). It's imperative to develop a noxious weed management plan for the Lake County All Lands Restoration Initiative landscape that identifies preventative measures and best management practices (BMPs) for thinning and prescribed fire treatments and to identify a strategy for the timing of noxious weed treatments in relation to the forest restoration treatments. This plan would be developed in partnership between the Lake County CMWA and the USFS.

Enhance Habitat for Oregon Conservation Strategy Species

Dry-type forests are critical to healthy watershed function and process. The aquatic habitat within these forested areas are closely linked with the health of the dry-type forests, which support over 800 fish and wildlife species. Habitats span multiple ownerships, so the restoration of fish and wildlife habitats and connectivity requires a high degree of coordination (Hessburg 2015). This project offers the opportunity to restore dry forests to benefit fish and wildlife habitat in partnership between federal agencies and private landowners.

Thinning and prescribed fire treatments are designed to maintain and enhance habitat for a variety of wildlife species across the Lake County All Lands Restoration Initiative landscape. A few basic concepts apply to thinning on USFS land, and strongly encouraged for private landowners as well. These concepts

are well documented in the "Wildlife-Friendly Fuels Reduction in Dry Forests of the Pacific Northwest" paper (Strong et al. 2016) which is provided to private landowners during the land management planning process. Maintaining habitat complexity elements in the overstory and understory are critical for many forest wildlife species in the form of snags and down wood, legacy trees, openings, and untreated patches. For example, small clumps of trees provide a place for deer and elk to hide from predators; shrub clumps provide nesting and hiding cover for ground nesting birds and small mammals; snags provide nesting and foraging habitat for many bird species; logs provide ground cover for small mammals, amphibians, and reptiles, release nutrients back into the soil, and provide insects for birds and bears (Strong 2016).

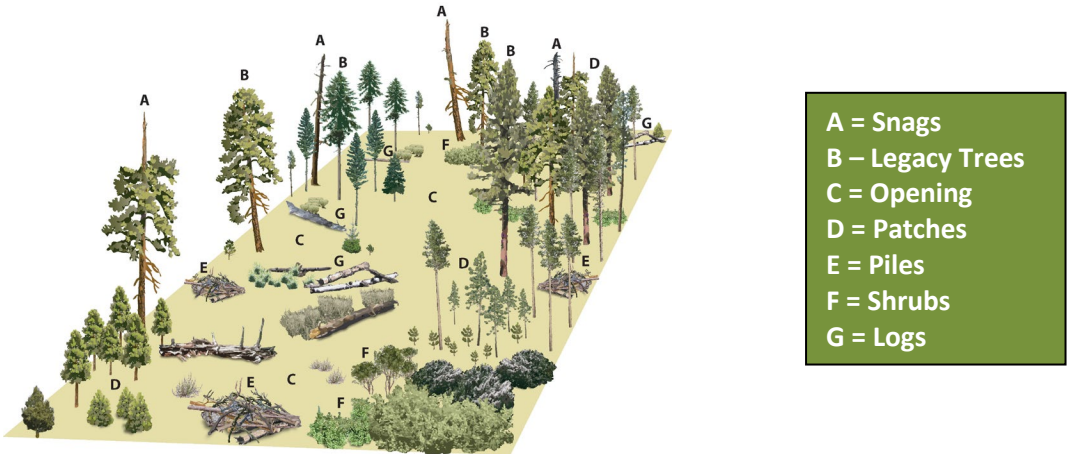


Figure 2. A forest treated to reduce fire risk, be more resilient to insects and disease, and enhance wildlife habitat. [4]

Spatial variability in dry forest stands are also an important component of forest structure that governs ecological processes and functions from the micro- to meso- scale (Churchill et al. 2018). Spatial variability involves retaining trees with variable spacing to allow for openings, individual trees, and clumps of trees. Modifying spatial pattern and tree density through restoration treatments can positively influence dry forest processes and functions including fire behavior, drought resistance, insects and pathogens, snow retention, tree regeneration and growth, wildlife habitat, and understory diversity (Churchill et al. 2018).

The Lake County All Lands Restoration Initiative project, in coordination with previous and ongoing aquatic restoration, will benefit several priority species that are both strategy species identified in the Oregon Conservation Strategy and a species of concern for the USFS. These priority species include Warner sucker, Great Basin redband trout (Chewaucan, Goose Lake, Warner Lakes), Modoc sucker, gray wolf, black-back woodpecker, greater sage grouse, Lewis's woodpecker, northern goshawk, and white-headed woodpecker. Table 5 provides a summary of the benefits of thinning and prescribed fire to these terrestrial and aquatic species.

[4] Source of figure: Strong et al. 2016.

Table 5: Benefits of thinning and prescribed fire to Oregon Conservation Strategy species

Species	Benefits
Warner Sucker	Upland thinning and prescribed fire will reduce the risk of sedimentation and poor water quality from high severity wildfire. In addition, there are benefits from fish passage and screening at irrigation diversions on Honey Creek recently completed in the project area.
Great Basin redband trout	Upland thinning and prescribed fire will reduce the risk of sedimentation and poor water quality from high severity wildfire. In addition, there are benefits from instream restoration, fish passage, habitat enhancement, and riparian area improvements on Crooked Creek and Thomas Creek recently completed within the project area.
Modoc sucker	Upland thinning and prescribed fire will reduce the risk of sedimentation and poor water quality from high severity wildfire. In addition, there are benefits from fish passage, screening, riparian area enhancement, habitat enhancement and stabilization on Thomas Creek recently completed within the project area.
Gray wolf	Thinning and prescribed fire at landscape scales would improve habitat for prey species such as elk and mule deer.
Black-backed woodpecker	Large blocks of untreated areas are identified for no treatment on USFS land; prescribed fire will increase snag densities.
Greater sage grouse	Thinning in shrub-steppe habitats and meadows would increase the production and quality of early successional plants and maintain sagebrush; reduced risk of habitat loss resulting from high severity wildfire.
Lewis' & white-headed woodpeckers	Thinning in ponderosa pine and mixed confer habitats will transition dense multi-story stands to open stands; prescribed fire will increase snag densities; variable prescriptions for retaining and creating clumps and openings will enhance habitat; reduced risk of loss of habitat from high severity wildfire.
Northern goshawk	Within the known territories on USFS, treatments are designed to maintain habitat; openings and prescribed fire improve foraging habitat; thinning with complexity improves nesting and foraging habitat; reduced risk of habitat loss resulting from high severity fire.

Addressing Recommended Conservation Actions within Oregon Conservation Opportunity Areas

There is a need to address the recommended conservation actions within the Oregon Conservation Opportunity Areas to conserve habitat for strategy species. This Lake County All Lands Restoration Initiative landscape offers the opportunity to address the recommended conservation actions identified within the Thomas Creek-Goose Lake and Warner Mountains Oregon Conservation Opportunity Areas. With recent aquatic restoration completed within the project area, this offers a unique opportunity to accomplish ridgetop to ridgetop restoration restoring uplands down to waterbodies. Table 6 provides a summary of how this project would address the recommended conservation actions.

Table 6: How does the Lake County All Lands Restoration Initiative address Conservation Actions?

Recommended Conservation Action	How the Project Addresses the Conservation Action
Thomas Creek-Goose Lake COA (Thomas Creek Project)	
Maintain or enhance in-channel watershed function, connection to riparian habitat, flow and hydrology	Twenty-six miles of instream restoration on Thomas Creek (20 miles private and 6 miles USFS), 8 fish passage projects, and 1 riparian fence were recently completed within the Thomas Creek Project.
Maintain or restore riparian habitat and ecological function, ensuring sufficient habitat complexity for wildlife	Twenty-six miles of instream restoration on Thomas Creek (20 miles private and 6 miles USFS), 8 fish passage projects, and 1 riparian fence were recently completed within the Thomas Creek Project.
Maintain riparian, wet meadow habitats and emergent wetlands	Twenty-six miles of instream restoration on Thomas Creek (20 miles private and 6 miles USFS), 8 fish passage projects, and 1 riparian fence were recently completed within the Thomas Creek Project.
Warner Mountains COA (North Warner Project)	
Maintain or restore aspen woodland and sagebrush habitats	Approximately 3,189 acres of aspen and 9,605 acres of shrub-steppe have been restored within the North Warner Project.
Maintain or restore riparian habitat and ecological function	Instream restoration was recently completed on 15 miles of Crooked Creek on private lands.
Use fire and thinning as needed to restore and enhance Ponderosa Pine habitats	Approximately 23,747 acres of thinning has occurred within ponderosa pine habitats within the North Warner Project, with prescribed fire to follow.

Engaging with Communities on Forest Restoration, Fire, and Smoke

There is a need to engage with local communities on forest restoration, fire, and smoke to increase understanding and to gain stakeholder support for increased thinning and use of fire as an ecological process. Through the coordinated efforts of this project, there are many opportunities for engaging with local communities. This process has been ongoing with landowners associated with the North Warner Project and serves as a model for engaging with landowners in the Thomas Creek Project.

In 2016, dry forest stands were mapped and assessed for approximately 30 private landowners totaling 32,000 acres in the North Warner Project. In addition, data was collected on fuel loading, understory trees, aspen condition, springs, and noxious weed locations. The maps and data were used to inform priorities and treatment recommendations, and they provided a foundation for developing land management plans. The private land mapping and assessment provided an excellent outreach and engagement tool between partners and private landowners. In 2019, a similar mapping and assessment effort was completed for approximately 175 landowners totaling 48,565 acres in the Thomas Creek Project, through an OWEB Technical Assistance grant and USFS funding.

The partners also informed and engaged landowners through mailings, meetings, workshops, phone calls, social media, and in-person discussions for the North Warner project. These efforts were instrumental in helping private landowners understand the need for thinning to improve forest health, wildlife habitat, and to reduce the risk of high severity fire. The partners are now engaging with the North Warner Project landowners on the use of prescribed fire. The first step in using fire is to burn the slash piles generated from thinning. A pile burning workshop was held in Oct. of 2018 to provide landowners with the knowledge and resources for safely and effectively burn slash piles.

The success of the North Warner Project will be used to develop the following products to aid in further landowner outreach and engagement, particularly for the new landowners within the Thomas Creek Project. These efforts are funded through OWEB Stakeholder Grant awarded in 2019.

1) A 2-page fact sheet that captures current forest health conditions, the need for restoring dry forests, the KLFHP implementation process (Leavell et al. 2018), treatment options that are best suited for the landscape, and highlights on the benefits of using prescribed fire as a tool for long-term maintenance.
2) A 3-5 minute film to visually demonstrate how our forests in Lake County have declined in health over the last 100 years and the current need for restoration, a demonstration of dry forest restoration strategies that can be implemented through working together across jurisdiction boundaries to thin ponderosa pine and mixed conifer stands and remove invasive juniper, and to spotlight the benefits of using prescribed fire as the tool in maintaining thinning and reintroduction of fire for benefitting ecological processes.
3) A 2-4 page newsletter to be mailed out to the 480 landowners within the Lake County All Lands Restoration Initiative landscape. The purpose of this newsletter will allow for an update on the dry forest restoration actions completed on public and private land within the Lake County All Lands Restoration Initiative landscape. The newsletter will reiterate the benefits of all stakeholders working together and will also demonstrate progress made through maps, photos, and charts. The newsletter will further explain the benefits of prescribed burning as a sustainable plan and continue to connect landowners to resources in order to implement prescribed burning for future maintenance.
4) Hold a prescribed burning workshop with our stakeholders where private, state, and federal entities can train, plan, and complete prescribed burns together.

To prepare for the increased scale and use of the prescribed fire within the project area, the KLFHP is also working with Lake County Public Health, Lake County Commissioners, Lakeview Air Quality Committee, and Department of Environmental Quality to develop a Community Response Plan (CRP) for the Lakeview Smoke Sensitive Receptor Area. In 2020, Lake County received a grant from the Oregon Department of Environmental Quality for the Forest Stewards Guild to develop the Lakeview CRP. This plan is part of a formal request under the 2019 Oregon prescribed fire smoke management plan for an exemption from the 1-hour smoke intrusion threshold. Such action is necessary because of the urgent need to increase the pace and scale of prescribed fire treatments. Through the enhanced community outreach, communications, and notifications outlined in this plan, the window of opportunity for using prescribed fire will increase while mitigating public exposure to smoke from wildland fire sources (prescribed and wildfire) and better protect public health and safety in the near- and long-term.

All of the efforts described above will result in a better understanding within our local communities on the benefits of dry forest restoration, the beneficial use of fire, and the trade-offs between smoke generated from wildfire versus prescribed fire. By building stakeholder support in the local community, there is an opportunity to foster a sustainable, landowner-driven approach to forest management that will extend the life and benefits of implemented treatments.

Providing Economic Benefits

There is a need to increase the economic benefits to the rural communities associated with this project based upon the local economic conditions. In Lake County where residents are older, household income is lower, there is higher unemployment, and more of the population is living in poverty than the statewide average, forest restoration offers an important opportunity for economic benefits. Forest

restoration activities can create considerable economic activity and jobs. Data suggest that in Oregon, forest restoration projects could: 1) create or retain approximately 13 jobs and generate approximately $2.2 million in total economic activity performing mechanical forest restoration projects such as hazardous fuels reduction, per $1 million invested and 2) create or retain nearly 29 jobs and generate over $2.1 million in total economic activity performing labor intensive work such as tree planting and manual thinning activities, per $1 million invested (Moseley and Max Nielson-Pincus 2009). This project could create or retain in the range of 156-348 jobs as a result of this project alone, which is significant for the small rural communities of Lakeview, Valley Falls, and Paisley.

8. Theory of Change

Strategy 1: Thinning
This strategy focuses on thinning to restore and promote healthy ponderosa pine, mixed conifer, aspen, meadow, and shrub-steppe habitats and to set the stage for beneficial short-term and long-term maintenance with prescribed fire.

Actions

- Share knowledge and engage landowners[1i] through mailings, meetings, workshops, phone calls, social media, and in-person discussions.
- Use the private land mapping and inventory to assist landowners in developing land management plans[2i] that identify the priority and location for thinning.
- A noxious weed management plan for the Lake County All Lands Restoration Initiative project is developed to inform preventative measures during thinning treatments (BMPs) and noxious weed treatment plans[3i].
- Identify priority areas[5i] for thinning treatments based upon private land management plans and the USFS Crooked Mud Honey and Thomas Creek Environmental Analysis.
- Noxious weed BMPs are incorporated into thinning treatments and priority sites are treated[6i].
- Implement targeted thinning and slash treatment to reduce tree and fuel density[7i].
- Ecological, social, and economic monitoring is reported to the partnership for evaluation and adjustments as needed[8i].
- Landowners and key stakeholders are provided with a summary report via newsletter or workshop[9i].

Theory of Change
Completing a multi-year private landowner outreach and engagement effort to improve the awareness and understanding of forest management will result in increased thinning on private lands.

- By building stakeholders in the community, the project will foster a sustainable, landowner-driven approach to forest management that will extend the life and benefits of implemented treatments[1i].
- Outreach and engagement workshops will result in development of land management plans[2i] (Leavell et al. 2018) that include thinning to restore healthy forests.
- The pace and scale of forest restoration will increase due to private landowner participation[7i] (Leavell et al. 2018).

Thinning in priority areas will protect and improve habitat supporting forest dependent wildlife[8e], increase landscape resilience to extreme fire, drought, and insect and disease[9e], and provide economic benefits to local communities[10e].

- Reducing the density of trees in dry ponderosa pine and mixed conifer habitats[1e] within priority areas will improve the growth and vigor of conifers[5e] (Hood et al. 2016) and increase understory diversity and abundance[6e] (Dodson et al. 2008).
- Thinning in dry ponderosa pine and mixed conifer forests will increase the landscape resilience to extreme fire, drought, insects and disease[9e] (Hood et. al. 2016).
- Reducing conifers and juniper in aspen to less than 20 percent will promote regeneration and multiple age classes[7e] (Swanson et al. 2010).
- Reducing conifer and juniper in meadow habitats will increase the diversity of riparian vegetation[6e] (Celis et al. 2019).
- Reducing juniper in shrub-steppe habitats will increase total understory biomass, cover, and diversity[6e] (Bates et al. 2000).
- Coordinated treatments across public and private land through the planning, implementation and monitoring process will expand options for management and create synergies that are otherwise unavailable (Hessburg et al. 2015). For example, commercial harvest on a small property[7i] may become economically viable when implemented with adjoining properties.
- Landscape-scale thinning treatments will reduce risk of wildfire[9e] to fish and wildlife habitat, water quality, and communities and improve habitat for dependent wildlife species[8e] at meaningful scales.
- Contracted work will provide economic benefits to the local communities[10e] (Moseley and Max Nielson-Pincus 2009).

Strategy 2: Prescribed Fire

This strategy focuses on re-introducing low to moderate intensity fire as a key ecological process, to maintain thinning treatments in the short- and long-term, and to re-establish the historical range in the frequency of fire.

Actions

- Share knowledge and engage landowners[1i] through mailings, meetings, workshops, phone calls, social media, and in-person discussions.
- Use the private land mapping and inventory to assist landowners in developing land management plans[2i] that identify potential opportunities for prescribed fire.
- A noxious weed management plan for the Lake County All Lands Restoration Initiative project is developed to inform preventative measures (BMPs) during prescribed fire and noxious weed treatment plans[3i].
- Develop a short- and long-term strategy for the location and frequency of fire across the entire landscape[4i] that would maintain the investment in thinning treatments and re-establish the historical range in the frequency of fire.
- Identify priority areas[5i] for prescribed fire treatments based upon private land management plans and the USFS Crooked Mud Honey and Thomas Creek Environmental Analysis.
- Noxious weed BMPs are incorporated into prescribed fire treatments and priority sites are treated[6i].
- Implement first entry prescribed fire to reduce small diameter tree and fuel density[7i].
- Ecological, social, and economic monitoring is reported to the partnership for evaluation and adjustments as needed[8i].
- Landowners and key stakeholders are provided with a summary report via newsletter or workshop[9i].

Theory of Change
Completing a multi-year private landowner outreach and engagement effort to improve the awareness and understanding of fire ecology will result in use of prescribed fire on private lands.

- Outreach and engagement workshops will result in development of land management plans[2i] (Leavell et al. 2018) that include opportunities for prescribed fire.
- By building stakeholders in the community, the project will foster a sustainable, landowner-driven approach to forest management that will extend the life and benefits of implemented treatments[1i].
- The pace and scale of forest restoration will increase due to private landowner participation[7i] (Leavell et al. 2018).

Re-introducing low to moderate intensity fire as a key ecological process with first entry prescribed fire, will protect and improve habitat supporting forest dependent wildlife[8e] and increase landscape resilience to extreme fire, drought, and insect and disease[9e].

- Prescribed fire will increase understory diversity and abundance[6e] (Dodson et al. 2008).
- Prescribed fire in dry ponderosa pine and mixed conifer forests will increase the landscape resilience to extreme fire, drought, insects and disease[9e]. (Hood et. al. 2016).
- Prescribed fire will promote aspen regeneration and multiple age classes[7e] (Swanson et al. 2010).
- Coordinated treatments across public and private land through the planning, implementation and monitoring process will expand options for management and create synergies that are otherwise unavailable (Hessburg et al. 2015). For example, the opportunity for prescribed fire on private lands[7i] as an ecological process (Leavell et al. 2018) may become an option for landowners through coordinated efforts with adjacent federal or state agencies.
- Landscape-scale prescribed fire treatments, in combination with thinning, will reduce risk of wildfire[9e] to fish and wildlife habitat, water quality, and communities, and improve habitat for dependent wildlife species[8e] at meaningful scales.

9. Progress Monitoring Framework

The Lake County Resources Initiative (LCRI) has a long standing monitoring program that began in 2002. Each year, a trained crew leader with a crew of 6-8 high school and college students collect data that informs management on USFS lands. The monitoring itself involves collecting data in four main areas: aquatics, canopy, vegetation, and soils. The work is guided by a monitoring plan titled the Lakeview Collaborative Forest Landscape Restoration (CFLR) Project Monitoring Plan (Markus et al. 2014). Using the CFLR Monitoring Plan (Markus et al. 2014) as a guide, LCRI will develop an all lands monitoring plan for both private and USFS lands for the Lake County All Lands Restoration Initiative project which include ecological, social, and economic monitoring. The LCRI monitoring crew will implement the monitoring following established monitoring protocols, complete annual reports, report results to the partnership, and recommends adjustments to implementation as needed.

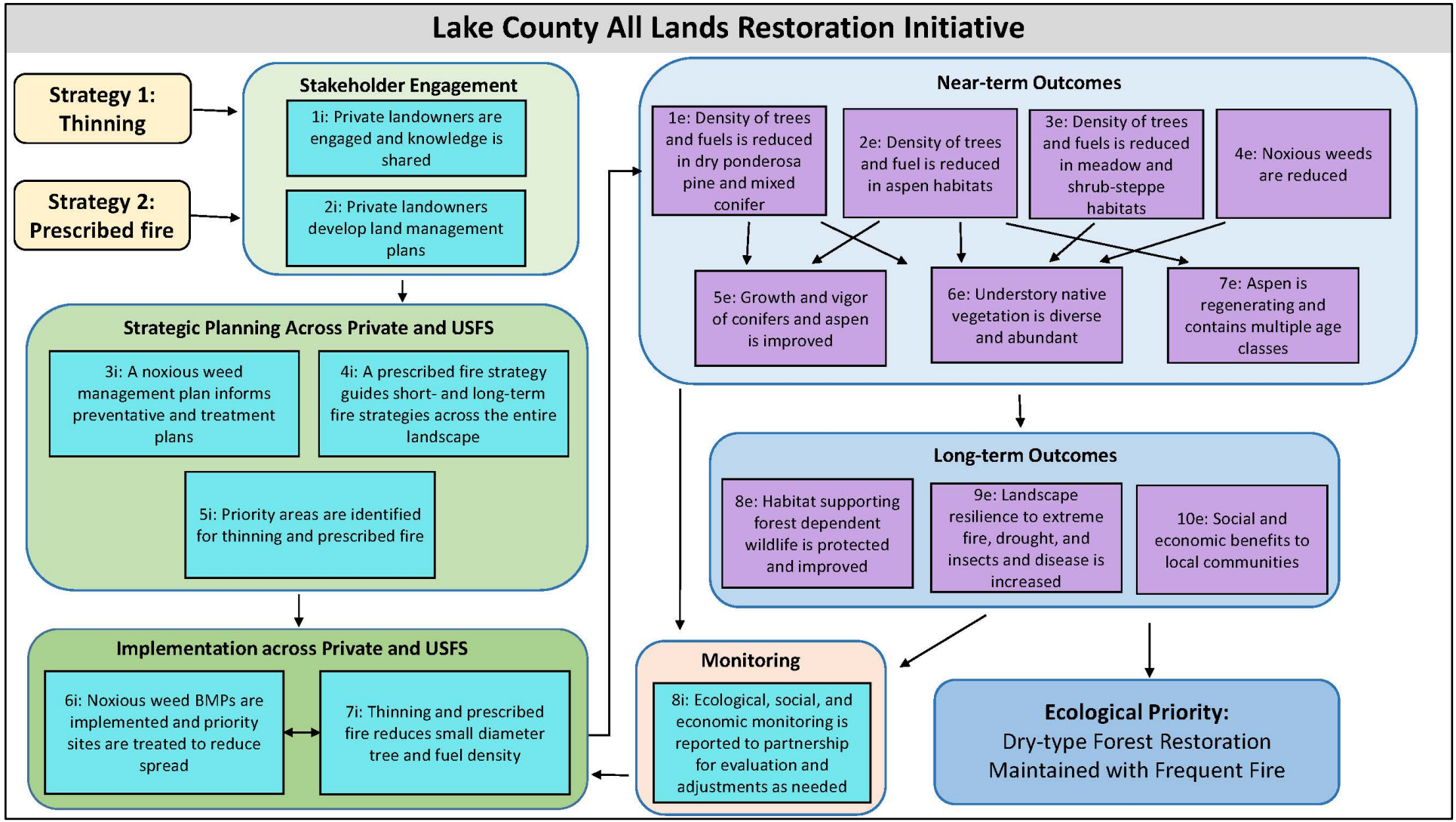
Table 7: Outputs

Implementation Results (Output)	Objective	Metric
1i Private landowners are engaged and informed	By 2021, 75% of landowners within the project area contacted and informed	Number of participating landowners
2i Private landowners develop land management plans	By 2021, 50% of landowners will have a land management plan	Number of land management plans
3i A noxious weed management plan informs preventative and treatment plans	By 2021, complete a noxious weed management plan for the project area	Management plan completed
4i A prescribed fire strategy guides short- and long-term fire strategies	By 2021, a coordinated long-term prescribed fire strategy across public and private land is completed	Strategy completed
5i Priority areas are identified for thinning and prescribed fire	By 2021, priority areas are identified and mapped	Priority areas mapped
6i Noxious weeds BMPs are implemented and priority sites are treated to reduce spread	By 2027, BMPs for preventative measures are incorporated into thinning and prescribed fire treatments and priority acres are treated	Implementation of BMPs Acres noxious weeds treated
7i Thinning and prescribed fire reduces small diameter tree and fuel density	By 2027, 40-50% of priority conifer, aspen, meadow and shrub-steppe habitats are thinned By 2027, prescribed fire applied on 40% of area identified for prescribed fire in the North Warner Project By 2040, prescribed fire applied on 60% of the area identified for prescribed fire in the Lake County All Lands Restoration Initiative area	Acres thinned Acres prescribed burned
8i Ecological, social, and economic monitoring is reported to the partnership for evaluation and adjustments as needed	The partnership will review the annual monitoring report and made adjustments to implementation as needed	Annual review of monitoring results
9i Landowners and key stakeholders are provided with a summary report via newsletter or workshop	By 2027, analysis and summary report provided to all participating landowners and key stakeholders	Production of report

Table 8: Ecological and economic outcomes

Ecological and Social Outcomes	Outcome	Metric
1e-Density of trees and fuels is reduced in dry ponderosa pine and mixed conifer habitats	By 2027, tree stocking in treated areas is comparable to the natural range of variability and surface fuels are reduced	Stand structure (tree species, density, and basal area) Fuel measurements
2e-Density of trees and fuels is reduced in aspen habitats	By 2027, shading and competition by conifers will be reduced to less than 20% in treated aspen habitats	Stand structure (tree species, age, and density) Conifer canopy closure
3e-Density of trees and fuels is reduced in meadow and shrub-steppe habitats	By 2027, encroaching conifers and junipers will be reduced in treated meadow and shrub-steppe habitats	Stand structure (tree species and density)
4e Noxious weeds are reduced	By 2027, priority weed sites are Treated as recommended in the noxious weed management plan	Acres of weeds treated
5e-Growth and vigor of conifers and aspen is improved	By 2027, conifers and aspen within treated stands show improvement in tree growth and vigor	Tree diameters and aspen percent crown Presence of insect or disease
6e-Understory native vegetation is diverse and abundant	By 2027, understory vegetation will show increases in abundance and diversity	Understory vegetation diversity and abundance
7e-Aspen is regenerating and contain multiple age classes	By 2027, aspen within treated stands show evidence of regeneration and vigor	Aspen age class and density
8e-Habitat supporting forest dependent wildlife is maintained and improved	By 2027, habitat structure and function necessary to support forest dependent species maintained or improved for Oregon Conservation Species	Acres if conifer, aspen, meadow, and shrub-steppe habitats treated
9e-Resilience to extreme fire, drought, and insect and disease is increased	By 2027, modeled fire risk across the project area is reduced by 50%. By 2040, modeled fire risk across the project area is reduced by 75%.	Modeled wildfire hazard
10e-Social and economic benefits to local communities	By 2027, there will be realized social and economic benefits to Lakeview, Valley Falls, and Paisley	Social and economic impact monitoring

Figure 3: Results chain



10. Adaptive Management

As noted in the document *Adaptively Managing Restoration Initiatives a Guide for Oregon Watershed Enhancement Board's Focused Investment Partnership Program* (Warren et al.), the fundamental principles of adaptive management are to engage key partners, plan, implement, evaluate, adjust, and institutionalize adaptive management. This Strategic Action Plan clearly identifies engagement with key partners, provides a strategic plan for implementation, and includes a strategy for monitoring to allow for evaluation and adjustments in implementation as needed. This will be further refined with the development of an all land monitoring plan for the Lake County All Lands Restoration Initiative project.

The KLFHP is already operating through an adaptive management framework. The KLFHP has learned a great deal from the planning and implementation of the North Warner Project as documented in Leavell et al. (2018). This, along with the expected lessons learned from implementing prescribed fire, is already being applied through an adaptive management framework in the Thomas Creek Project. For example, the private land mapping and assessment effort used in the North Warner Project was modified for the Thomas Creek Project. Adjustments were made to the data collection protocols to allow for a better transition into implementation, and data collection was also improved by using the Collector for GIS App allowing for easier sharing of data between agencies. For example, the Lake County CWMA can easily assess noxious weed sites documented within the project area. There are also many other lessons learned about treatment prescriptions, working with contractors, formation of agreements between partners, etc. that will allow for more effective and efficient planning and implementation in the Thomas Creek Project.

"The KLFHP has learned a great deal from the planning and implementation of the North Warner Project…This, along with the expected lessons learned from implementing prescribed fire, is already being applied through an adaptive management framework in the Thomas Creek Project."

As planning and implementation in the Lake County All Lands Restoration Initiative continues, annual review of treatments, location of treatments, and monitoring data will provide partners with the treatment pace and placement relative to values at risk. Pre- and post-treatment implementation data will illustrate treatment effectiveness, thinning stands to target densities, and transitioning between fuel models and successional states. Prescriptions and/or location of treatments may be adjusted if needed to meet objectives as informed by ongoing landscape prioritization by the partners, emerging monitoring data collected by Lake County Resources Initiative, or new science. Prescribed fire implementation may trigger a review of the burning objectives, operational communications, and ignition patterns. The KLFHP will continue with regular meetings, networking with science colleagues, community groups, and professional conferences, and incorporating ongoing individual professional development.

11. Sustainability

The KLFHP fully embraces the recent recommendations identified in the recent USDA Forest Service report titled *Toward Shared Stewardship across Landscapes: An Outcome Based Strategy*. As recommended in this report, the KLFHP is already working together with partners and stakeholders across shared landscapes to set goals and priorities, to implement science-based forest restoration, and to share the responsibilities of reducing the potential of high

"…each agency and partner involved in the KLFHP is committed to continuing this high priority work."

severity wildfire; capitalizing on all agreements, authorities and active management tools; stepping up the use of prescribed fire in concert with thinning; reintroducing the right kind of fire at the right times in the right place; and applying a risk based response to wildfire. In many ways, the KLFHP is a leader in the state of Oregon for actively managing through shared stewardship as outlined in the *Shared Stewardship in Klamath and Lake Counties Memorandum of Understanding*, and each agency and partner involved in the KLFHP is committed to continuing this high priority work.

Through the success in the North Warner, Chiloquin, and Thomas Creek Projects in gaining grants for implementation, as well as support from agency leadership, the partnership has added capacity to sustain these programs. Newly hired positions include a project manager with the LCUWC to manage and implement forest health projects, a trained forester to manage the overall implementation on private lands within the Lake County All Lands Restoration Initiative landscape with ODF, a Cohesive Strategy Coordinator to coordinate programs across public and private for the USFS, and an OSU Extension Fire Specialist to assist with landowner outreach and engagement and to advance the use of prescribed fire for OSU Extension. Local efforts are consistent with a study by Nielsen-Pincus and Mosely that suggests that a sustained investment in restoration creates both new local organizational capacity in watershed councils and other community-based partners and business opportunities especially in rural Oregon (2013).

"…the Partnership has added capacity to sustain these programs. Newly hired positions include:"
LCUWC - Forest health project manager ODF – Natural Resource Specialist 2 USFS – Cohesive Strategy Coordinator OSU Extension – Fire Specialist Extension Agent

The core partners in the KLFHP have a proven track-record and commitment to sustaining these types of efforts and successfully executing active management with funding from multiple federal, state, and private funding sources. There are multiple agreements in place between all partners that can be used into the future to complete work and/or transfer funding as needed. The partners coordinate at monthly KLFHP meetings and more frequently at project sub-committee meetings, so projects are always moving forward at a surprisingly rapid pace. For example, in a three-year time frame, the partnership has a proven track record of going from planning to landowner outreach to grant writing to implementation of several thousand acres of dry forest restoration treatments. With much pride, the KLFHP will continue to focus their actions toward on-the-ground treatments to accomplish ridgetop to ridgetop restoration in coordination between public and private lands.

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13. Partnership Certification

I certify that this strategic action plan is a true and accurate presentation of the proposed work and that I am authorized to sign as the Partner Representative or Co-Representative(s).

3-20-20

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Lake County Cooperative Weed Management Area

04-09-2020

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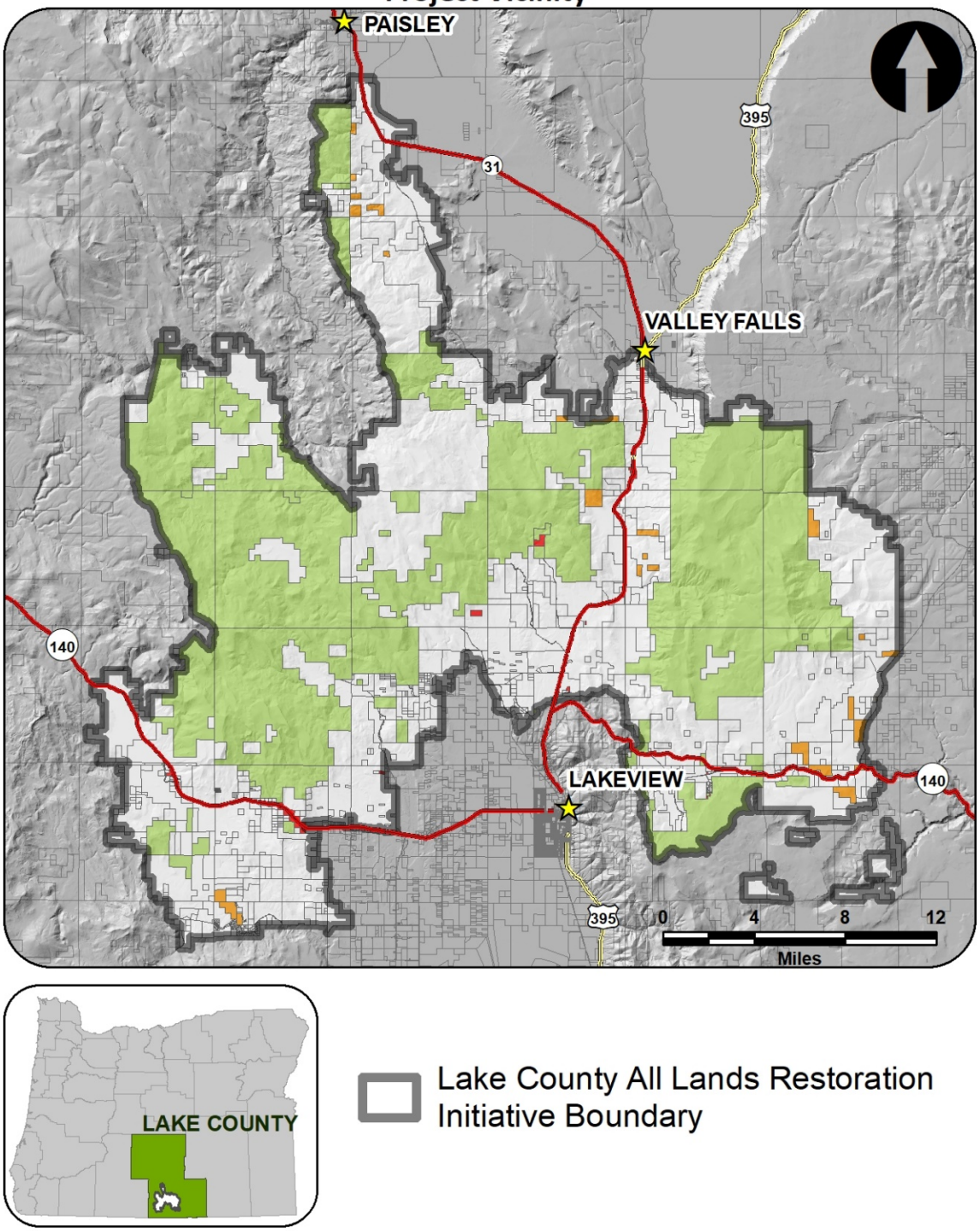
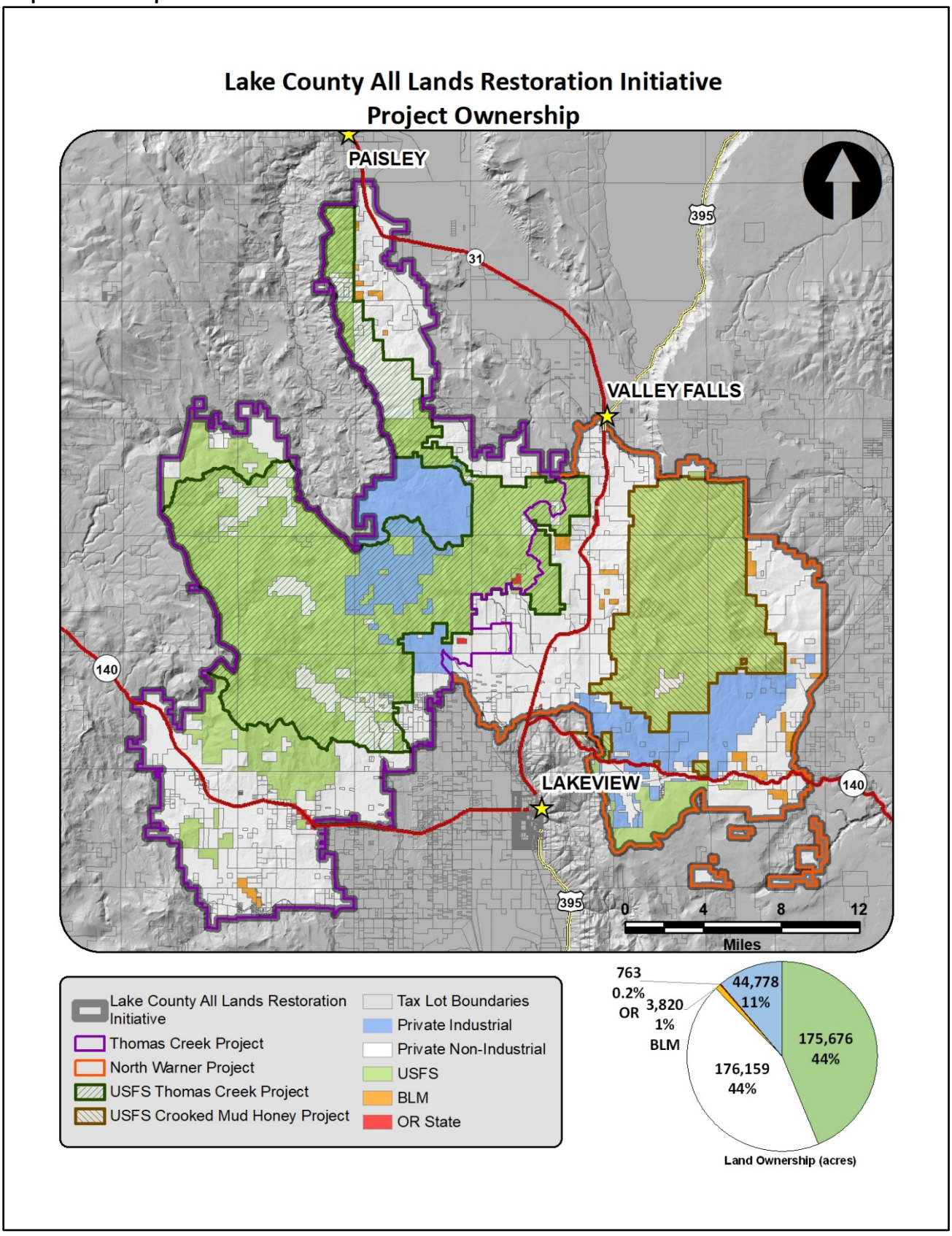
14. Maps

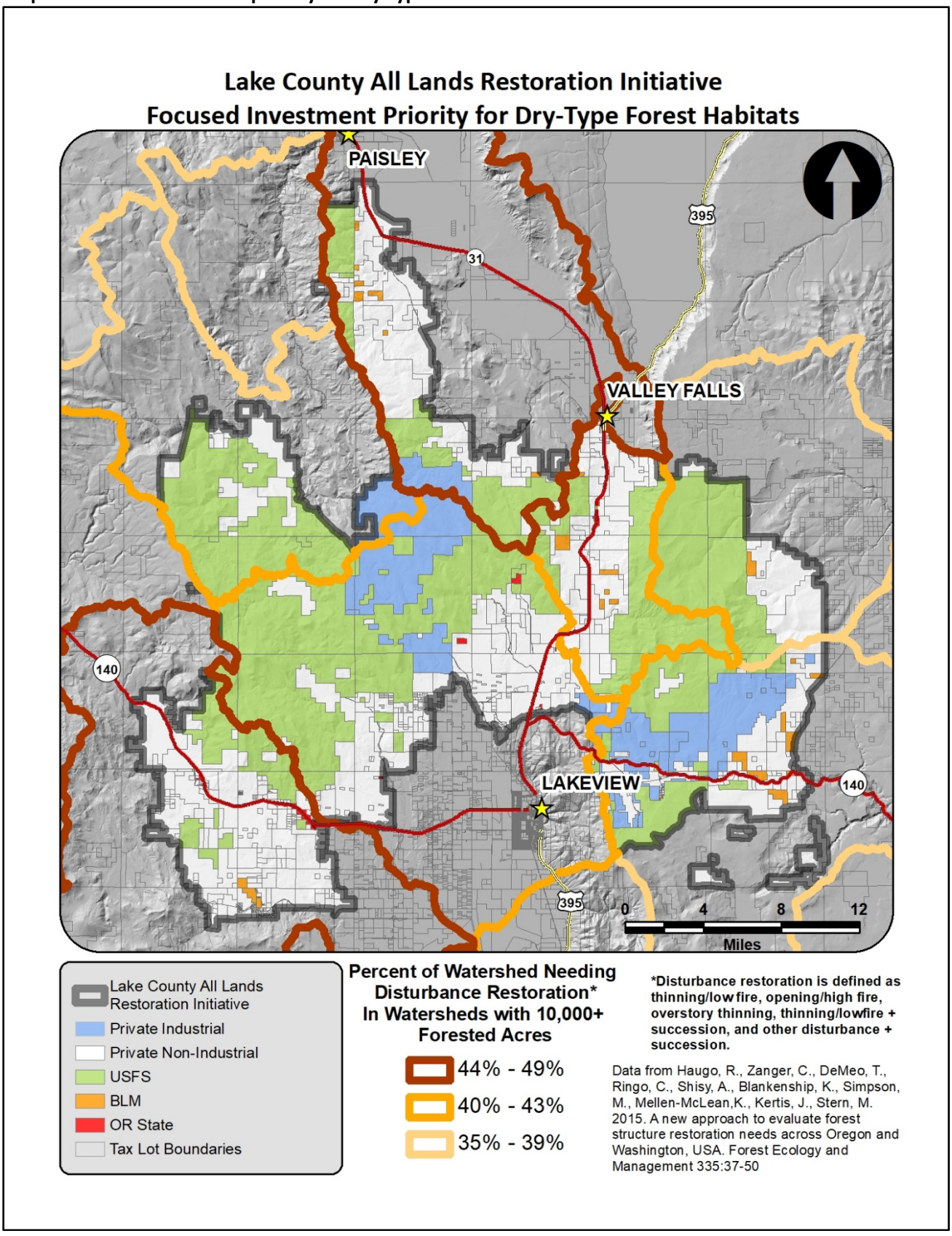
Map 1. Vicinity



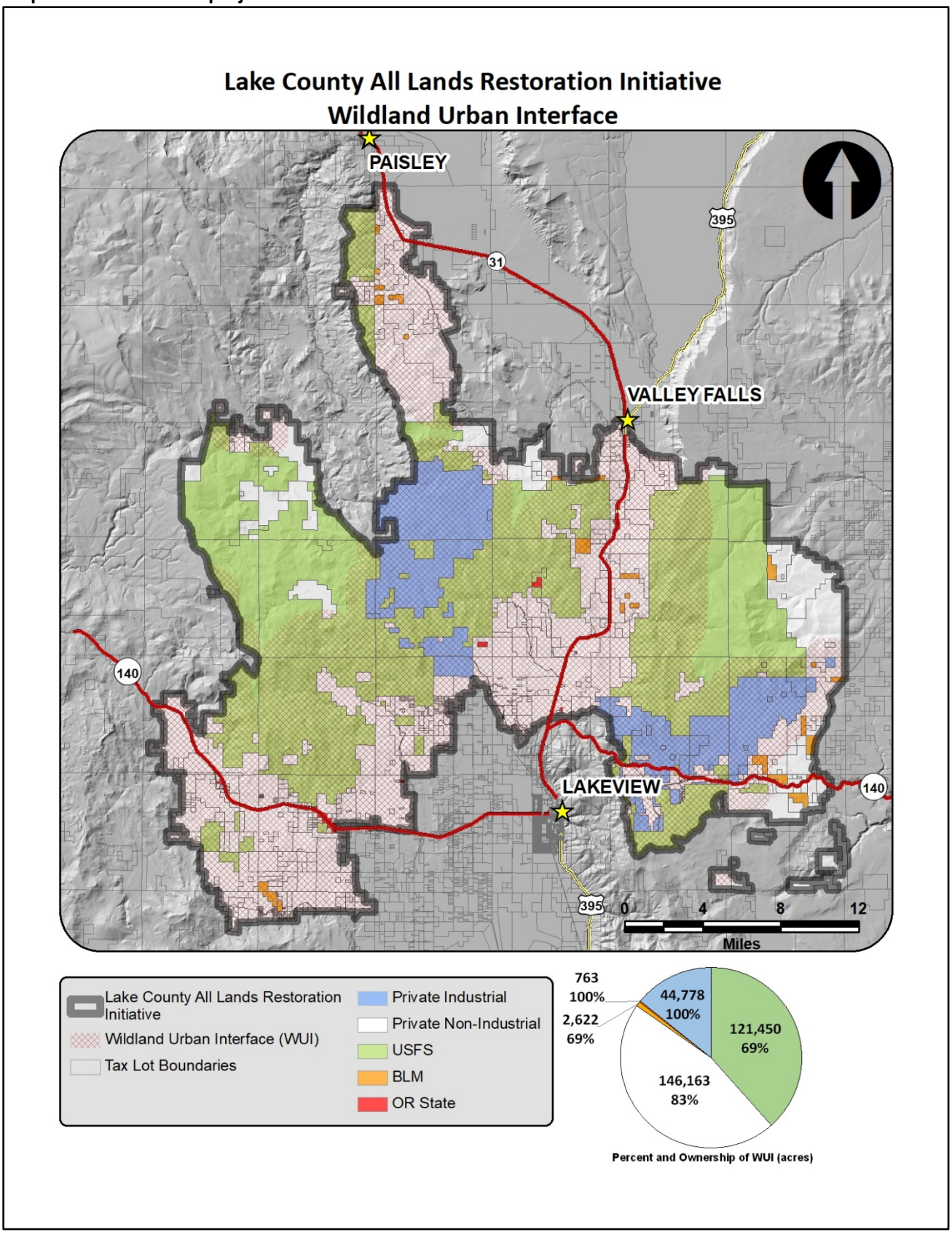
Map 2. Ownership



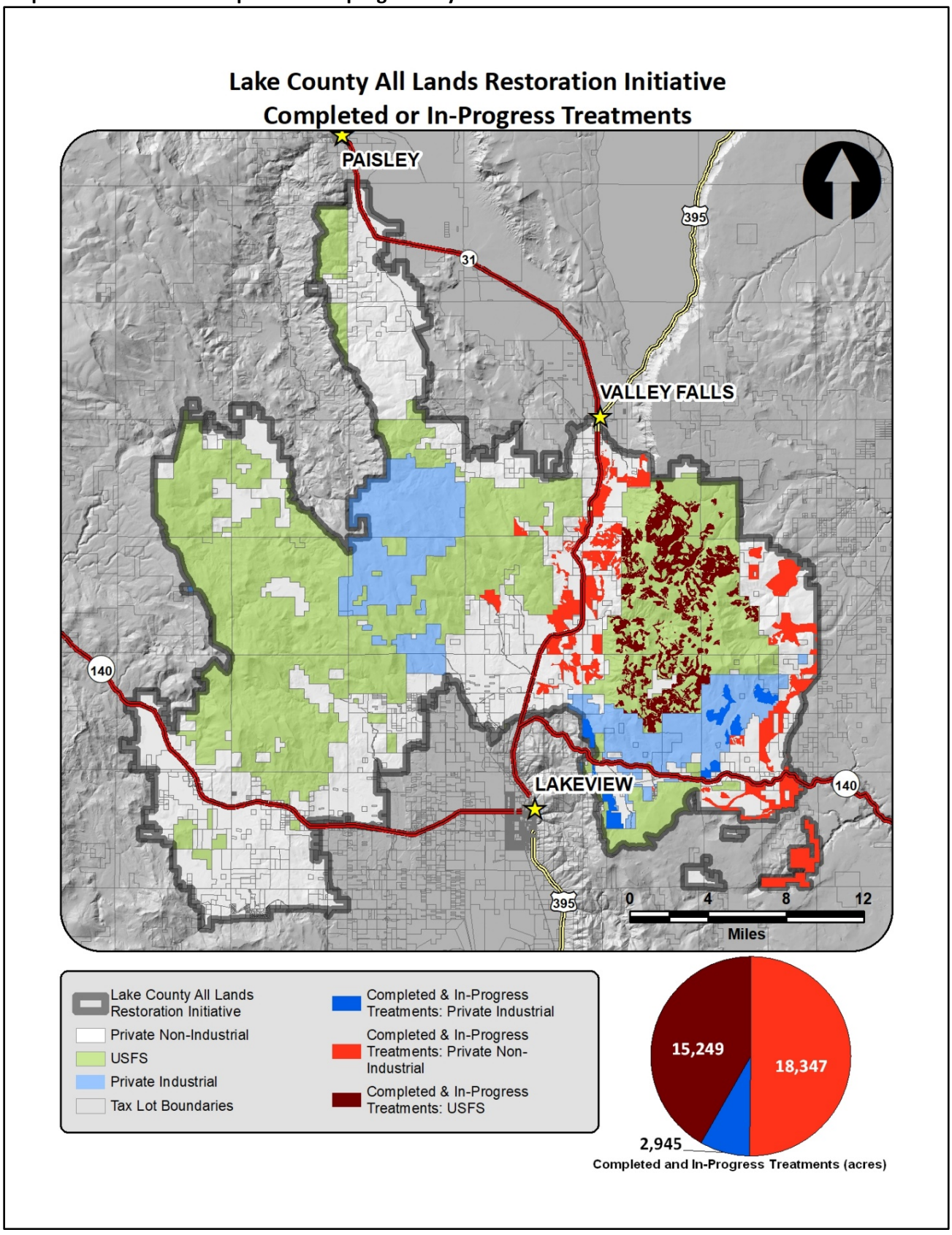
Map 3. Focused investment priority for dry-type forest habitats



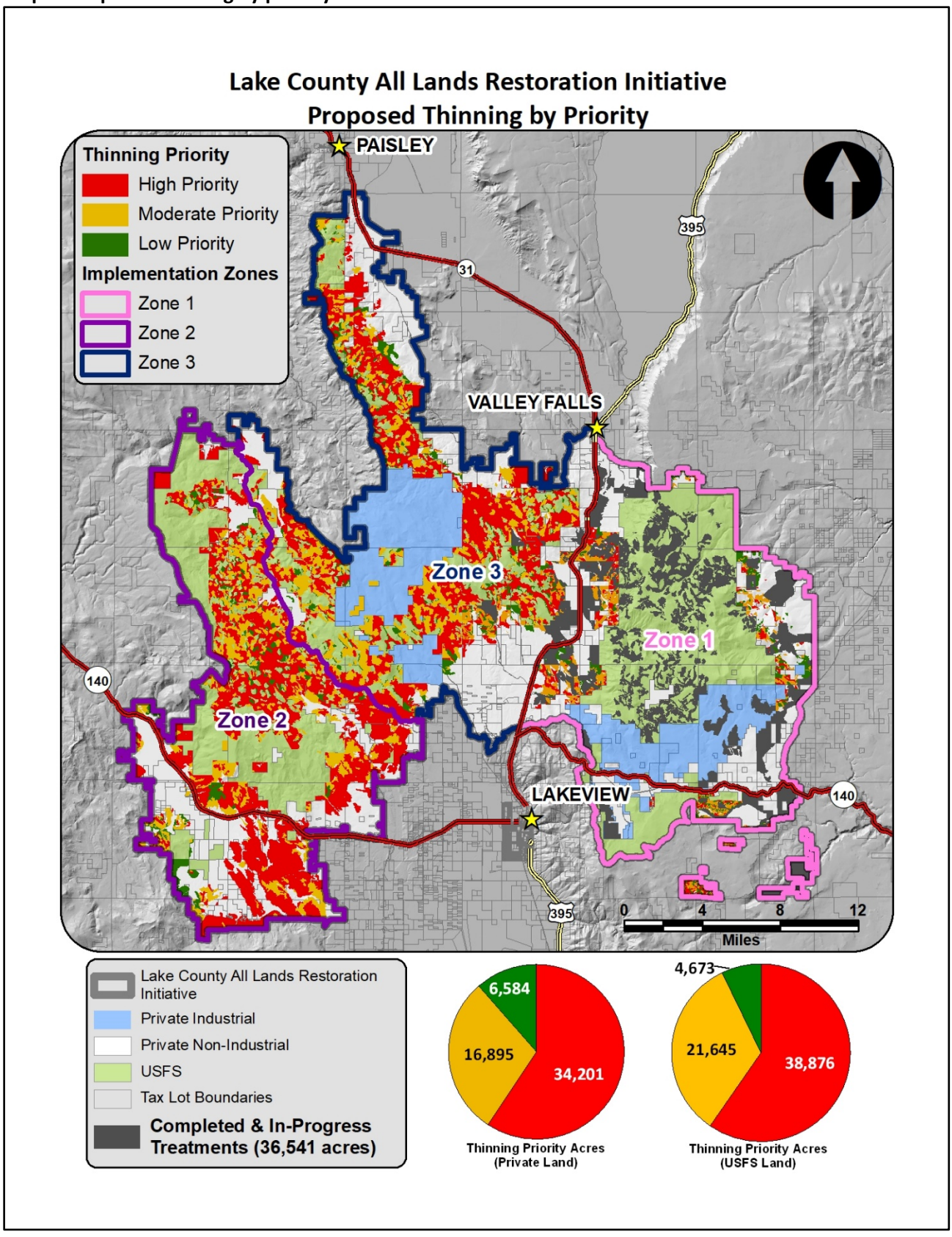
Map 4. WUI within the project area



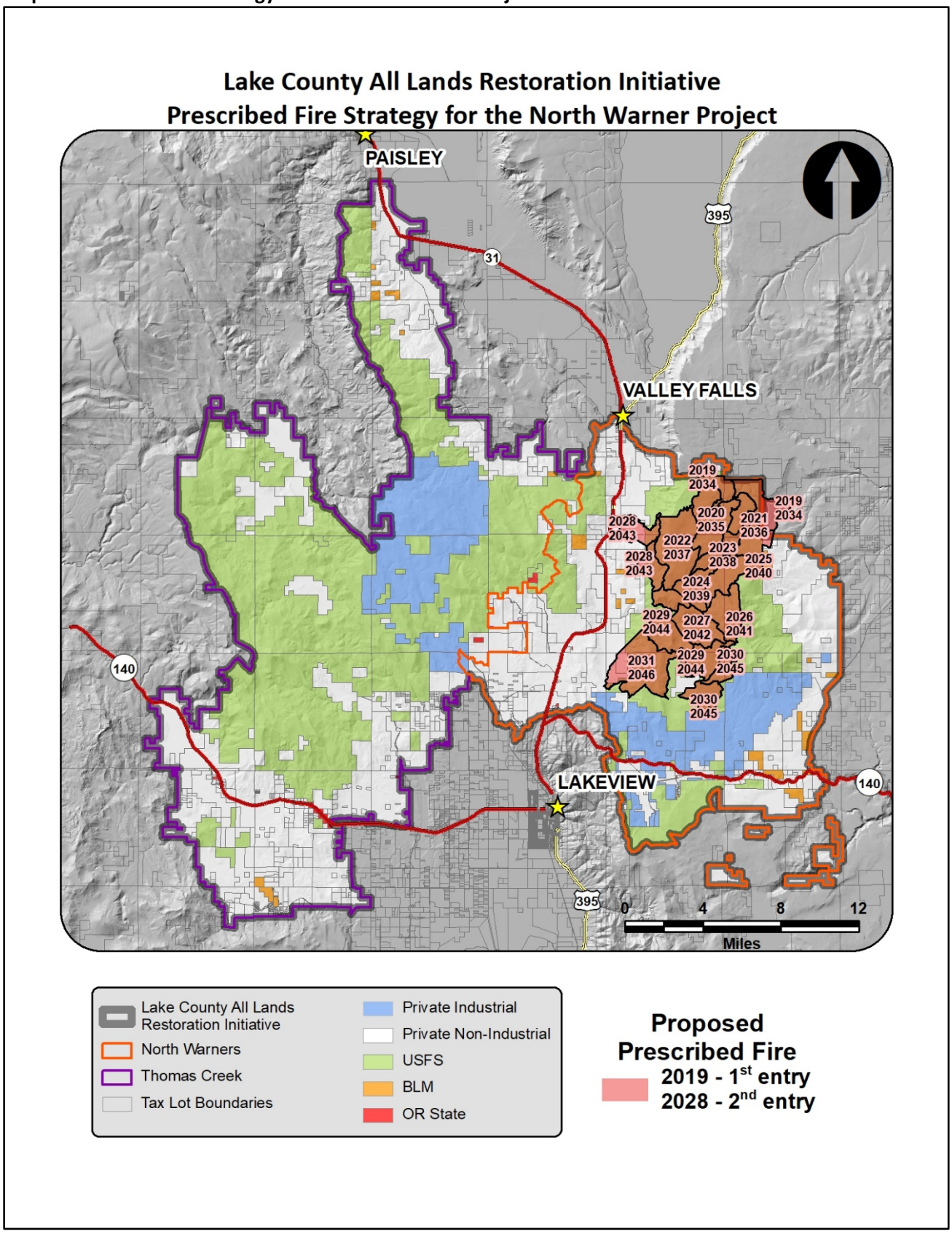
Map 5. North Warner completed or in-progress dry forest restoration treatments



Map 6. Proposed thinning by priority



Map 7. Prescribed fire strategy for the North Warner Project



Map 8. Noxious weed sites