

The State of the Dry Forest Zone and its Communities



UNIVERSITY OF OREGON



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I. Executive Summary

The Dry Forest Zone is a region of eastern Oregon and northern California with challenging market conditions and high levels of poverty and unemployment. However, local entrepreneurship, collaboration, and commitment to integrated economic development and natural resource management in the zone are strong. In the past decade, the scope of community-based nonprofits, integrated biomass utilization businesses, and new networks has increased, fostering sustainable forest stewardship at an increasingly regional scale.

The geography and climate of the zone support dry forests of pine and mixed conifer with fire regimes that are departed from their historical range of variability. These forests are prone to wildfire hazards and in need of active management to restore more diverse and variable-aged structures. As 68 percent of the land in the zone is public, the communities of this region rely on the economic and ecological productivity of these federal forests. The number of sawmills that once provided high levels of primary processing capacity and employment has shrunk to

nine mills in the zone. More forest-related employment is now forestry support work, including activities such as firefighting, pest control, and thinning. Poverty and unemployment have increased, with estimated poverty levels in 2007 of over 15 percent in ten of the fifteen counties. Through the Dry Forest Zone project, we have an opportunity to build on the local strengths of this region and overcome these ecological and socioeconomic challenges.

APPROACH

To better understand the current conditions and create a baseline for future monitoring, a team of five organizations conducted an assessment of the zone between October 2009 and January 2010. Sub-regional teams each traveled to areas of two to three counties to obtain information about the state of public and private land management, integrated biomass utilization, community and organizational capacity, and policy initiatives. We interviewed county commissioners, forest supervisors, Forest Service and BLM staff members, local entrepreneurs, and leaders in community-based nonprofits and collaborative

groups in each area for a total of ninety-two interviews. Our primary goal was to understand current conditions, challenges that limited sustainable forest stewardship, and future opportunities. To synthesize our results, we interview data from a variety of sources to form a series of maps, profiles of each sub-region, and scans of our project priority areas.

FINDINGS

We found that communities in the zone were facing numerous challenges such as limited active public land management, a lack of integration between land management and economic development objectives, difficult conditions for local entrepreneurship, and little local policy engagement. However, there were high levels of local activity in collaboration to foster more public land management; restoration of private nonindustrial forestlands; growth of integrated, community-scaled biomass utilization businesses; and building of community-based nonprofit capacity.

Reduced agency capacity, budgetary constraints, and disagreement among the stakeholders on public lands (typically industry, conservation, and community interests) have limited active restoration of dry forests. However, collaborative groups in many areas of the zone, such as Trinity, Lake, Deschutes, and Wallowa counties, have reached significant levels of agreement around community wildfire protection and management of lower-elevation, second growth ponderosa pine forests and juniper. This has enabled successful treatment and vegetation management projects on national forests, and laid the groundwork for landscape-scale restoration. Although smaller contractors can have difficulty competing for federal forest management contracts, there is a growing capacity for local stewardship contracting in the zone.

The nonindustrial private landbase is transitioning toward more absentee, in-migrant, or disengaged ownership, but there are many landowners in the zone who have worked with government agencies to actively restore forests, rangelands, and waterways on their property. There is a significant opportunity to provide resources and programs to landowners to increase their capacity for sustainable forest

stewardship as well as capture of alternative value streams such as carbon or water markets.

We also found that there is strong interest in utilizing the byproducts of restoration, or woody biomass, for a suite of value-added products and energy production. Some communities such as La Pine and Lakeview have used supply models to attract potential investors for large-scale electricity or cogeneration facilities to produce combined heat and power. These operations require large startup investments and have been slow to materialize in the zone. Other communities such as Enterprise and Hayfork have opted for innovative smaller-scale facilities that combine several producers of small diameter, such as post and pole production, firewood, pellets, or chips, in an integrated campus model. Trends in housing and lumber markets have driven densified fuel production toward an integrated, small-scale model of bulk pellets or bricks for institutional heat consumers. The wood heat market is growing in the zone as municipal consumers such as school districts, hospitals, and airports, particularly in eastern Oregon, seek biomass boilers for increased energy efficiency and cost savings.

A key factor in both successful forest restoration and biomass utilization in the zone is the presence of several nonprofit community-based organizations. These organizations vary in size and scope, but typically act to support collaboration and local entrepreneurs in the wood products industry. We found that nonprofits such as Wallowa Resources, the Lake County Resources Initiative, the Central Oregon Intergovernmental Council, and the Watershed Research and Training Center can be pivotal in helping reduce risk to small businesses, in providing technical assistance and access to capital, and in convening relevant stakeholders on important forest management issues.

Thus far, the ability of nonprofits to provide policy engagement (advocacy, education, or resources) has been limited to national and regional-scale organizations. However, there are a few efforts among county commissioners to convene around shared policy is-

sues. In particular, the opportunity for zone communities, organizations, and businesses to participate in the Rural Voices for Conservation Coalition (RVCC) offers an emerging platform for expression of local priorities and needs.

CONCLUSIONS

Our assessment revealed that, across the Dry Forest Zone, there are trends toward high levels of local capacity, support for forest restoration and community

wildfire protection, desire to utilize woody biomass materials, and active community-based nonprofits. Community, business, and nonprofit leaders are beginning to look toward regional networking as a method of leveraging resources and sharing common goals. As our project proceeds, information from this assessment will inform our baseline understanding of the Dry Forest Zone and ensure that we effectively respond to the needs of our rural community partners and stakeholders.

II. List of Acronyms, Abbreviations, and References

AF&PA	American Forest and Paper Association	NEPA	National Environmental Policy Act
AFRC	American Forest Resource Council	NFMA	National Forest Management Act
ARRA	American Recovery and Reinvestment Act	NFP	National Fire Plan
BCAP	Biomass Crop Assistance Program	NGO	Nongovernmental organization
BETC	Business Energy Tax Credit	NRAC	Natural Resource Advisory Committee
BLM	Bureau of Land Management	NRCS	Natural Resource Conservation Service
CHP	Combined heat and power	O&C (Act)	Oregon and California Act
COPWRR	Central Oregon Partnership for Wildfire Risk Reduction	ODF	Oregon Department of Forestry
CROP	Coordinated Resource Protocol Offering	OSWA	Oregon Small Woodlands Association
dbh	diameter (in inches) at breast height	PAC	Provincial Advisory Committee
EIS	Environmental Impact Statement	PILT	Payment in Lieu of Taxes
ESA	Endangered Species Act	RAC	Resource Advisory Committee
FACA	Federal Advisory Committee Act	RC&D	Resource Conservation and Development
FLAME	Federal Land Assistance, Management, and Enhancement Act	RCD	Resource Conservation District
FLN	Fire Learning Network	REIT	Real Estate Investment Trust
FLPMA	Federal Land Policy Management Act	RVCC	Rural Voices for Conservation Coalition
FLRA	Forest Land Restoration Act	SCOEDD	Southern Central Oregon Economic Development District
Forest Service	United States Department of Agriculture Forest Service	SFI	Sustainable Forestry Initiative
FRCC	Fire Regime Condition Class	SNW	Sustainable Northwest
FSC	Forest Stewardship Council	SWCD	Soil and Water Conservation District
FY	Fiscal Year	TIMO	Timber Investment Management Organization
HFI	Healthy Forests Initiative	TNC	The Nature Conservancy
HFRA	Healthy Forests Restoration Act	TFPA	Tribal Forest Protection Act
ICBEMP	Interior Columbia Basin Ecosystem Management Project	USDA	United States Department of Agriculture
LCRI	Lake County Resources Initiative	WAFC	Western Ancient Forest Campaign
LLC	Limited Liability Company	WBUG	Woody Biomass Utilization Grant
mmbf	Million board feet	WOPR	Western Oregon Plan Revision
MW	Megawatt	WRTC	Watershed Research and Training Center
NACo	National Association of Counties	WUI	Wildland-Urban Interface
NAICS	North American Industry Classification		

Dry Forest Investment Zone



Data Source: National Landcover Data

 Pacific Northwest Forests

0 100 Miles

III. Introduction

The Dry Forest Zone project seeks to address the challenges of social acrimony, economic stagnation, and landscape degradation in eastern Oregon and northern California, by fostering an integrated approach to forest management, which we call *sustainable forest stewardship*. By this, we mean forest management that restores the ecological integrity of forest ecosystems; provides a diversity of services to society such as clean air and water, biodiversity, carbon storage, and fiber; and provides local economic benefit through employment and local business ownership. Because we face social, ecological, and economic challenges simultaneously, we need multiple strategies to address all three dimensions simultaneously. The Dry Forest Zone consists of fifteen counties across eastern Oregon and northern California. The Dry Forest Zone project is a five-year collaborative effort between Sustainable Northwest, Wallowa Resources, the Watershed Research and Training Center, the Ecosystem Workforce Program of the University of Oregon, and The Resources Innovations Group. (See Dry Forest Investment Zone map, page 4.)

The goals of this project are to increase the health of forested landscapes and the vitality of the rural communities, businesses, and entrepreneurs in the zone. We will develop a regional model to increase the viability of sustainable forest stewardship in which rural communities participate and prosper. The activities will build upon preexisting community and collaborative capacity across the zone. We believe this will help our team to effectively and equitably collaborate with communities and stakeholders in the zone.

Taking community-based natural resource management “to scale” is the fundamental premise underlying our project. Our regional model will both foster the development of a networked set of local entities and efforts that maintain the benefits of community-based natural resource management while also creating the social and economic relationships necessary for communities and landscapes to flourish across the zone. This model has two components. First, our strategy involves two anchors—clusters of three high-poverty counties in the northeast and southwest ends of the zone. Local partner organiza-

tions in each anchor (Wallowa Resources in Oregon and the Watershed Research and Training Center in California) have more than a decade of experience with collaboration and forest-based small business development. In the anchors, these local organizations will accelerate community and business infrastructure development to support sustainable forest management. We will use their experience to provide assistance and support to emerging collaborative groups and business efforts. Second, we will boost the connectivity between local leadership, collaborative groups, nongovernmental organizations (NGOs), and sustainable forestry businesses. By increasing the social, political, and market connections among local leadership, collaboratives, nonprofits, and businesses, we will help create a critical density of organizational capacity and markets to support a sustainable forestry industry across the region. Our hypothesis is that by increasing the density of networks, we can effectively build the capacity for transformative change at both the local and the regional scale.

Our strategies to build such a system have five central components:

- 1) Create multiple value streams from land management and incentives for forest restoration and stewardship;
- 2) Develop integrated biomass utilization and renewable energy;
- 3) Build strong local nonprofit organizations and collaborative processes to achieve forest and economic resilience;
- 4) Create the policy conditions to support sustainable forest stewardship on public and private lands; and
- 5) Document and communicate lessons in the zone, regionally, and nationally.

THE ASSESSMENT APPROACH

The scope and scale of the Dry Forest Zone project requires a coordinated five-year strategy for both working in and gathering information about the zone. In year one, we developed a detailed assessment plan to collect quantitative and qualitative data about land management, biomass utilization, community and organizational capacity, and policy engagement in this region. This assessment effort has been crucial to our work in two significant ways. First, it allowed us to engage directly with

communities and stakeholders in the zone. In doing so, we were able to document their perspectives, understand their needs and priorities, and develop strategies to respond. Second, it will act as a baseline for our future efforts to monitor changes in the zone and assess our progress. Measuring the efficacy of our work will help us to adaptively learn and make midcourse modifications to our approaches. In years two through four, we will collect data on the key indicators developed from this process and continue to connect with key participants to assess the impact of our project and release interim findings. Year five will involve the dissemination of results and key findings to a broad and diverse audience including other forest communities, investors and business networks, policy makers and interest groups, and scholars.

To carry out the assessment plan, the project team met and compiled information about the zone. We then developed a detailed interview process and contacted forest supervisors, Forest Service and BLM personnel, county commissioners, business owners, and leaders in community-based nonprofit organizations. Team members traveled across the zone in subregional teams of two to three counties each and conducted ninety-two interviews in total. We asked interviewees to discuss current and planned projects, partnerships that they had, and challenges and opportunities that they faced. At the end of the interview phase, each subregional team synthesized its findings to produce a profile of its respective counties. We then conducted zone-wide scans to evaluate the state of our project priority areas: land management, integrated woody biomass utilization, community and organizational capacity, and policy. We also used data from a variety of sources to describe the conditions of the zone visually through a series of maps. The assessment process revealed several key findings about conditions in the zone:

1) There is a strong desire to achieve sustainable forest stewardship and economic development goals through an integrated approach, but current networks are inadequate to develop these goals.

Stakeholders from counties, businesses, and agencies in the zone see a need for community wildfire protection and active restoration of our valuable public lands. They also want to create employment opportunities and socioeconomic benefits for rural communities struggling with high unemployment and a challenging future. Most importantly, stakeholders feel that sustainable forest stewardship and economic development are interdependent goals. However, capacity-building activities typically remain separate; for example, federal land management and economic development agencies do not work together.

2) Active management on national forests is limited.

The ability of the USDA Forest Service to conduct restoration activities, offer contracts, and offer timber sales varies across the zone. However, stakeholders on most national forests perceive a lack of adequate public land management. They feel that this impacts forest health, community wildfire protection, economic opportunities, and biomass supply.

3) The zone is home to a number of successful local collaborations that are advancing agreement on public land management.

In some areas of the zone, stakeholders have collaborated for over a decade. By starting small, using demonstrations and field tours, and monitoring project implementation, several collaborative groups have built sufficient trust to begun moving toward landscape-scale restoration.

4) An integrated, community-scaled model of biomass utilization is emerging as an innovation in the zone.

Businesses in Wallowa, Trinity, Josephine, and Deschutes counties are in various stages of developing integrated facilities that utilize biomass in several forms. This model reduces transportation costs, creates partnerships, and has potential to provide stable community economic development.

5) Small business operators have limited resources and face competition from larger companies. Local entrepreneurs in the zone are often limited in their capacity to adapt to changing market conditions. The investments required to retool business design, machinery, and operations can be too risky or difficult to make. Small contractors must compete for timber sales with far larger companies, and are often unable to access public lands opportunities.

6) Nonprofit organizations can play a critical role in incubating businesses and increasing community-based forestry mobilization. Both established and new community-based nonprofit organizations in the zone have prioritized partnerships with local entrepreneurs, agencies, and community leaders to find opportunities for small business development and to increase the flow of benefits from forest management to local communities.

7) Capacity for policy engagement in the zone typically is found in national and regional-level organizations. While some governmental and nonprofit coalitions operating at a national level are active in the zone, there have been few local initiatives to provide policy education, resources, or advocacy.

8) There is a robust commitment to the role of natural resources in the zone's economy and way of life. The zone is home to a large private family forest landbase, multigenerational ranches, local entrepreneurs in the logging and wood products industry, and stewards of our public lands. Despite challenges to the forest products and ranching industries, forests and rangelands remain central to the lives and identities of people living in the zone. Natural resource management is at the heart of significant local and regional strategies for economic development.

THE ASSESSMENT REPORT

This report presents the findings of our assessment process. Chapter One begins by introducing the context of the Dry Forest Zone. We describe the biogeographical characteristics that contribute to the diversity of dry forest types, fire-driven disturbances, and management needs across the zone. In addition, this chapter discusses the socioeconomic and political context. Although the zone is primarily a rural region with limited transportation and market access, a few of its local areas have experienced rapid growth and development. Economic downturn and unemployment, however, have impacted the entire region. Chapters Two to Five scan the state of each project priority area in the zone: land management, integrated woody biomass utilization, community and organizational capacity, and policy. Each chapter describes the current situation of the priority area, variations across the region, trends, challenges, and future opportunities. Chapter Six presents a picture of each of the subregions of the zone: north-eastern Oregon (Wallowa, Union, and Baker counties), eastern central Oregon (Grant, Harney, and Wheeler counties), central Oregon (Deschutes and Crook counties), southern central Oregon (Klamath and Lake counties), southern Oregon (Josephine and Jackson counties), and northern California (Trinity, Modoc, and Siskiyou counties). We conclude by summarizing our findings about the challenges and opportunities that the entire zone faces.

IV. Chapter One—The Context of the Dry Forest Zone

The ecological and socioeconomic context of the Dry Forest Zone is important for understanding the challenges and opportunities that its communities face. This is a diverse and geographically large region. The fifteen counties of the zone have a total land area of 63,905 square miles or 40,899,201 acres, but much of this is sparsely populated. In 2008, population was 668,628 persons. In this chapter, we explore the biogeographical patterns and fire regimes that make this area a “dry forest zone,” and discuss major trends in employment and well being.

BIOGEOGRAPHY

The Dry Forest Zone is a diverse area representing nearly all of the major dry forest and range ecotypes in the western U.S. The Cascade and Klamath mountain ranges bound the western edge of the zone, subjecting much of the region to continental rather than maritime climatic influences. Dry, cold winters and dry, hot summers characterize the continental climate. Annual precipitation in the zone ranges from less than 10 inches in the closed basins of southeastern Oregon to more than 120 inches along the crest of the Cascade and Klamath mountain ranges (*Figure 1, page 9*). Although precipitation values range greatly across the zone, 75 percent of the zone receives less than 30 inches of precipitation per year and nearly a third receives less than 15 inches, an amount that only borders the ability to grow trees. Precipitation occurs during the winter and spring months. In much of the zone, only between 5 percent and 15 percent of all precipitation typically falls between July and September. The climate and precipitation patterns throughout the zone are representative of much of the interior northwestern U.S.¹

A diversity of habitats, from open ponderosa pine forests and diverse mixed deciduous forests to alpine meadows and sage steppe deserts comprise the zone’s landscapes. A combination of elevation, slope, aspect, precipitation, and disturbance regimes determine the specific composition of dominant vegetation types in any given site. Ecological regions are used to classify areas of common vegetation, climate, geology, and physiography.² Six major forested ecological regions comprise the zone: Blue Mountains, Eastern Cascade Mountains, Modoc Plateau, the

Klamath, Southern Cascade, and Western Cascade Mountains (*Figure 2, page 10*). One major nonforested region occurs on the southeastern edge of the zone, covering most of Harney County, and portions of Deschutes, Crook, Klamath, Lake, and Modoc counties. Gently sloping closed basins dominated by lakes, sagebrush, and, to a lesser extent, juniper, characterize the Northwest Basin and Range.

Blue Mountains and foothills

The Blue Mountains and surrounding foothills are a complex of ancient geology forming plateaus, steeply cut river canyons, buttes, hills, low mountains, and, in the case of the Wallowas, steeply rising alpine peaks. The Blue Mountains cover the northeastern portion of the zone from Crook to Wallowa counties (seven of the fifteen counties of the zone). Vegetation in the Blue Mountains is widely varied from sagebrush and juniper in the lower-elevation foothills and canyons to mixed conifer, lodgepole pine, and alpine vegetation in the upper elevations. Meadows and forests form a mosaic of open and forested landscape across much of the Blue Mountains. The expansion of western juniper woodlands throughout the foothills is coming to dominate historic rangelands, alter hydrologic cycles, and reduce watershed health. Ponderosa pine is common in the middle elevations of the Blue Mountains and intense fuel build-ups put fire resilient ponderosa pine ecosystems at risk of uncharacteristic high-severity fires. Mixed conifer, including grand fir, western larch, Douglas-fir, and other tree species are also common in this region. The history of these mixed conifer forests reflects a complex of physiography, fires, forest pests, and historic selective logging over multiple entries, all of which challenge the healthy forest resources in the Blue Mountains region. Although forest ownership is largely federal, private nonindustrial forest ownership is also common in this region, making forest management responsive to the multiple values often associated with family forestry and ranching.

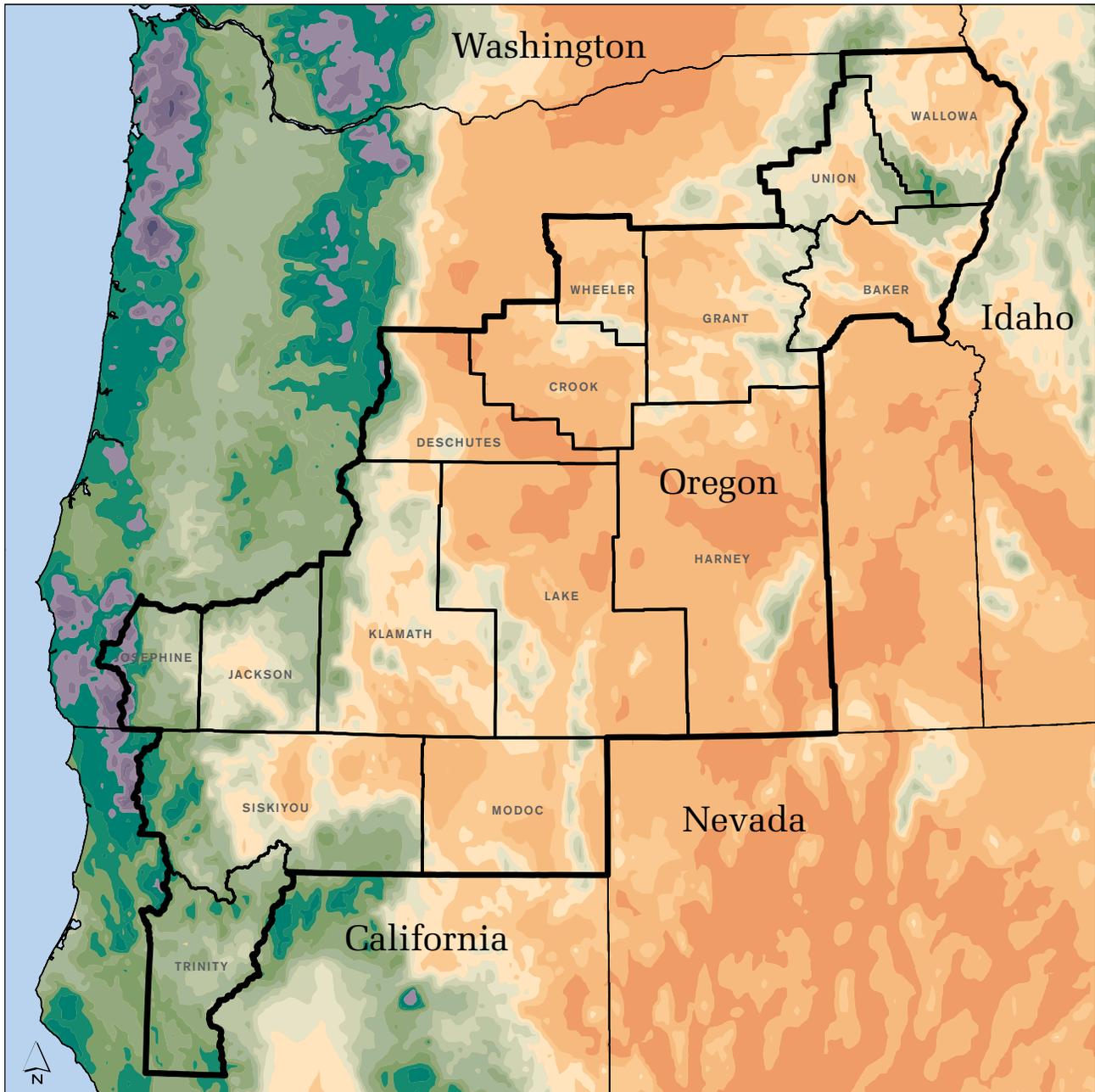
Eastern Cascade Mountains

Forming much of the western boundary of the zone, the Cascades are a glaciated high-mountain range that receives heavy precipitation to the west and leaves the eastern flanks and intermountain regions in a high gradient rain shadow. These volcanic

FIGURE 1

Average Annual Precipitation 1961–90

Dry Forest Investment Zone



Data Source: nationalatlas.gov

Inches



0 100 Miles

FIGURE 2

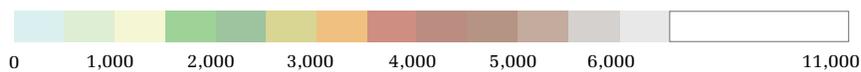
Ecological Regions

Dry Forest Investment Zone



Data Source: Landfire.gov and US Forest Service

Elevation (feet)



0 100 Miles

mountains are geologically recent additions to the landscape and their forests cover significant portions of Deschutes and Klamath counties. The ash-capped soils of the East Cascades are moderately productive, and forests below the alpine and subalpine zone quickly give way to ponderosa pine and dry Douglas-fir. Although historically fire was a frequent low to moderate severity disturbance in these forests, fire suppression has allowed fuel loads to grow outside of their historic range of variability. Lodgepole pine occurs at higher elevations and is naturally subject to stand-replacing fires. Restoring fire-adapted ponderosa pine forests in this region has become an important goal for federal forest managers, while timber production remains a significant objective on several large tracts of industrial forestland, primarily in Klamath and Lake counties.

Modoc Plateau

The Modoc Plateau is a complex of fault-block mountains and volcanic ridges that straddle the Oregon-California border east of the Cascade Mountains in Klamath, Lake, and Modoc counties. Precipitation is less than 20 inches in much of the region. Ponderosa pine forests occur at higher elevations, while sage steppe and juniper woodlands occur at lower elevations. In Klamath and Lake counties, dense, second-growth ponderosa pine is found across the Fremont National Forest. Similar to the Blue Mountains foothills, western juniper has invaded historic rangelands. The federal government primarily manages forests in this region, although scattered tracts of industrial forestland occur throughout Klamath, Lake, and Modoc counties. Juniper woodlands occur on both publicly and privately owned land, and rangeland restoration for watershed health is an important priority for both federal land managers and local communities.

Klamath Mountains

The Klamath Mountains are a tangle of steeply dissected low- to moderate-elevation mountains that occur throughout Josephine, Jackson, Siskiyou, and Trinity counties. Due to intensive plate tectonics here, there is a diversity of soil types, which contributes to a vast range of vegetation. Although precipitation is generally higher than in the rest of the zone, most occurs during winter as snow. Forest types are diverse, reflecting patterns of elevation, aspect, soils, and disturbance. Forests range from Douglas

fir and a mixed assortment of pine species to broad-leaf woodland and chaparral shrublands. Like much of the zone, fire is the dominant disturbance regime and occurs with regularity. Fuel accumulations in these historically fire-adapted forests put forests at risk for high severity fires that alter forest structure, composition, and functions. Federal lands dominate this forested region and wilderness reserves are common. In Jackson and Josephine counties, non-industrial private lands are checker-boarded with fragmented federal lands, while in Siskiyou County large tracts of private forest land flank federal land to the west; federally managed forest land dominates Trinity County more than any other county in the zone.

Western Cascade Mountains

The Western Cascade Mountains ecological region underlies much of Oregon and Washington's forest production and history, but constitutes only a small corner of the zone in Jackson County. Douglas-fir forests dominate this region of federal, industrial, and family forest land, most of which lies to the north and west of the zone flanking the Willamette Valley and Puget Trough. Precipitation in the Western Cascades is markedly higher than east of the Cascades, contributing to the region's ecological productivity. The southern tip of this ecological region extends into Jackson County, where federal wilderness areas dominate this ecoregion's landscape. Although fire is still an important ecological process in this ecoregion, disturbances in this portion of the zone are more likely to occur with mixed to high severity owing to forest types similar to the mesic forests of western Oregon.

Southern Cascade Mountains

Straddling the Cascade Mountains south of the California border (Siskiyou County), low to high mountains consisting of mixed forest types commingling multiple species of pine, fir, spruce, and hemlock form this ecological region. Like much of the zone, precipitation falls mostly during the winter, leaving hot and dry summers prone to fire. Pockets of forests dominated by stands of ponderosa pine, lodgepole pine, and western juniper occur in this region, but are less common than the mixed forest types that dominate the region. Lowlands typically transition from forest to sage steppe, grassland, and other open land covers. Forestland in this region is

evenly mixed between private ownership and public management.

A FIRE-ADAPTED DRY FOREST LANDSCAPE

Although forest types across the zone are diverse (*Figure 3, page 13*), the dominant ecological disturbance regime across the zone is not. Wildfire is a dynamic force across the zone. It shapes ecological structure, resets ecological functions, and contributes to the ecological composition of forest patches and landscape pattern. In forests characteristic of low-severity fire conditions, wildfire would typically creep across the forest floor consuming scattered grasses, occasional shrubs or other understory vegetation, but largely leave thick barked trees like ponderosa pine or western larch unharmed or with nonlethal scars along the base where needles and dead grasses had accumulated. Tree mortality under these conditions is relatively rare. This type of disturbance might occur half a dozen times or more over the course of a century, maintaining the open-grown parklike structure commonly associated with historical ponderosa pine forests. Mixed-severity fires occur in forests where fuels have accumulated

in various patterns across the landscape leading to fires that jump into the forest crown in some areas while in other areas only ground fires occur. The result of mixed-severity fires is one that creates a forested mosaic of age, structure, and tree composition across the landscape. High-severity fires create stand replacing events that are likely to lead to single age structure in recovering forest stands. Historically, high-severity fire were more common in wet forest types, higher elevation and sub-alpine forests, and in lodgepole pine stands adapted to the high-severity fire ecology. More recently, following nearly a century of fire suppression, high-severity fires have become more common across the landscape, occurring in a greater diversity of forest types as fuel loadings have increased and forest conditions have changed.³

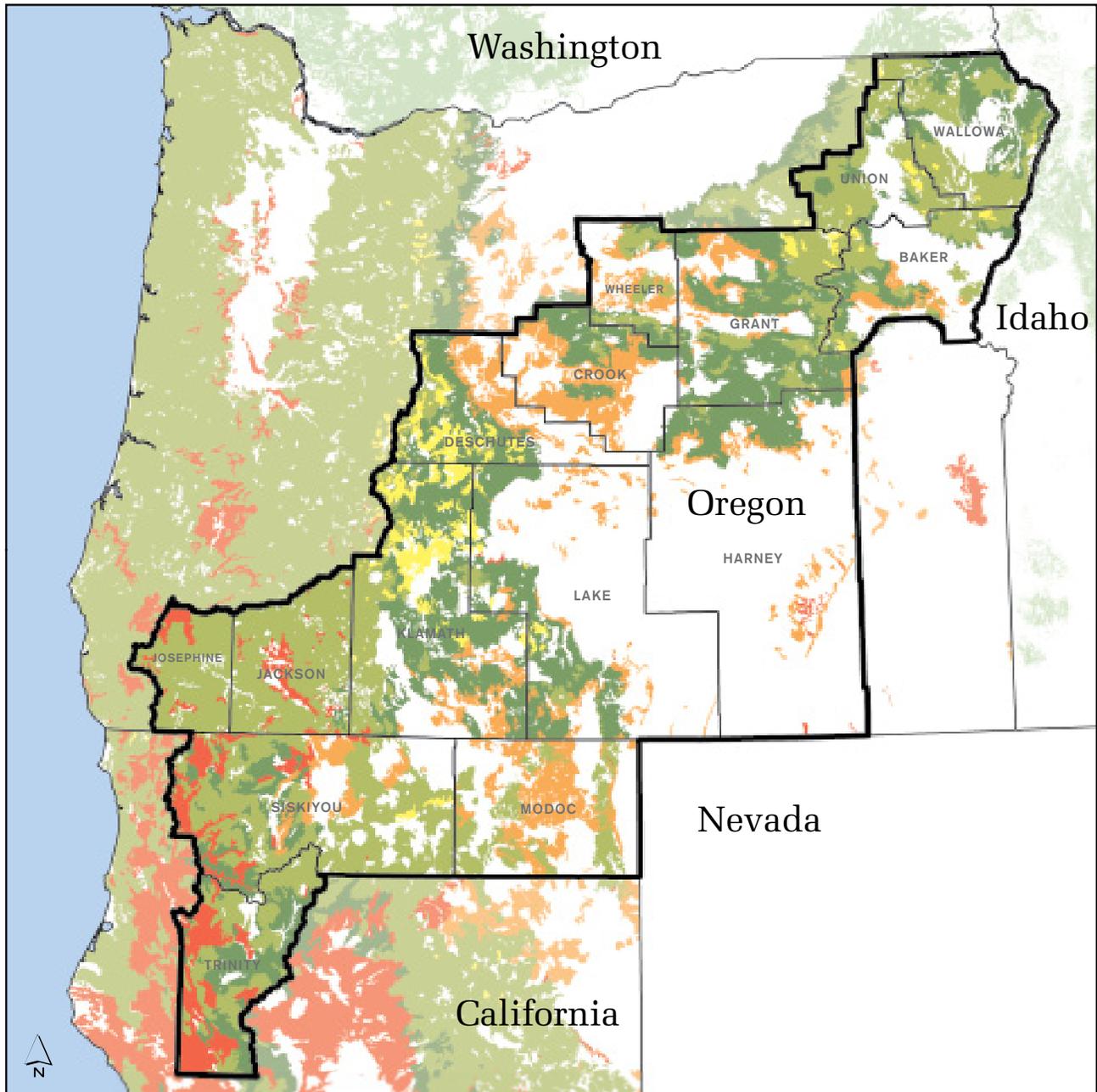
Historically, wildfire was a regular occurrence across much of the zone (*Figure 4, page 14*). Fire regime is a concept that integrates fire frequency with its severity on any given landscape. The forests of the Klamath Mountains and Southern Cascades regions likely experienced mixed-severity fires on a regular cycle that served to maintain and diversify



FIGURE 3

Forest Type

Dry Forest Investment Zone



Data Source: GAP

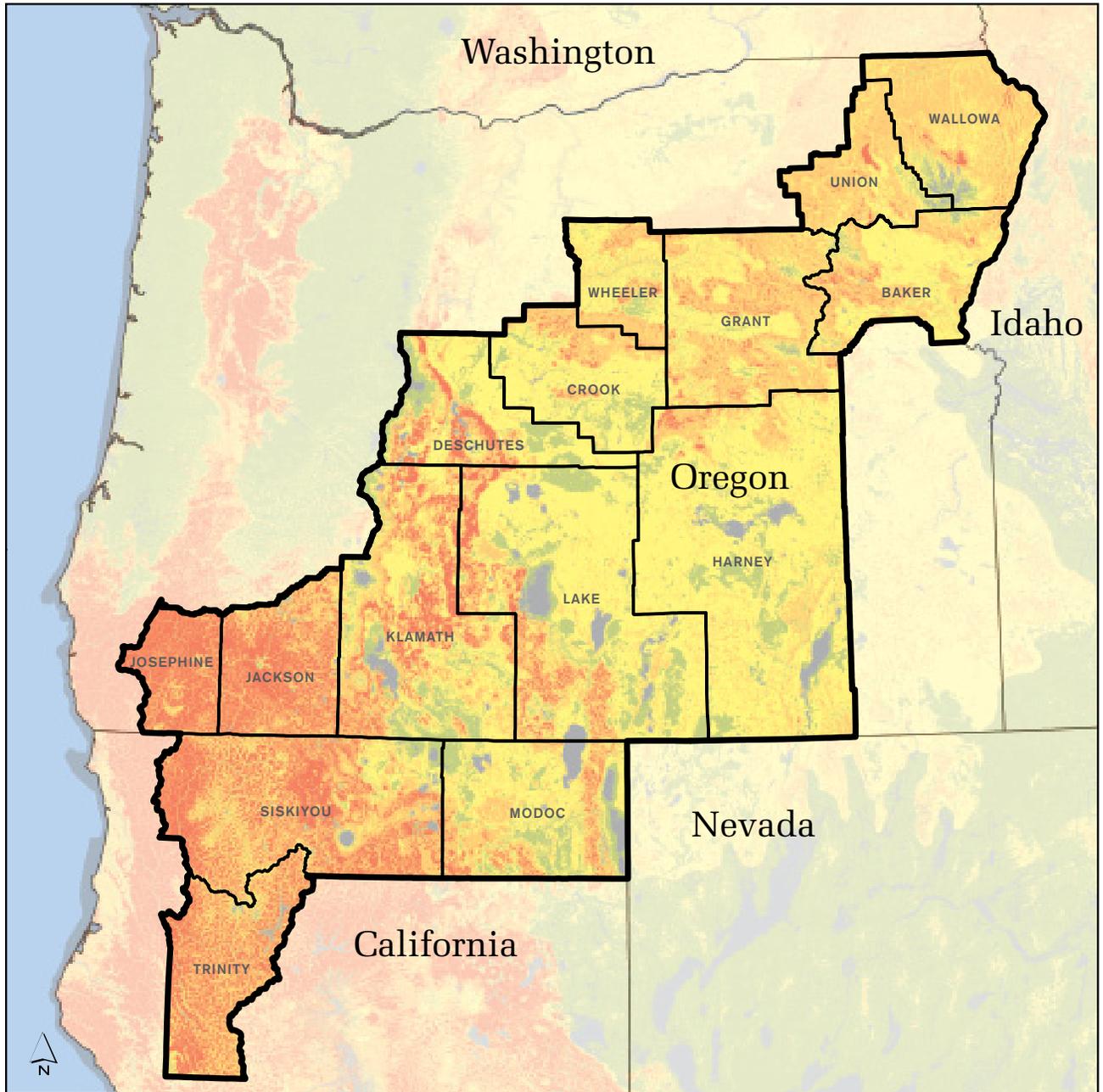
- | | |
|--|---|
| Hardwood | Mixed and other conifers |
| Juniper | Ponderosa Pine |
| Lodgepole | |

0 100 Miles

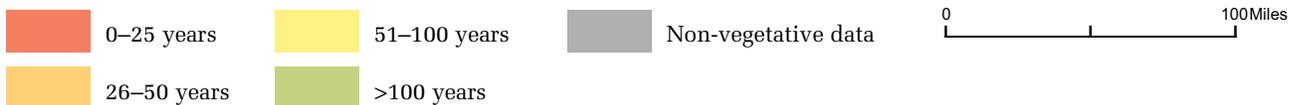
FIGURE 4

Fire Frequency

Dry Forest Investment Zone



Data Source: Landfire.gov



forest structure and composition. Fire regimes in the East Cascades, Blue Mountains, and Modoc Plateau were historically more diverse, ranging from regular, low-severity fires to more mixed-frequency or mixed-severity fires largely dependent on forest types, fuel conditions, and other biophysical factors. In contrast, many of the nonforested portions of the Northwest Basin and Range and Blue Mountains foothills experienced mixed- to high-severity fires that occurred with moderate frequency creating a mosaic of rangeland conditions from grass dominated sites (high frequency fires) to shrub dominated sites (low to moderate frequency fires).

CURRENT FIRE REGIMES AND CLIMATE CHANGE

Fire regime conditions today are quite different from what their historical frequency would suggest (*Figure 5, page 16*). Fire regime condition class (FRCC) measures the departure of current vegetation from historical conditions. The forests of the Southern Cascades, the Modoc Plateau, and the Blue Mountains ecological regions have changed dramatically from their historical regime. This departure is consistent with past harvests as well as impacts of fire suppression, which has allowed forest fuels to accumulate and resulted in greater fire hazards to the values of forest resources when wildfire does occur. Although high-severity fires were certainly an important historical dynamic in many forests across the zone, this type of stand-replacing fire was unlikely to be as extensive or frequent as it is under current management, fuels, and climatic conditions. Departures in fire regime to uncharacteristic states complicate forest management and the maintenance of forest resources. Global climate change, which may increase the length of the annual frost-free period across the zone, increasing fuel growth and reducing summertime water availability, further complicates these challenges to forest management.⁴ Temperature measurements across the zone for the second half of the twentieth century indicate that climate has been warming in the zone for sixty years already (*Figure 6, page 17*).

HUMAN GEOGRAPHY OF THE ZONE

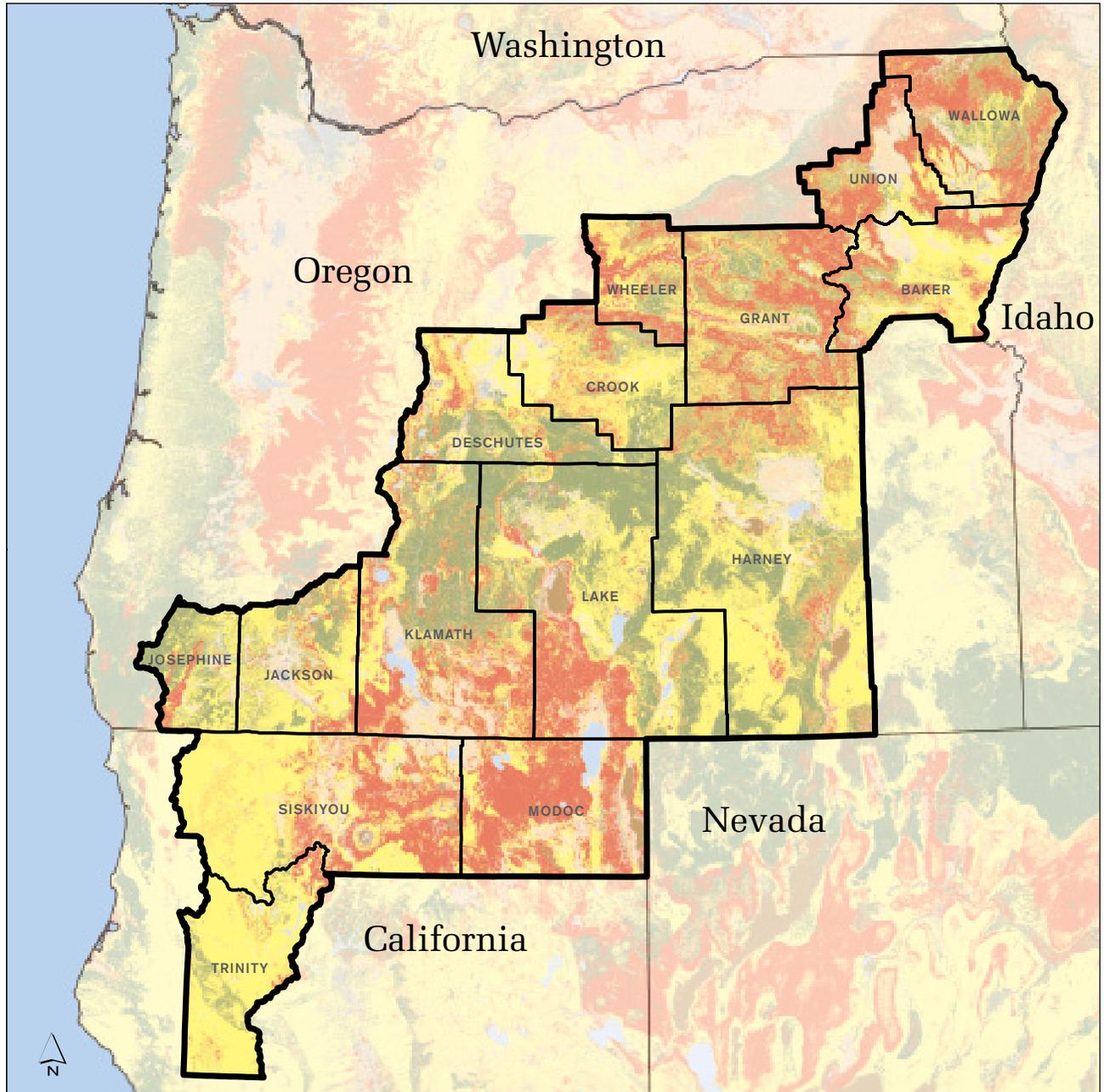
The zone is a rural region with low population densities and relative isolation from large economic markets. Although population densities vary, most of the zone contains fewer than seven persons per square mile (*Figure 7, page 18*). Less than one person per square mile populates eastern Oregon. Counties such as Harney and Wheeler are home to a small number of incorporated communities, and residents outside these communities are often far from their nearest neighbors. Residents outside of incorporated areas of the zone require long travel periods to services, goods, and medical facilities. The zone also holds relatively limited political influence. Western Oregon has four congressional representatives, whereas residents of all twelve Oregon zone counties have only one congressional representative. Northern California's zone counties have two representatives. We further discuss the political capacity of the zone in Chapter Five.

Low population density also contributes to a lifestyle that offers privacy and the many amenities that result from rural livelihoods. Families who have resided in the zone for generations as well as newcomers share a desire for this lifestyle. In-migration has taken place in central Oregon for the past decade. Deschutes and Crook counties have experienced rapid population growth, boom and bust in real estate markets, and social and cultural shifts in a number of communities. In migrants are attracted to the area by ample rural residential development, recreation opportunities, and a rural western resource-based culture. From 2000 to 2008, Deschutes County experienced nearly 40 percent population growth leading to a population density greater than fifty people per square mile. Only southern Oregon's density surpasses this at sixty-one people per square mile. While central Oregon has grown rapidly and recently, southern Oregon's population and density has been historically larger as a result of its smaller land area and several medium-sized communities including Medford, Grants Pass, Ashland, and others.

FIGURE 5

Fire Regime Condition Class

Dry Forest Investment Zone



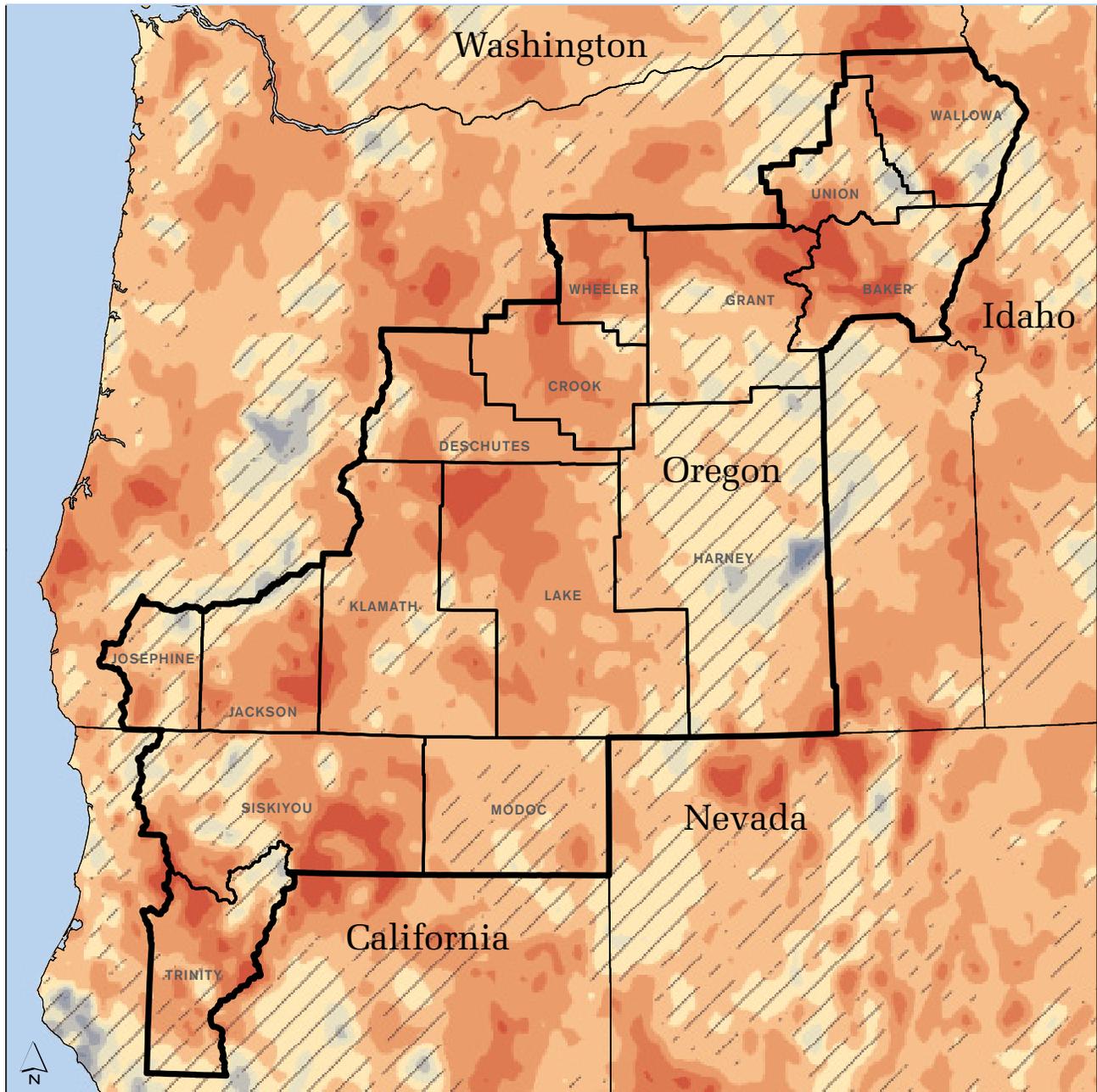
Data Source: Landfire.gov

0 100 Miles

FIGURE 6

Summer Temperature Change 1951–2006

Dry Forest Investment Zone



Data Source: The Nature Conservancy

Degrees Farenheit



No statistical confidence

0 100 Miles

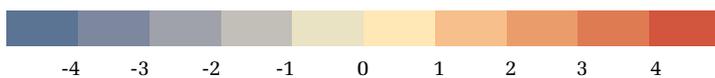
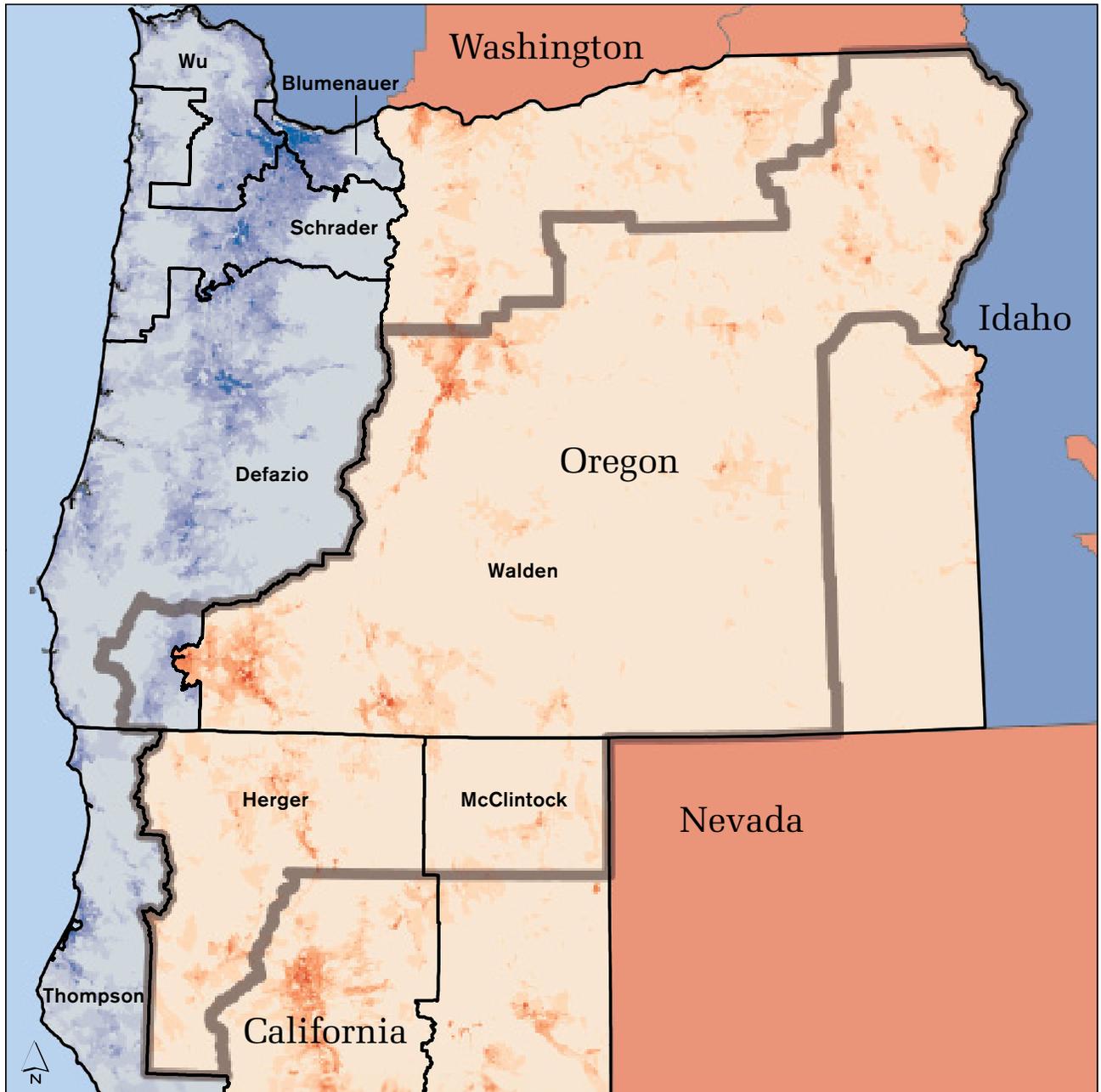


FIGURE 7

Population and Political Representation Dry Forest Investment Zone



People per square mile



0 1 50 500 5,000

0 100 Miles

The majority of the communities in this region are small in size, and direct access to urban markets and market linkages are limited (*Figure 8, page 20*). The high costs of fuel and limited extent of viable railways challenge the ability of many businesses in the zone to harvest, process, and sell wood products at a profit. Transportation options in most of the zone are limited to state highways and railroad lines. A Burlington Northern and Santa Fe mainline connects the Oregon towns of Klamath Falls, Bend, and Redmond with California and oceanic shipping in the Columbia Gorge, and a Union Pacific line parallels Interstate 84 in eastern Oregon. Spurs also serve the Oregon towns of Gilchrist and Prineville, and Lake County owns a small line from Lakeview, Oregon, to Alturas, California. Elsewhere in the zone, Interstate 5 bifurcates Jackson County, providing direct connections to the major metropolitan areas of the San Francisco Bay Area, Portland, and Seattle. Proximity to an interstate highway is limited in most of the zone. Interstate 5 is two hours west of Deschutes County and also passes through Siskiyou County in northern California. Interstate 84 travels through Union and Baker counties connecting them

to Boise, Idaho, and Portland. Although there is potential to further develop the existing advantages of well-connected communities like Medford, Oregon, to take advantage of existing market connections, significant opportunities may exist to develop innovative ways to address the isolation challenges in communities like Enterprise, Oregon, or Hayfork, California.

BUSINESS PATTERNS IN THE ZONE

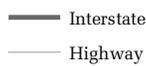
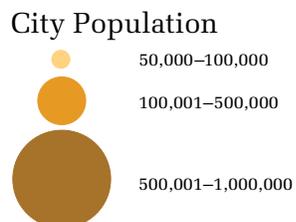
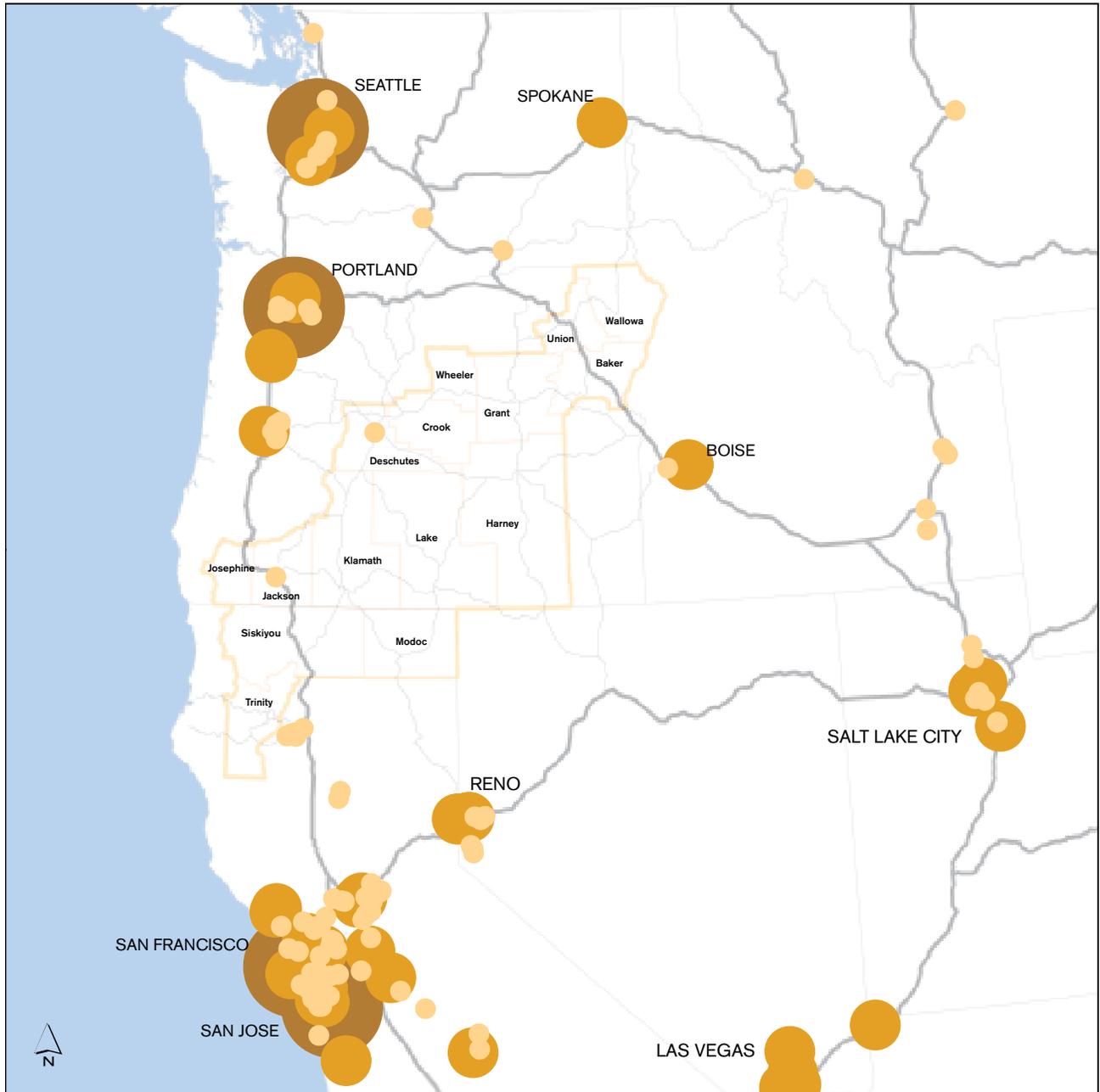
County business patterns across the zone show that construction, retail trade, health care and social assistance, and accommodation and food service comprise the largest numbers of businesses. Businesses providing professional, scientific, or technical services are more common in southern Oregon and northern California, whereas Deschutes County is the only area in the zone with a large number of real estate-related businesses. The largest employers in the zone tend to be government, schools, and hospitals. Forest products companies such as Boise-Cascade, LLC, in Union County and JELD-WEN, LLC in Klamath County are also significant employers. Agriculture and ranching have been important to



FIGURE 8

Rural and Urban Linkages

Dry Forest Investment Zone



Data Source: National Atlas

many zone counties, but do not contribute extensively to employment. The housing market downturn has been particularly difficult for construction businesses and real estate; the recession has limited the amount of tourism and profitability of accommodation businesses; and even government, schools, and social services have experienced reduced budgets and cutbacks.

FOREST-BASED EMPLOYMENT

The zone can be a challenging business and employment climate, particularly for the forest products economy. Shifts in public land management and economic conditions have occurred since the 1990s, but the recent recession has taken a further toll on wood products processing, forestry and logging, and contracting businesses. Although Union, Klamath, and Jackson counties still have several traditional industrial sawmills, employment in the forest products sector has shrunk significantly. We present a scan of

the current primary processing capacity of the zone in Chapter Three. A number of community-scaled facilities either have emerged and remain active as small-diameter producers able to utilize restoration byproducts for post and poles, chipping, firewood, or other uses, but these businesses typically do not offer large numbers of jobs. As traditional sawmilling capacity has declined, so have the numbers of forestry and logging businesses in the zone. The number of forestry support businesses has typically been increasing, in part in response to increasing federal wildfire suppression contracting (*Table 1*).⁵ The North American Industry Classification System defines the forestry and logging industry as comprised of businesses that grow and harvest timber on long production cycles (ten years or more).⁶ Forestry support businesses are those that conduct activities supporting timber production, wood technology development, forestry economics and marketing, forest firefighting, pest control, timber estimates, and reforestation.⁷

TABLE 1

Changes in Forestry Sector Businesses in the Dry Forest Zone by County, 2000–7

Subregions and counties	Forest and Logging Businesses (NAICS 113)		Forestry Support Businesses (NAICS 11531)	
	Number of Businesses, 2007	Change by number and percentage, 2000–7	Number of Businesses, 2007	Change by percentage, 2007
Northeastern Oregon				
Wallowa	8	3 (-14%)	21	16 (76%)
Union	22	4 (-15%)	26	24 (92%)
Baker	8	7 (47%)	3	2 (67%)
Eastern Oregon				
Grant	18	13 (42%)	5	2 (40%)
Wheeler	2	0 (0%)	0	0 (0%)
Harney	4	3 (-43%)	4	3 (75%)
Central Oregon				
Crook	15	5 (-25%)	1	1 (100%)
Deschutes	8	17 (-68%)	13	1 (8%)
South Central Oregon				
Lake	5	0 (0%)	2	2 (200%)
Klamath	20	11 (-35%)	10	3 (30%)
Southern Oregon				
Josephine	17	1 (-6%)	12	3 (50%)
Jackson	40	18 (-31%)	33	3 (12%)
Northern California				
Siskiyou	32	8 (-20%)	6	3 (-33%)
Modoc	2	3 (-60%)	0	0 (0%)
Trinity	7	13 (-65%)	0	0 (0%)

Changes in the number of forestry-based businesses have implications for the economy and identity of the zone. Since 2000, the number of traditional forestry and logging businesses declined in all but two counties of the zone. Wheeler County had two businesses in both 2000 and 2007 and Josephine County gained one business by 2007. Deschutes County suffered a 68 percent loss in forestry and logging businesses although central Oregon's population, urban area, and housing markets were growing. Jackson, Grant, Klamath, and Trinity counties all lost more than ten forestry and logging businesses, cutting the business pool by a third to a half in each county from 2000 to 2007. In contrast to the traditional forestry sector, forestry support businesses—those that do labor-intensive hazardous fuels work, provide technical services and wildland firefighting, and others—grew in number across the zone, in some cases doubling. Northeastern Oregon added over forty businesses in this sector during this period. Northern California is the sole exception, experiencing near-equal losses of 37 percent and 33 percent in traditional forestry and forestry support businesses, respectively. Forestry support businesses increased by the least percentage in central Oregon, while northeastern and southern Oregon experienced the largest magnitude of gains.

These transitions in forest-based businesses in the zone suggest that significant changes in the nature of forestry and logging work have occurred. The number of businesses managing growth and harvest of timber on longer production scales has declined in favor of businesses that address hazardous fuels, forest health issues, or other technically related forestry work. This transition mirrors the shifts in the management objectives on public forestlands, the challenging economic climate for the forestry sector, and the changing ecological conditions of the zone's forests. As stand density, wildfire risk, and fuel loads have become a concern to forest managers and communities, firefighting, pest control, and thinning became important objectives alongside traditional timber production and multiple-use sustained yield practices. These data do not reveal whether workers adapted by moving from traditional logging businesses into forestry support businesses or by leaving forest-related work entirely.⁸

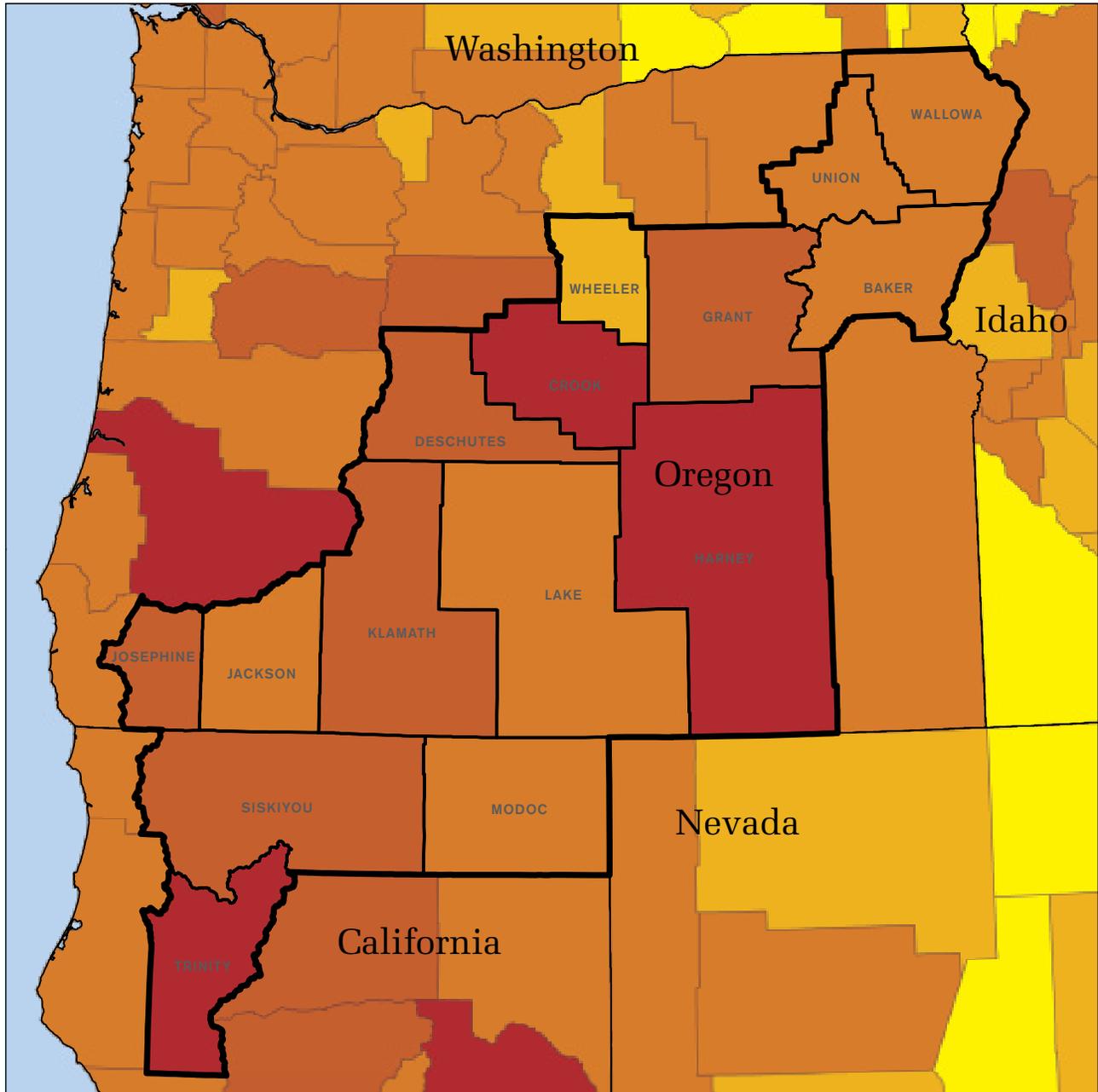
Employment in the milling and logging sector traditionally provided workers with relatively steady incomes and company health benefits, although mills would close in response to short-term market conditions, and logging operations were seasonal. Contracting businesses now conduct a majority of forestry support and harvesting activities. These businesses offer work that is largely seasonal, unstable, and often without health or other employment benefits. A 2007 study that compared logging to forestry support work in Oregon found that forestry support work provided smaller wages and sometimes only a few weeks of work per year.⁹ However, locally based contractors can return economic benefits to their communities. Local contracting capacity across the zone varies. Josephine, Jackson, and Lake counties have the largest contracting funding, but Lake has a much smaller number of contractors. Siskiyou and County has smaller total amounts of contract funding, but is home to sixteen contractors. Trends in the contracting workforce are discussed further in Chapter One.

EMPLOYMENT AND POVERTY

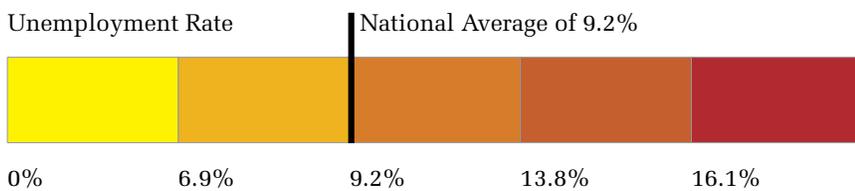
In addition to changes in forest-based businesses, unemployment rates in the zone are also indicative of the challenges that many communities face. Unemployment rates in February 2009 in Harney, Crook, and Trinity counties exceeded 20 percent, and were above 18 percent in Grant and Siskiyou counties (*Figure 9, page 23*). These rates follow a regional pattern of high unemployment in the areas of eastern Oregon and northern California. Furthermore, underemployment is also a problem. Many employed workers across the zone are underutilized with only part-time, seasonal, or transitional employment. Statewide 2009 underemployment rates for Oregon and California are 20.1 percent and 21.1 percent, respectively.¹⁰ The high levels of employment instability, the declining natural resource industries, and prevalence of seasonal and part-time work make it likely that underemployment in the zone is even more common than the statewide statistics suggest. Unemployment and underemployment often lead workers to relocate (especially younger workers) and cause a loss of forestry and business skills in rural areas. Other workers have extensive family and social ties that they are not likely to leave. Although the counties of the zone have lost skills and knowledge in recent years, a number of entrepreneurial business leaders have remained and adapted to the challenges in order to survive.

FIGURE 9

Unemployment Rate (January–September 2009) Dry Forest Investment Zone



Data Source: Bureau of Labor Statistics



0 100 Miles

A final socioeconomic indicator of well-being in the counties of the zone is the poverty rate (*Figure 10, page 25*). Trinity County has the highest poverty rate (19.9 percent), the highest unemployment rate (21.2 percent) and the greatest percentage of public land (89 percent) of any county in the zone. Lake County has the third-highest poverty rate and percentage of public land (80 percent). Although Deschutes County contains 82 percent public land and has lost 68 percent of its traditional forestry businesses since 2000, it has experienced substantial growth in recreation and tourism, with subsequent benefits to local service businesses that may help ameliorate the effects of unemployment and withstand growing poverty rates. Public lands such as the Deschutes National Forest are playing a new role in the economic development of their adjacent communities as recreation sites, but this type of development has not occurred to the same extent or at the same rate elsewhere in the zone. National forest and BLM lands in Trinity and Lake counties also no longer produce significant timber revenues, and but no new source has emerged to compensate for this decreased value stream, to support other community businesses, and to staunch the flow of job loss. A recreation-based economic strategy may work well in some places with the right combination of politics, economics, amenities, and access but it is not a viable or desired economic development strategy for most counties in the zone. Instead, the future of many communities may depend on economic development pathways that build from the connection between healthy forest resources and community well-being to develop integrated forest stewardship on working landscapes.

RESILIENCE IN THE ZONE'S COMMUNITIES

Although much of the zone faces challenging socioeconomic and ecological conditions, communities and businesses in many parts of the zone have persevered and shown their resilience.¹¹ To thrive, communities

will have to develop solutions to current challenges and prepare themselves to adapt to future uncertainties. A 2002 USDA Forest Service report that assessed connectivity to service centers, socioeconomic well-being, and proximity to public lands among Oregon communities found fifty-four “communities of concern” that did not appear to be equipped for adaptation. Of these fifty-four, thirty-four communities were from the zone counties of Wallowa, Wheeler, Grant, Crook, Klamath, Lake, and Josephine.¹² In contrast, the Interior Columbia Basin Ecosystem Management Project (ICBEMP) revealed that resilience varies greatly across the west and was not determined by the role of the tradition timber economy. The zone communities of John Day, Prineville, and Lakeview were among the most highly dependent on wood products; however, they also ranked high, medium-high, and high, respectively, on the ICBEMP’s community resiliency index.¹³ This suggests that while communities may not have proximity to market corridors, other factors such as local leadership, entrepreneurship, or collaborative organization can contribute to their ability to face challenges. Although communities in the zone share similar challenges, communities range in their socio-economic vitality and capacity to adapt to change.

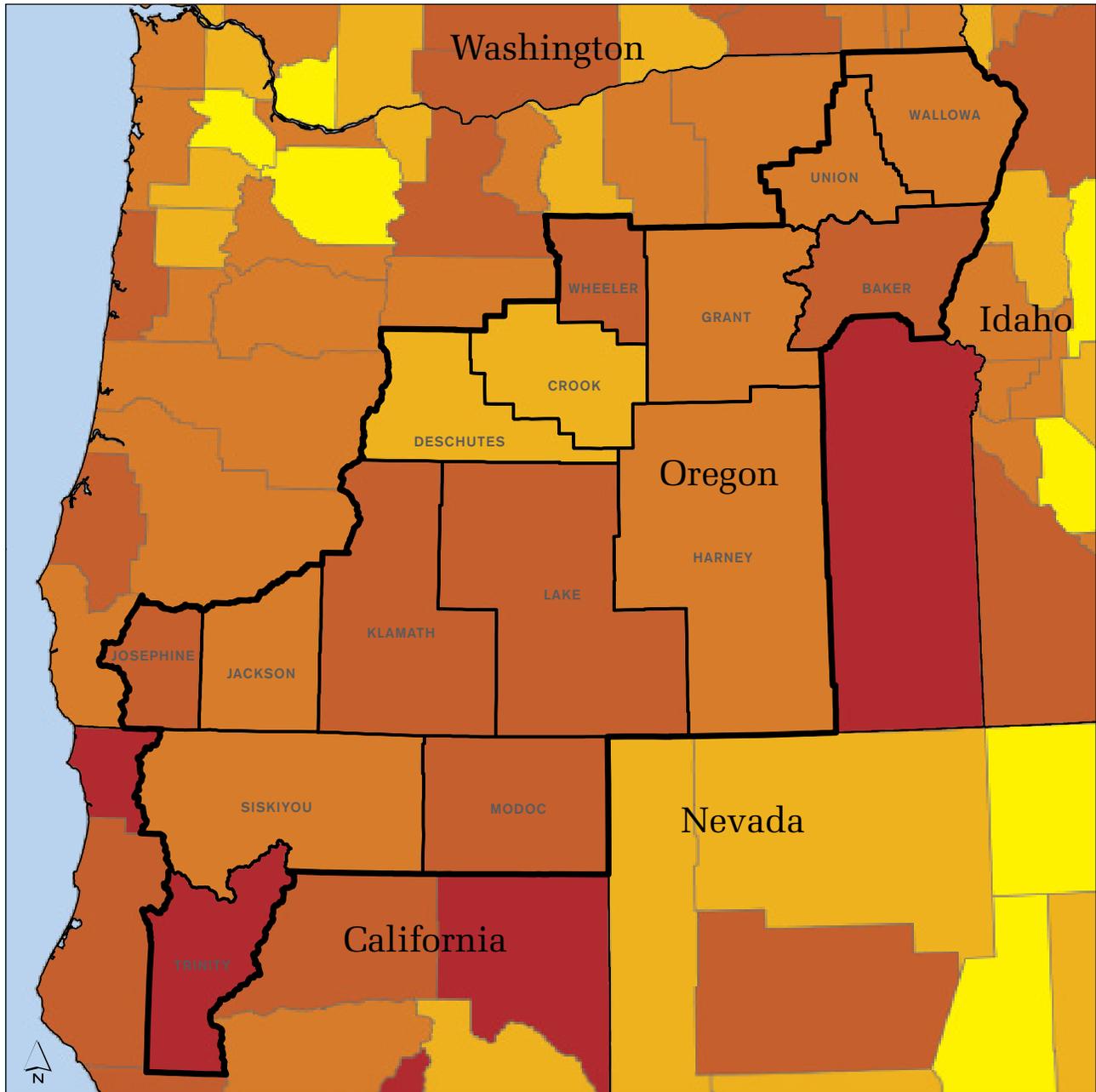
CONCLUSIONS

The zone’s forests are central to the economies and identities of its people. They provide resources and a way of life, and shape socioeconomic growth and development. Ecological conditions vary across the zone, but fire severity and forest health are uniformly important. New sectors such as service and recreation have grown, but forestry support and stewardship contracting work still contribute to the economies of public lands communities. The zone faces challenges, however, in responding to high poverty and unemployment rates, and in building markets across an isolated and dispersed geography.

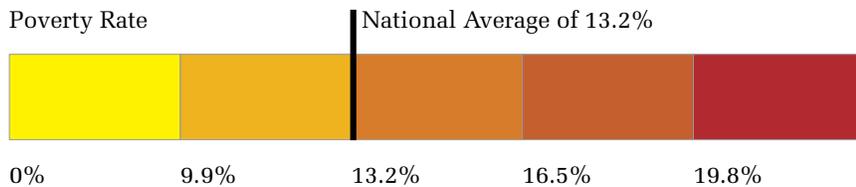
FIGURE 10

Poverty Rate 2008

Dry Forest Investment Zone



Data Source: Census Bureau



0 100 Miles

V. Chapter Two—Land Management

Forest and rangelands are the driver of a local natural resource economy that has sustained communities in the Dry Forest Zone. Working forests can provide value streams through timber production, renewable energy development, value added manufacturing, recreation, and the provision of ecosystem services. The BLM and Forest Service manage 68 percent of forestland in the zone, which makes federal policy significant for the region's socioeconomic conditions. The zone also has a substantial private industrial and nonindustrial land base (*Figure 11, page 27*). Currently, both public and private forest management across the zone must address the challenge of restoring forests that are considered highly departed from their historic conditions. There is strong interest in restoring forests, protecting communities from wildfire, finding local business opportunities in biomass and forest products, and collaborating to effectively manage landscapes. Local leaders continue to see natural resource management as an important component of economic development and ecological stewardship that can address both forest and community health. The zone has been home to innovative practices in collaboration and stewardship contracting, and emerging developments in management for ecosystem services. On public lands, active management relies on the scope of social agreement that collaboration can help to mobilize; the continued growth of stewardship contracting authority; and the capacity of a skilled contracting workforce to carry out sustainable stewardship work. Although these factors are common to the entire zone, there is local variation in the overall degree of collaborative mobilization and availability of skilled workers. On private lands, restoration is also important to nonindustrial private and private timberlands owners. However, the private landbase of the zone is undergoing significant transformation as investment and real estate companies have begun to acquire private industrial forestland. Intergenerational transfer is a concern to family landowners, but there is also interest in increasing stewardship capacity and capture of alternative value streams on nonindustrial forests. This chapter will discuss these trends in public and private forest management across the zone in light of the regional importance of restoration, timberland divestment, and nonindustrial private management.

RESTORATION AND LAND MANAGEMENT

Restoration is the management of ecosystems to create biological structure, function, and composition that is productive, diverse, and resilient to disturbances and other external pressures. Watershed, rangeland, and forest restoration activities are underway across the zone to address waterways that have been modified from their original courses and rangelands that have lost their native grass composition. Zone forests, particularly in the Southern Cascades, the Modoc Plateau, and the Blue Mountains ecological regions, have departed from their historical fire regimes, leading to uncharacteristic stand conditions and greater fire hazards. The type and scale of restoration work has varied depending on local conditions including the level of collaboration, social agreement, and workforce capacity. Watershed councils, the Oregon Watershed Enhancement Board (OWEB), extension services, federal agencies, ranchers, farmers, and private landowners are among those who have worked on restoration in the zone. While our assessment does not focus on watershed and range restoration, those types of activities have been increasing in scope and coordination; an example would be where restoring historic rangelands through juniper management has been a priority, such as Crook County.

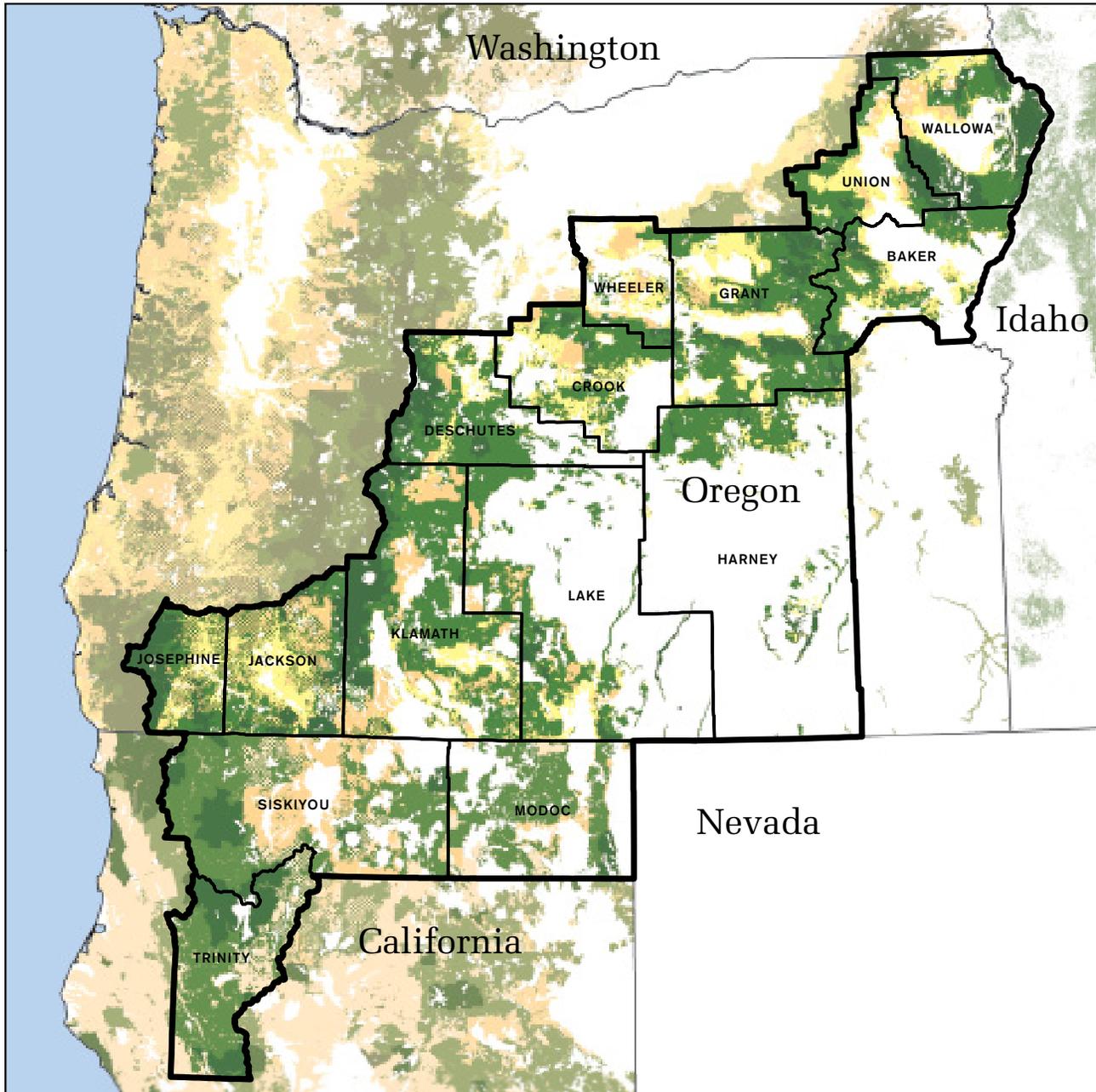
PUBLIC LAND MANAGEMENT

Although agencies and many stakeholder groups agree on the need for forest restoration, it has been difficult to achieve landscape-scale and coordinated management on public lands for several reasons. First, the allocation of resources within agency budgets and the limited capacity of agency staffing lead to funding that is piecemeal and that supports some types of restoration-related work, such as hazardous fuels reduction, but not others. Collaboration and nonprofit partnership has helped stakeholders in some areas of the zone to integrate hazardous fuels reduction with other aquatic and terrestrial restoration objectives. Second, there can be limited agreement on what restoration means, and which activities it includes. As we discuss shortly, collaborative groups can work with available science, information, and decision-making processes to develop agreement. In many areas of the zone, collaboration has begun to produce landscape-scale agreement and implementation.

FIGURE 11

Forest Ownership and Management

Dry Forest Investment Zone



Data Source: Oregon Department of Forestry, Cal-Atlas



- Private and Private Industrial (Oregon only)
- Private Non-Industrial (Oregon only)
- Public Non-Reserves
- Reserves

Funding restoration and hazardous fuels reduction

Although restoration can signify a broad suite of activities, a majority of funding for restoration on national forests has been designated for hazardous fuel reduction. Severe wildfires in the West in the early 2000s led to administrative policy and congressional legislation that prioritized community protection and expedited National Environmental Protection Act (NEPA) process requirements for fuel reduction projects. American Recovery and Reinvestment Act (ARRA) funds awarded to zone national forests and BLM lands have further supported these goals (for further discussion of policy initiatives, please see Chapter Five). Fuel reduction typically involves a combination of thinning of small diameter trees in dense stands, brushing, and mowing. Some fuel reduction projects focus on defensible space around development, while others have the objective of restoring forest structures and compositions that are resilient to future fire risks at a larger scale. Some areas of the zone, such as northeastern Oregon and Lake County, have collaborations and partnerships that have enabled use of federal funds for broader restoration objectives.

Collaboration and agreement

Second, the key to building integrated restoration approaches and maximizing forest management benefits across the landscape is collaboration among relevant stakeholders. Stakeholders can include agency personnel, environmental and conservation groups, forest industry, and local community members. Currently, there is agreement among interested stakeholders and community members regarding forest restoration in the zone. Some environmental groups do not support restoration and fuels reduction in older mixed-conifer, lodgepole pine, and juniper stands. Most stakeholders agree there on the necessity of projects in lower-elevation ponderosa pine and mixed-conifer forests where fire has been excluded over the last century, where most intensive timber harvest has occurred, and where uncharacteristic wildfire patterns threaten homes. Much of this agreement has come about through the efforts of a number of collaborative groups and nonprofit community-based organizations. Collaborations and partnerships enable the agreement for mobilization that varies from the “convening” stage to implementation of complex projects (see Chapter Four for a further discussion of the range of community-based forestry mobilization).

In Wallowa, Union, and Baker counties in north-east Oregon, stakeholders in watershed councils, the Resource Advisory Council (see Chapter Five for a discussion of RACs), and Wallowa Resources are able to implement complex projects because they have a zone of agreement around harvesting small-diameter trees in dry, overstocked stands on the Wallowa-Whitman National Forest and reducing fire risk in the wildland-urban interface. There is support for stand density management through removal of small-diameter trees as well as shade tolerant and disease-prone species. This agreement diminishes for the wetter forests and those containing larger trees. Collaborative planning has laid the foundation for more effectively planned, large-scale, integrated projects. The Upper and Lower Joseph Creek watershed assessments, facilitated by Wallowa Resources, are examples that integrate forest restoration thinning with other restoration objectives including road decommissioning and removal of fish migration barriers. Plans are currently underway in the Whitman District for a much larger stewardship contract (approximately 30,000 acres). These collaborative forums, and others like the former Union County Forest Restoration Board, help to build the agreement necessary for larger-scale ecological restoration projects. Lake County stakeholders have also achieved this landscape-scale restoration by building trust among stakeholders. In Lake County, the Lakeview Stewardship Group collaboratively manages the Lakeview Federal Stewardship Unit on the Fremont-Winema National Forest through a ten-year stewardship contract that was reauthorized in 2008. They currently help manage forest and rangelands in the unit for fuels reduction and juniper removal. The Lakeview Stewardship Group and Lake County Resources Initiative have used monitoring programs to build agreement, resulting in landscape-scale restoration including the removal of white fir over twenty-one inches and a move toward management in mixed-conifer stands.

Agreement and mobilization are not as extensive elsewhere in the zone, but collaboration has still led to restoration project implementation. In Siskiyou, Trinity, and Modoc counties in northern California, federal agencies there have made a number of agreements with collaborative, local government, nonprofit, and tribal groups including the Watershed Research and Training Center, the Northern

California Resource Center, the Mid-Klamath Watershed Council, the Trinity County Resource Conservation and Development District, and the Karuk and Hoopa Tribes to engage in restoration projects on federal lands. The most notable of these agreements is the Weaverville Community Forest Stewardship Agreement covering 15,000 acres of BLM and Forest Service lands in Trinity County. Despite ongoing tensions between forest industry objectives and environmental objectives concerning public lands management, there is broad public support for reducing hazardous fuels in the wildland urban interface, and stakeholders agree that restoration is needed in forest plantations. The complex forest types of northern California and southern Oregon can make agreement more difficult than elsewhere. In Modoc County, the BLM and the Forest Service are committed to collaboration and have worked extensively with local stakeholders including the county government, the cattlemen's association, and environmental groups to reach agreement on juniper removal and sage steppe restoration.

Moderate levels of agreement exist in Grant, Harney, and Wheeler counties on reducing stand density in lower-elevation ponderosa pine by removing small-diameter trees, but this agreement does not extend to management of the higher-elevation mixed-conifer stands, harvesting trees with diameters over twenty-one inches, harvesting old growth trees with less than twenty-one-inch diameters, or post-fire salvage logging. Two collaborative groups, the Blue Mountain Forest Partnership in Grant County and the Harney County Restoration Collaborative are building on areas of agreement to plan and implement several thousand acres of wildland-urban interface fuels reduction projects on the Malheur National Forest. In central Oregon, larger collaborative efforts including the Central Oregon Partnership for Wildfire Risk Reduction (COPWRR) provide an arena for possible agreement on the Deschutes and Ochoco National Forests and the Crooked River National Grasslands.

Despite stakeholder relations that are sometimes adversarial, agreement is high concerning management in second-growth ponderosa pine stands and in juniper, which has expanded significantly beyond its historic range of variability in the Northwest Basin, Blue Mountains Foothills and Range, and Modoc Plateau ecological regions; less so in lodgepole pine; and minimally in mixed-conifer and old growth stands. A number of stewardship projects (e.g. Glaze Meadows Fuel and Restoration Project, 1,200 acres) underway in the Deschutes National Forest have led the way for larger, landscape-scale proposals like the Rim-Paunina Vegetation Management and Wildlife Habitat proposal, which aims to reduce fire risk and promote the restoration of old-growth conditions on 39,000 acres on the Crescent Ranger District. The Pine Ridge Stewardship Project is also underway on the Crooked River National Grassland to restore over 40,000 acres of rangeland. Although stakeholders in central Oregon are starting to take restoration work "to scale," projects such as Rim-Paunina illustrate the ongoing challenges of finding agreement on treatment of mixed conifer, higher-elevation forests, and mistletoe-infested ponderosa pine stands.

Stewardship contracting and public lands workforce

Currently, the Forest Service can offer work through a timber sale (awarded to the highest bidder), a service contract (awarded to the lowest bidder with the best technical proposal), or a stewardship contract. Stewardship contracting has become an effective tool for restoration on public forestlands. Stewardship contracts are reserved for projects that have been developed through a collaborative process. They are awarded on a best value basis, permit the exchange of goods for services, allow managers to retain any receipts to pay for other needed restoration work, and can cover a scope of work over a ten year period. The Forest Service awarded a total of eighty stewardship contracts on national forests in the zone in 2009 (*Table 2, page 30*).

TABLE 2

Stewardship Contracting in Zone National Forests, 1999–2009

Zone Region	National Forest	Number of Contracts, Task Orders, Agreements	Number of Acres
Northeastern Oregon	Umatilla	18	4,780
Northeastern Oregon	Wallowa-Whitman	14	10,991
Eastern Central Oregon	Malheur	1	1,144
Central Oregon	Deschutes	7	3,365
Central Oregon	Ochoco	12	7,014
Southern Central Oregon	Fremont	7	8,824
Southern Central Oregon	Fremont-Winema	1	2,020
Southern Central Oregon	Winema	1	1,644
Southern Oregon	Rogue River	5	1,588
Northern California	Klamath	2	2,511
Northern California	Modoc	3	2,629
Northern California	Six Rivers	3	1,045
Northern California	Trinity	6	959
Total in Zone		80	48,514

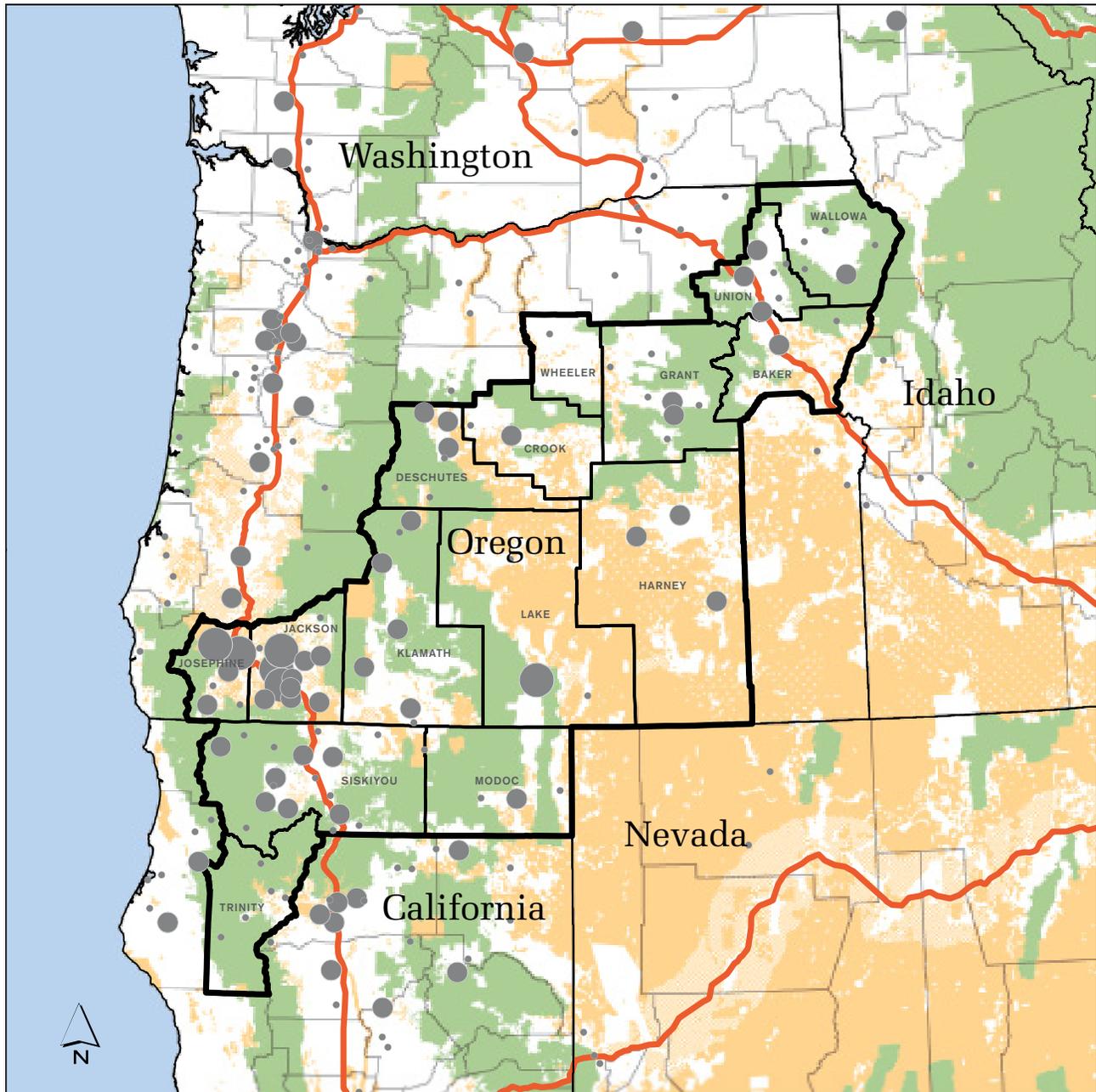
The zone holds a large number of stewardship contracts relative to other regions of the West. This has allowed local contractors to conduct work that is based on community agreement and that takes into account the health of forests and watersheds. However, there are several issues with the policies, procedures, and incentives of federal lands contracting that affect the ability of the private sector to compete for work on the public lands across the zone. Federal managers are evaluated on how many acres they treat for the lowest cost. Consideration of local benefit, how packaging complex products can exclude or prevent local businesses from competing for those contracts, and bonding requirements and other financial mechanisms designed to minimize risk and maximize efficiency to the government (and the taxpayer) make it financially challenging for smaller and local contractors to successfully compete for work on federal lands. Contractors in the zone are continuing to develop their capacity to compete, and nonprofit organizations are increasingly working to improve the accessibility of contracts and the quality of business assistance to smaller entrepreneurs.

Despite major shifts and a downward trend in forest management activities across the zone, considerable capacity to accomplish this work exists in the zone. Although contractors exist throughout the zone, business capacity to receive contracts is concentrated in the larger, more populated counties like Jackson and Josephine counties in southern Oregon and Deschutes County in central Oregon (*Figure 12, page 31*). Some of the forestry services firms in Josephine and Jackson are among the largest in the nation. Also in southern Oregon, the nonprofit Lomakatsi Restoration Project group focuses on training and employing skilled work crews to conduct fuel reduction and restoration treatments. This group has received funding under the National Fire Plan and from regional contributions to support their work on over 150 private land and stewardship contract projects. In 2009, they were awarded \$14 million in American Recovery and Reinvestment Act (ARRA) funds as part of their ten-year stewardship contract agreement. Smaller communities and businesses can have difficulty capturing contracts. For example, in Lake County local loggers have been hired for logging, resulting in some local revenue streams, but other associated restoration work has been subcontracted to out-of-county businesses.

FIGURE 12

Federal Land Management Contractors

Dry Forest Investment Zone



Data Source: Federal Procurement Data System

Total contract funding (U.S. dollars)

- 250,000 or less
 - 250,001 - 10,000,000
 - over 10,000,000
- Interstates
 - Interior Lands
 - U.S. Forest Service Lands

0 100 Miles

TRENDS IN PRIVATE INDUSTRIAL FOREST LAND OWNERSHIP AND MANAGEMENT

Poor log market conditions and the challenges of forest restoration have impacted private along with public land management. However, other trends including industrial divestment, threats of land conversion, and landowner transitions on family forests create different challenges across the zone. We discuss these trends and suggest that the future of private zone lands depends upon the protection of working forests, the capacity for a stewardship ethic among nonindustrial private landowners, and further development of alternative value streams.

Divestment and the private industrial landbase

Declines in federal forest management, loss of wood products infrastructure, and the growing recreation and development value of rural land have led to the divestment of industrial timberlands across the zone. Although several local family companies such as Ochoco Lumber still have large holdings, traditional vertically integrated timber companies have sold much of their land to timber investment management organizations (TIMOs) and real estate investment trusts (REITs). Much of the former Boise Cascade lands in northeastern Oregon and southern Oregon are now owned by Forest Capital Partners headquartered in Boston, Massachusetts. Former Crown Pacific Lands in Central Oregon and the Mazama Tree Farm in Klamath County are owned by Fidelity National Financial, headquartered in Jacksonville, Florida. Community leaders and stakeholders fear that these lands will be developed for real estate, and such a process has begun in some locations. For example, in northeastern Oregon, Forest Capital Partners has already begun a modest program of selling land focused on lightly forested, difficult to manage properties, and those with high amenity values. In many cases, these lands are subdivided into minimum lot sizes (often 240-acre parcels) and marketed as amenity real estate and private hunting retreats. In central Oregon, plans to create destination resorts in the Metolius Basin have not come to fruition, but have alarmed community members nonetheless. Other communities where development is planned, such as Crescent, are supportive because of the employment opportunities and the secondary economic benefits that could flow to their businesses.

In response to divestment, communities, tribes, and local and state governments have led emergent movements to seek ownership and protection of these lands as working forests that can continue to support local natural resource economies, open space conservation, and recreation opportunities. These new ownership trends include community and tribal forests. County government, a land trust, and the Oregon Department of Forestry (ODF) have each sought new forest ownership models in the zone. In northeastern Oregon, Forest Capital Partners proposed selling 3,700 acres of land near the town of La Grande as 240-acre parcels (the minimum parcel size allowed). Through an involved public process and with funds from a state all-terrain vehicle fund, the county was able to purchase the land and one third of the timber volume and retain public access and timber management on the site. The county plans to use revenue generated from grazing, timber management, and recreation activities on the site to fund future management. In central Oregon, the Deschutes Land Trust has been negotiating a deal to purchase 33,000 acres of forestland from Fidelity National Financial. The land trust will manage the land, called the Skyline Forest, for recreation, conservation, and forest restoration opportunities that benefit the surrounding communities. In Klamath County, the ODF is purchasing over 43,000 acres of ponderosa pine forest (the Gilchrist Tract) from Fidelity National Financial in order to conserve open space and maintain working forests. Fidelity had purchased these former Crown Pacific lands for potential real estate development. The state plans to ensure public access to these lands, restore overcrowded and heavily harvested stands, protect wildlife habitat, and provide raw materials and revenue to local communities and industry. Finally, the Klamath Tribes have entered an option agreement with Fidelity National Financial to purchase 90,000 acres of the former Mazama Tree Farm, and would thin and restore the forest and create tribal economic development opportunities.

Stewardship of nonindustrial private forestlands

Across the zone, private nonindustrial landowners also control a significant portion of working forest and rangeland. The demographics of these landowners vary; some hold lands that have been in their

families for generations, some have relocated to rural areas, and others may be absentee or vacation owners. Many landowners do continue to harvest timber and graze cattle, while others manage for recreation or leave the land unmanaged. Four significant challenges limit sustainable forest stewardship on private nonindustrial lands in the zone. First, the aging landowner base and an increase in new landowners with limited forestry knowledge and experience and/or no desire to actively manage forests create uncertainty surrounding future ownership and working capacity of these lands. Second, although some lands remain in larger holdings, others are subdivided into minimal-sized parcels during turnover, breaking up the continuity of the forested landscape's ecosystems. Third, forest management capacity and assistance infrastructure is diminishing. Although the ODF, California State Forestry, the Natural Resource Conservation Service, and small woodland associations have programs that offer technical and financial assistance to landowners, staffing and funding for these programs are limited. In Oregon, these programs are shrinking as the ODF continues to cut funding and the number of stewardship forester positions. Resources to help with fuel reduction, harvesting, restoration, and forest planning are now less readily available. Fourth, private nonindustrial forest owners have more recently faced a lack of timber markets and local processing capacity, particularly in the more remote areas of the zone.

ALTERNATIVE VALUE STREAMS

As a result of marginal timber market conditions, both private industrial and nonindustrial forest landowners in the zone are increasingly interested in alternative value streams. Alternative value streams are markets for products and services from forestland other than timber that provide additional sources of revenue while promoting active management and conservation. Examples of potential and existing alternative value streams in the zone include biomass market development, forest certification, recreation, ecosystem services such as carbon and water markets, recreation, hunting, and alternative energy production.

Several biomass utilization facilities exist, and several more projects have been proposed across the zone. Successful biomass development can provide

a market for small-diameter trees and harvest residues that come from forest restoration, fuels projects, and traditional timber harvests. Additional revenue garnered from biomass can offset restoration costs and increase the bottom line for private forest landowners. We discuss biomass utilization in Chapter Three.

There are three significant types of certification that landowners can obtain for their forest management. Many industrial landowners are certified by the Sustainable Forestry Initiative. Family forest owners in the zone have certification through the American Tree Farm system. The Forest Stewardship Council (FSC) has the highest standards for certification. Although extensive areas of forestland in the zone are currently not FSC-certified, this could provide opportunity for future revenue. Northern California and southern central Oregon have the most certified forestlands. Roseburg Forest Products holds 175,000 FSC-certified acres in Siskiyou County, and the Fort Bidwell Indian Reservation in Modoc County holds 2,286 certified acres. J-Spear Ranch Company and the Collins Company have FSC-certified land in Klamath and Lake Counties. Collins's certified holdings are 77,000 acres and add value to processing at their Lakeview sawmill. A family forest owner in Wallowa County has 500 FSC-certified acres. Although the FSC-certified lands of the Confederated Tribe of Warm Springs are north of the zone in Jefferson County, their successes in using certification as a business strategy are significant inspiration to central Oregon industry. Several wood products manufacturing businesses are certified by the FSC as chain of custody businesses, especially in southern Oregon and other higher-population areas where these facilities are concentrated. In northeastern Oregon, Community Smallwood Solutions, a for-profit post and pole company, is now able to conduct FSC forest management and chain of custody audits. This local capacity and the presence of multiple chain of custody businesses may help to facilitate growing opportunities for green wood markets across the zone.

Although payments for carbon sequestration are currently limited by the slow growth rate of dry forests and the low premium paid for voluntary carbon sequestration, landowners in northeastern and southern Oregon have expressed interest in these markets.

Resources and opportunities to assist landowners in carbon markets are emerging. The Baker County Small Woodlands Association has met with a forest carbon consultant to discuss a regional carbon market, and the Southern Oregon Extension Center is working with the Oregon Small Woodlands Association (OSWA) to educate landowners in southern Oregon about potential carbon sequestration opportunities. In 2008, OSWA created Woodlands Carbon, an organization that aggregates and trades carbon from family forest owners. The Northwest Natural Resource Group has recently conducted outreach to landowners across the zone to develop carbon offset markets through their Northwest Neutral Program. In California, the California Climate Action Regis-

try allows landowners to provide carbon credits on a voluntary market. Individual landowners in the zone have also taken initiative to better understand the potential of carbon markets. One private landowner in southern Oregon received a federal grant to study carbon sequestration and is eager to capitalize on this work by selling carbon credits and sharing this information with other interested landowners. Two local landowners have also explored carbon sequestration opportunities through studies with the Lake County Resources Initiative.

In central Oregon and Klamath County, water allocation in the Deschutes and Klamath basins have already prompted developments in water transac-



tions, which could provide another ecosystem services market. In Deschutes and Crook counties, development pressures and irrigation needs have led to instream water leasing and surface water markets. In Klamath County and parts of northern California, the future of water markets is unknown at this point, but the outcomes of the Klamath Basin Restoration Agreement may lead to new options such as wetlands banking. Although these water markets are not well developed, there are federal incentive programs that can support riparian restoration and conservation practices by compensating landowners for their stewardship. Through its restoration grant program, the Oregon Watershed Enhancement Board has also funded watershed restoration projects on both public and private lands that benefit watershed processes, fish populations, and habitat restoration. Finally, other emerging opportunities for landowners to access alternative value streams include fee hunting and fishing, and renewable energy development including wind turbines, solar panels, and small-scale hydroelectricity.

OPPORTUNITIES FOR SUSTAINABLE FOREST STEWARDSHIP IN THE ZONE

Across the zone, there is interest in integrating forest stewardship and economic development on public and private lands through timber and alternative value streams. On public lands, collaboration and strategic use of policy and funding opportunities can foster this stewardship. There is a need to support existing collaborative efforts through technical and capacity building assistance. The success of small-scale experiments across the zone can be leveraged to promote landscape-scale, collaborative comprehensive restoration project planning and implementation. Communities and agencies could capitalize on the opportunity presented by federal stimulus and other existing funding to accomplish a diversity of work on both public and private lands. This funding can be used for fuels reduction, trail maintenance, and road improvements. Where stimulus funding has been dedicated, it is important that these projects be implemented in a timely manner and used to leverage further work wherever possible. Other opportunities for landscape-scale restoration

include the Forest Land Restoration Act (FLRA), Healthy Forest Restoration Act (HFRA), and increased stewardship contracting.

There are also emerging opportunities to maintain and secure private working lands. Maintaining nonindustrial private forests throughout the zone in the future will require an integrated approach that includes: 1) adequate markets for timber and other value streams; 2) technical service provision by state foresters, extension agents, and nonprofit organizations; 3) aggregation of landowners to take advantage of market and stewardship opportunities; 4) the presence of local forestry contractors; 5) landowners who understand the values associated with working lands and manage their holdings accordingly; and 6) state and federal legislation and funding that supports sustainable forestry. To secure working landscapes, communities and landowners can promote new ownership models and alternative value streams. Opportunities exist to explore community and tribal ownership and conservation easements. For both private industrial and nonindustrial lands, immediate opportunities to create incentives for active management include biomass market development, recreation, voluntary carbon markets, federal and state conservation programs, and forest certification. Wherever possible, landowners should aggregate to take advantage of these opportunities, especially in places where landowner associations exist that can provide education and access to these markets. Experimentation with these new markets should be encouraged and innovations should be shared across the zone.

Working forestlands are important contributors to the ecological, social, and economic conditions of the zone. The successful stewardship of productive public and private lands in this region requires an integrated vision focused on collaborative landscape-scale restoration, working landscape conservation, and access to both timber and alternative value streams. This vision can reflect the diverse ecological, social, and economic dynamics across the zone and build upon local successes, existing knowledge, and capacity.

VI. Chapter Three—Woody Biomass Utilization

Many of the forests of the Dry Forest Zone have an overabundance of small-diameter trees that result in elevated wildfire risk. Hazardous fuel reduction and restoration projects have increased the opportunities for removal of this material, but by and large, the traditional forest products companies in the zone do not utilize small-diameter trees and slash from timber harvesting operations. Across the zone, county commissioners, industry leaders, local businesses, agencies, landowners, and some conservation groups want to capture value streams from forest biomass while meeting their goals of community wildfire protection and risk reduction. There is a range of possible uses of woody biomass that could create economic value, benefit local communities and businesses, and support forest restoration. However, the types of biomass utilization that they support vary. These include on-site heat and power, energy generation, woody fuels and densified fuels, integrated community-scaled facilities, and institutional thermal heating systems.

First, there is strong interest in utilizing wood to produce thermal energy, particularly for space and process heat. Several sawmills across the zone already take advantage of their residuals to produce on-site heat and electricity. Second, many communities now see stand-alone electricity and combined heat and power plants for commercial electricity generation as the key to creating local jobs and wealth capture beyond the traditional forest sector. Third, there are businesses in and near the zone that sell biomass as wood-based fuel in the form of firewood, chips, or hog fuel. Other options include densified fuels such as pellets or bricks. Supply has outpaced demand for pellets in the zone's existing residential pellet market, and entrepreneurs are turning toward bulk pellet production for an institutional heat market as an alternative. Fourth, a few communities have pursued small, locally based initiatives that are *diversified* (produce a range of products) and *integrated* (systems for the site's production and consumption of energy, heat, and wood waste products are combined in a loop). These models maximize efficiency and are feasible for smaller entrepreneurs. Fourth, there is a growing institutional heat market for thermal biomass utilization in public and commercial buildings as communities realize the potential

cost-savings of conversion from fossil fuel heating sources, especially heating oil. Finally, there is also localized interest in continuing to investigate potential uses of wood to produce bio-oil, or in pursuing a pyrolysis process that would produce a synthetic gas and would produce bio-char, a byproduct to be used as a soil amendment or in carbon sequestration.

This chapter discusses this range of woody biomass utilization across the zone, highlighting both innovations and challenges to business and supply viability. Although activity around biomass utilization varies, the zone is home to several clusters of business growth and biomass heat use that offer opportunities for further development and innovation. In particular, the emergence of an integrated, small-scaled cluster or campus model for biomass utilization holds promise for durable local economic development and small business involvement.

THE GEOGRAPHY OF WOODY BIOMASS UTILIZATION

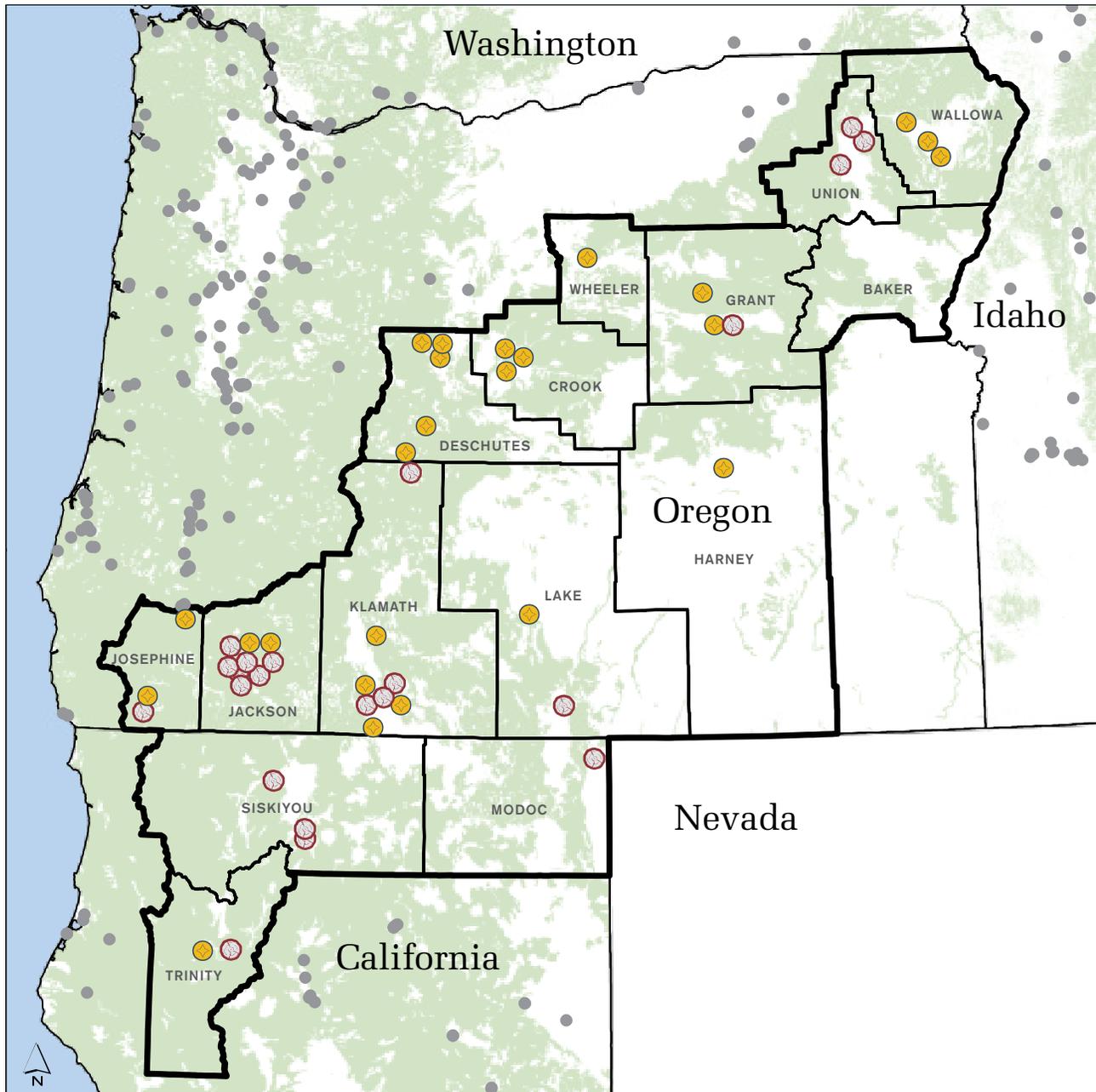
There are several different types of infrastructure that are part of biomass utilization: primary wood products manufacturers, cogeneration (combined heat and power) plants, densified fuel facilities, integrated community-scaled campuses, and institutional buildings that utilize wood-based energy for space heating. Primary infrastructure such as sawmills provides employment and utilizes larger-diameter logs, which remain the foundation of timber markets. Sawlog production capacity is linked to biomass utilization because these facilities produce a volume of residual material (such as sawdust) that can be used in secondary manufacturing to produce pulp and paper, engineered panel products, densified wood fuels such as pellets or bricks, and landscaping products.

The zone is home to over thirty primary processing facilities (*Figure 13, page 37*). The traditional wood products infrastructure across the zone is significantly smaller than it was even a decade ago as a result of reduced timber harvests, industry consolidation, and globalization of markets. Most of the mill infrastructure is located within the southwest corner of the zone. In Oregon, only nine mills remain east of the Cascades. Traditional industrial mills are

FIGURE 13

Primary Wood Products Processing Facilities

Dry Forest Investment Zone



Data Source: EWP; US Forest Service

Primary wood products processing facilities

0 100 Miles

- Non-traditional and community scale
- Traditional
- Facilities outside the zone

not currently operational or do not exist in Wallowa, Baker, Wheeler, Harney, Crook, or Deschutes counties. In northeastern Oregon, log markets are oriented toward mills in Union County; in central Oregon, to one mill in northern Klamath County or to Warm Springs, north of the zone; in southern Oregon, to mills in Jackson, Klamath, and Lake counties; and in northern California, to a number of mills across the three counties. Depressed log and housing markets currently are putting additional pressures on the viability of the industrial infrastructure that remains.

Additionally, there are family-owned or community-sized sawmills operating and active primarily in non-commodity and niche markets dispersed across the zone, including post-and-pole facilities and custom small-scale mills that produce beams, timbers, and finish goods (e.g. trim and molding). Central Oregon is home to a number of these businesses. This latter group is loosely networked through the Healthy Forests, Healthy Communities Partnership, which provides small business development and marketing support to similar businesses in the Pacific Northwest.

Both the larger and the community-sized processors in the zone face longhaul distances from harvesting to processing across a dispersed geography. The industry has struggled to adapt to the shift in management direction on the public lands that resulted in less timber availability and a focus on small-diameter removals. In two locations, traditional industry players have retooled their facilities to use a higher percentage of smaller logs. Biomass utilization processing capacity has emerged in several forms, including colocation of new manufacturing equipment with existing infrastructure, development of symbiotic relationships between new developing businesses, and energy generation (heat and power) that can be utilized by an on-site consumer.

Energy production used in an industrial process as well as both existing and planned producers and consumers of wood-based fuels are located across the zone (*Figure 14, page 38*). Most of the traditional sawmills utilize their own residuals in a combined heat and power system (CHP) to generate steam to use as process heat in their dry kilns. Some of the heat is used in turbines to generate electricity. The electricity is either used on-site or sold back to the

grid. Currently, the only stand-alone facility to produce electricity from wood waste is Biomass One in Jackson County. However, this facility is located directly adjacent to several mills and has had close access to urban wood waste as a byproduct of the construction industry that is rapidly growing in southern Oregon. Over the past five years, several stand-alone power generation facilities have been proposed in central Oregon. The scale of these proposals has ranged from 15 MW to 50 MW.

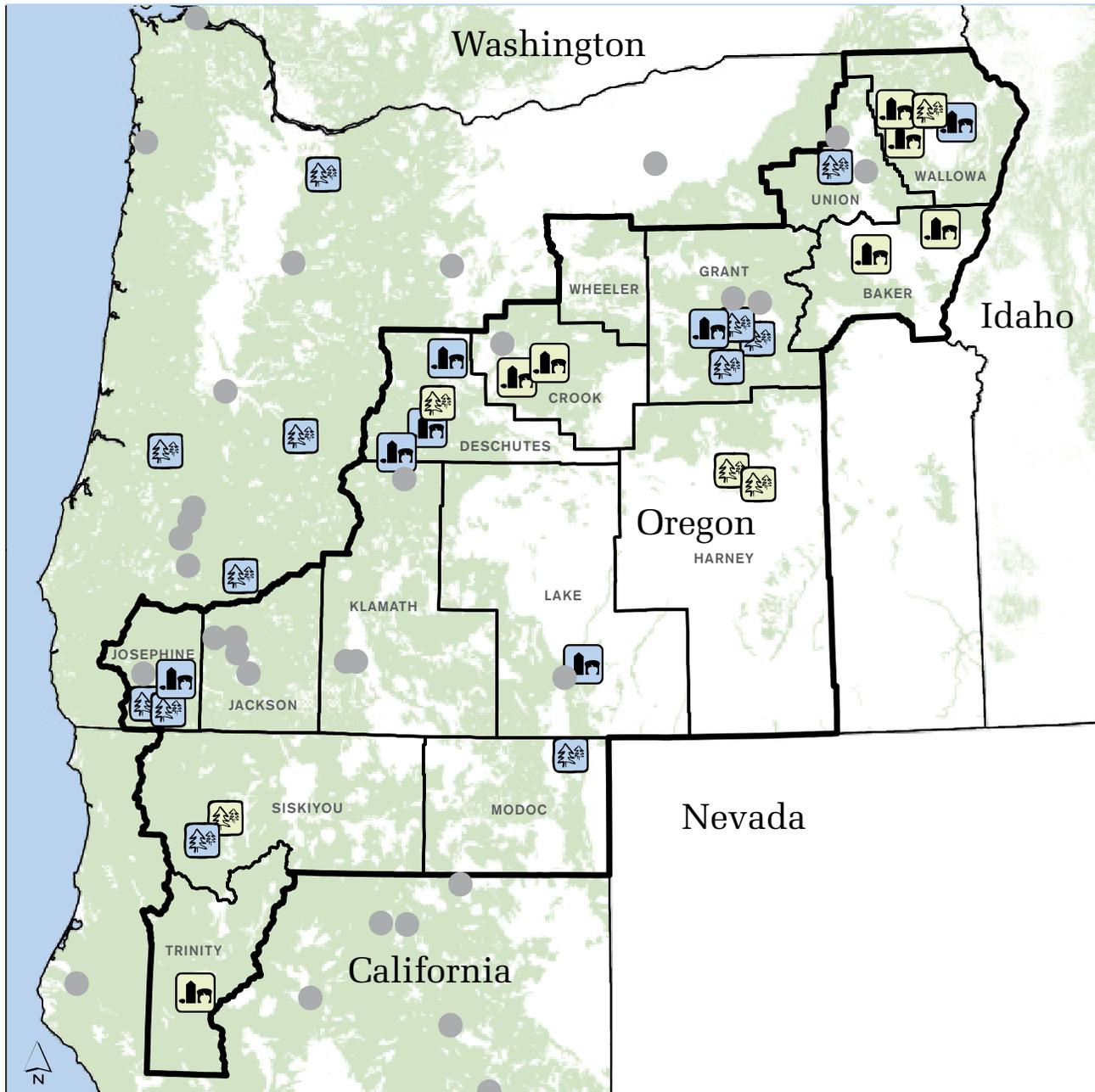
Wood-based fuels include densified fuels, firewood, chips, and hog fuel. As in energy generation of electricity or heat, manufacturing of densified wood-based fuels (pellets, briquettes, bricks, or other densified shapes such as “pucks”) depends on access to a supply of wood residuals. The wood fuel industry has traditionally used sawmill residuals, (hog fuel, shavings, and sawdust) from lumber mills and other primary processors almost exclusively. Pellet production can be part of a mill’s product lines, or it can take place at a dedicated facility. Several existing companies, such as Bear Mountain Forest Products, Western Oregon Wood Products, Frank Pellets, and Blue Mountain Lumber, produce pellets, but all are located just outside the boundaries of the zone. There are current plans to add pellet production in several locations in the zone. For example, an expansion to include the production of wood bricks at Integrated Biomass Resources in Wallowa County is taking place next to a post-and-pole plant owned by Community Smallwood Solutions.

Other wood-based fuels businesses range in size and capacity. Firewood businesses may harvest wood themselves or purchase “ends” from mills. Most firewood businesses in the zone are at a scale large enough to market outside their local community but lack the scale of volume to be attractive to a regional firewood distributor. Several of the firewood producers have accessed larger, regional markets but strictly as a spot market supplier. Chips and hog fuel have traditionally been used by the forest products industry in producing pulp or engineered wood panels, or to fire cogeneration facilities. This material can also be utilized in heat-only applications to provide heat at institutional buildings. However, smaller heat loads will tend to favor the use of pellets, whereas residential customers can use wood bricks as supplements to traditional firewood. Both

FIGURE 14

Wood to Energy Market

Dry Forest Investment Zone



Data Source: EWP, CHP database

- | | | |
|---|---|--|
| Existing | Planned | |
|  |  | Producers of bulk biomass fuels (chips and densified fuels) |
|  |  | Consumers of bulk biomass fuels (thermal heating) |
| | |  Industrial electricity and heat facilities (stand alone and mills) |

0 100 Miles

of these sectors represent an important component of the future market for wood-based fuels.

Producers of wood-based fuels would benefit from having a robust regional market for their products. Currently, there is a growing degree of interest in dramatically expanding the use of wood to produce thermal heat for commercial and institutional facilities in the zone. Retrofitting of petroleum-based fuel boilers to consume wood fuels has become a new trend. In eastern and central Oregon, several public facilities have undergone or planned retrofits. Harney County's high school and hospital both operate on pellet boilers; the Enterprise school in Wallowa County utilizes wood chips to produce space heat; Grant County's airport is currently installing a pellet boiler; the new Deschutes National Forest headquarters will include a wood-based fuel boiler; the Blue Mountain Hospital in John Day is seeking financing for a retrofit; and several projects in Deschutes and Crook Counties are in development. Most of these consumers are advantageously located near regional suppliers, including a planned pellet plant at Malheur Lumber Company in John Day. In southern Oregon, two public schools in Josephine County received ARRA funding through the state to pursue retrofits of existing heating oil boilers. In addition, conversations have begun about using wood-based fuels in district heating applications in Fossil, the seat of Wheeler County, and Burns, the seat of Harney County.

Although such alternative uses for woody biomass to produce bio-based products (such as bio-oil, and biochar) are not as well developed as other uses for woody biomass, a new business in Baker County has developed a pyrolysis process for processing submerchandise materials and hopes to operate a mobile plant that can work in the woods, reducing transportation costs. Currently, this project is in infancy.

TRENDS IN WOODY BIOMASS UTILIZATION

There are four trends of note in woody biomass utilization in the zone: 1) interest in energy generation focused on electricity; 2) interest in a diversified and integrated community-scaled model; 3) a new businesses model that would utilize a combination of forest harvesting slash and sawmill residuals to manufacture densified wood fuels for new markets; 4) and the growth of an institutional heat market.

First, many communities desire stand-alone electricity or cogeneration plants that will produce electricity for the grid and provide a stable stream of jobs. While these plants could potentially provide employment, their development relies on the interest and involvement of investors typically from outside the zone and would likely not provide opportunities to retain many profits in the local economy. In Oregon, strict zoning laws can make city lands less amenable to businesses, and county governments must work to ensure access to development sites and social license for a large plant. These investors may not understand or be committed to the needs of the community. They require available financing for the up-front costs of capitalizing facility construction, which can be over \$1 million per planned megawatt, and to make such an investment, must have a guaranteed future supply of biomass materials. Coordinated Resource Offering Protocols or "CROP" models have been developed to help predict a five-year supply for investors. In central Oregon, the collaborative group Central Oregon Partnership for Wildfire Risk Reduction (COPWRR) has provided CROP analyses to several potential investors. This has led to proposed cogeneration plants in Prineville and La Pine, but most of these proposals have not come to fruition. Biogreen Sustainable Energy of St. Helens, Oregon, has purchased industrial parkland in La Pine, established supply partnerships, and applied for federal funding to build a 15 MW plant. Stakeholders in central Oregon continue to seek investment in biomass energy generation, but a lack of primary processing capacity limits access to infrastructure and supplies of residuals.

In northern California, colocating new energy generation with existing manufacturing infrastructure offers opportunities as well. Trinity River Lumber in Weaverville has proposed a cogeneration development with the City of Redding Utility District wherein Redding would own and operate a cogeneration facility powered by mill residuals at Trinity River Lumber, and sell the electricity back to the mill for their portfolio as well as for use in Trinity Lumber's dry kilns. However, Trinity River Lumber's mill has since burned down and this project has slowed. The most mature project in Siskiyou County is the pending construction of a CHP facility at Roseburg Forest Product's Mill in Weed. Environmental appeals surrounding their air quality permit are a substantial

impediment to this project being constructed and operating. This model for energy generation may be more feasible than stand-alone plants as it accesses some of the supply need from the existing primary processing infrastructure and has an additional revenue stream by capturing and selling the heat energy.

A second trend has been toward diversified and integrated community-scaled model of biomass utilization. This trend represents a way to surpass the obstacles that larger plants face and to grow local business capacity. The opportunity to develop colocated or on-site capacity to utilize small-diameter trees, harvesting slash, and sawmill residuals is innovative because it could help combat the current economic challenges of biomass utilization, diversify revenue streams for existing manufacturers, and take advantage of transportation and handling economics. In response to the low value of the raw material, businesses are looking to integrated businesses as a way to lower site development costs, share equipment, lower operational costs by producing energy on site, and developing a diver-

sified product line that can respond to changes in the market. These business arrangements could be tremendously valuable to reduce production costs and, thus, add the most value to woody biomass, as well as the broadest range of benefits to communities and businesses in the zone.

These developments have occurred across the zone in the communities where nonprofit organizational capacity is high and collaboration has been ongoing for years. Wallowa County and Trinity County respectively have pioneered these integrated “campuses” with the intent of promoting both ecological and economic viability in their public lands and communities. In Wallowa County, this campus began in 2004 with Community Smallwood Solutions, a post-and-pole business. In 2009, Integrated Biomass Resources colocated at the post-and-pole site to utilize residuals and log downfall for chips and firewood. Integrated Biomass Resources is currently installing equipment that will allow it to produce puck briquettes. Wallowa Resources has been instrumental in supporting and coordinating these business efforts. In Trinity County, the Watershed



Research and Training Center has purchased a post-and-pole peeler and small-diameter sawmill to form the Hayfork Integrated Campus. They are working to add a firewood processor, pellet plant, and potentially a small CHP unit. These integrated facilities have the potential to produce a diverse range of products, efficiently utilize woody biomass, and support local entrepreneurship. However, the post-and-pole producer at the Wallowa campus has relied on private supply in lieu of the planned restoration byproducts from the Wallowa-Whitman National Forest since active restoration has been slow to develop. The Hayfork Integrated Wood Campus is not currently processing materials due to poor market conditions.

Other plans for integrated campuses are slowly emerging in the zone as entrepreneurs and businesses realize the advantages of this model and nonprofit organizations provide resources and support to pursue it. In consultation with the Central Oregon Intergovernmental Council (COIC), Quicksilver Contracting has applied for federal grants to create a smallwood processing yard in partnership with other local businesses in La Pine. This facility would have post-and-pole, chipping, grinding, and firewood capacity, and would meet a critical need for biomass utilization from the forests of central Oregon. In Josephine County, A3 Energy Partners is currently in the feasibility stage of developing a brick and pellet mill at Rough and Ready Lumber Company's sawmill site in Cave Junction.

Third, due to market conditions, there is a trend toward bulk, distributed densified fuel production. Traditionally, densified fuel production in the zone has largely consisted of bagged, high-quality and low-ash pellets for residential markets. But in 2009, demand for pellets leveled off as a result of the housing market downturn. Supply became greater than demand, causing many of the large pellet plants adjacent to the zone to curtail production. As there is currently an overcapacity of producers for this market, entrepreneurs in the zone have shifted toward a model of bulk pellet production for thermal heat consumers such as municipal facilities. This pellet production will rely on slash and biomass removed from the forest. Malheur Lumber Company in John Day will begin construction in the summer of 2010 to add capacity to its existing mill. Using grant funds acquired through the American Recovery and Rein-

vestment Act (ARRA), Malheur Lumber will contract with A3 Energy Partners to design and build a small wood pelletizing and briquetting line to complement its existing wood shaving product. This will allow the mill to purchase small-diameter logs currently without a market and utilize its own sawmill residuals. The pellets and bricks will be distributed by Bear Mountain Forest Products, a regional company with twenty years of experience manufacturing and distributing wood-based heating fuels in the Pacific Northwest.

There is other potential to pursue similar ventures in other areas of the zone, including the A3 Energy Partners project in Josephine County and the future pellet plant at the Hayfork Integrated Wood Campus. JTS Animal Bedding in Deschutes County, which produces shavings for animal bedding from both regional pine and nonregional Douglas fir residuals, has developed a new market linkage by partnering with Pacific Pellet. Pacific Pellet has begun to build a pellet plant in Redmond, and JTS will supply their shavings residuals to this new facility.

Fourth, local and external markets for the wood-based fuel products (both densified and traditional fuels) of the zone would provide this institutional market, revenue to offset the costs of forest treatments, and additional value streams for the forest products industry. Entrepreneurs in the zone are seeking to develop this market in response to the challenges of pellet overproduction. Comparatively, energy costs are reduced by three times when heating systems are fired with wood-based versus petroleum-based fuels. In addition, much more of the energy spending stays within the regional and local economy. In its first year, the wood-fired boiler (wood chip fuel) at the Enterprise School in eastern Oregon reduced heating costs from \$125,000 to \$25,000, saving the local school district (and the state) \$100,000. In addition, the feedstock was procured from a nearby post-and-pole operation, injecting \$25,000 into the local economy. This project and linkage is a model for future developments elsewhere in the zone; an opportunity to develop clusters of institutional heat demand exists in eastern, central, and southwestern Oregon. The expansion of the market will be tied to the strong confluence of biomass utilization businesses and partnerships that can provide durable supplies of densified fuels.

Growth of similar market linkages and supply networks will be crucial to the promotion of a broader thermal heat market.

CHALLENGES TO WOODY BIOMASS UTILIZATION IN THE ZONE

Despite the number of promising developments in biomass utilization across the zone, this nascent industry faces challenges in supply, access to capital, entrepreneurial capacity, and the momentum of emerging markets.

The biomass industry relies on the by-products of other industries for its raw materials. This supply includes the residuals from forest products manufacturing and in-woods biomass from forest management. Investors and project initiators require reliable estimates of available supply when assessing business feasibility. Most often this is articulated as a need for a “guaranteed supply” from the federal land management agencies. The pace of restoration activities on much public land in the zone has been slow due to lack of agreement on forest management and limited funding and staffing in the Forest Service and BLM. Additionally, the demand for commercial timber has slowed substantially due to the recession and drop in housing markets, in turn reducing wood products manufacturing activity.

Second, most biomass business plans require a funding portfolio that include private equity, grants, loans, or tax incentives. In the current economy, access to capital is a formidable challenge. The recession has tightly constrained capital at many levels. Financial institutions now require higher levels of due diligence and documentation prior to providing capital due to the increased risks. Although sources of capital do exist, most are too large, too small, or too complex to meet the needs of most entrepreneurs in the zone. For federal funding sources, the size of grants is most often the problem. For example, the federal Department of Energy has made millions of dollars available for renewable energy but few rural communities have the capacity to effectively compete for a \$100 million award. For private funding sources, the rate of return is most often the biggest challenge. Most private equity partners seek a higher rate of return than what most small-scale biomass businesses can provide. Sources of capital that fit rural communities and the capacity of their busi-

ness partners still need to be further developed for biomass utilization.

Third, there is not currently sufficient entrepreneurial capacity in many zone businesses to navigate through the processes of capital acquisition, feasibility analysis, and business plan development. Entrepreneurs, business owners, and facility managers need assistance to best identify and access suitable methods for building a successful biomass utilization plan.

Fourth, densified fuel markets are in a state of transition. As was discussed earlier, the region has a surplus of pellet manufacturing capability and demand for residential bagged pellets is down significantly due to lack of new housing starts, low energy prices, and a weak economy. The weak economy has affected demand for pellets for those with existing pellet stoves as well. Most residences with a pellet stove also have traditional (electric or fossil fuel) heating sources. Residential pellets require customers to purchase their supply in advance. When lean economic times combine with warmer winters and low fossil fuel energy prices, many customers tend to rely more heavily on traditional heating. Lack of new home sales has hurt demand for pellets significantly but so has a service delivery model that requires up front payment compared to more traditional systems where the customer pays for their use at the end of the month. Entrepreneurs in the zone are looking toward a new bulk institutional heat market for densified fuels, but this market is emerging and needs to be built.

OPPORTUNITIES

The opportunity for biomass utilization to foster job creation and contribute to healthy forests rests on creating business models that respond effectively to the industry’s current challenges. Both the renewable energy sector (electricity and thermal energy) as well as other more traditional biomass products (such as post and poles and animal bedding) hold promise for innovative business models. Opportunities to develop biomass utilization in the zone include: 1) new supply streams; 2) integrated, small-scale facilities; 3) new forms of small business assistance; and 4) market adaptations.

First, businesses that have been dependent on mill residuals could utilize new raw materials (such as forest biomass and harvest slash), which are less subject to price increases and less likely to create competition for supply with existing industry. However, limited active public lands management in many areas of the zone hampers a federal forest supply of forest biomass and removal of materials in steep areas can become costly. In response, business models are utilizing new supply streams. These potential streams include private lands, juniper on private or public lands, and tribal lands. Many private landowners in the zone have shown interest in participating in biomass as an alternative value stream, and investors such as Biogreen Sustainable Energy in La Pine plan to utilize supply from private lands. Biomass utilization could also potentially help facilitate restoration and stewardship on privately owned forests. Private landowners across the zone have expressed their desire to restore their forests, which have become degraded from lack of management, and find revenue streams at a time when log markets are difficult to access. One private land management issue in particular is the spread of western juniper, which inhabits significant areas of private land ownership in eastern, central, and southern central Oregon. This species has expanded beyond its historical range of variability and impacts hydrology. Juniper has no traditional use and is difficult and expensive to harvest and process. Although a few small sawmills produce juniper beams and lumber, much of the trees needing to be removed for restoration are not fit for this purpose. The Prineville Juniper Working Group has met for several years to assess juniper utilization options in central Oregon. There is some interest in furthering the use of juniper as firewood, particularly targeting urban markets outside of the region. Other stakeholders would like to see juniper from private lands used in a biomass energy or densified wood fuel facility. One pellet manufacturer has indicated an interest in locating in southeastern Oregon to utilize juniper in proportion with other species.

Tribal managers of lands in and near the zone also plan to use their lands for forest biomass supply. The Warm Springs Tribe, immediately north of the zone in Jefferson County, has plans to expand its existing biomass energy capacity to 20 MW for electricity production with biomass from reservation lands.



The Klamath Tribes in southern central Oregon are currently attempting to increase their landholdings and use their new acquisitions to supply a planned integrated green energy facility. Biomass utilization offers both tribes and private landowners the opportunity to manage their lands and capture an alternative value stream; however, the feasibility of this capture will rely on the availability of forest management and technical assistance, and the aggregation of landowners to effectively partner with businesses.

Second, a diversified, integrated, small-scale model can also help create a more stable supply loop among other benefits. Several small-scale facilities or co-location plans are either in development or are being explored across the zone. Integration or co-location will lower site development costs and operation costs, lower permitting fees and shorten the development timeline, take advantage of an existing trained workforce and raw material streams. Central to this would be linkage of existing traditional wood products infrastructure to developing markets in the zone for residuals (densified wood fuel manufacturers and wood-chip fired energy consumers). The Siskiyou Woody Biomass Utilization Group in northern California is an example of an interagency organiza-

tion that has recently formed to help support these market linkages. Products from integrated facilities include wood shavings, bulk and bagged pellets, chips, bio-bricks or pucks, commercial firewood, and combined heat and power. A diverse product line would add resiliency to the balance sheet and allow the facility to capitalize on emerging markets or price fluctuations. Production facilities appropriate in size to the current and projected supply of biomass in the region will lower transportation costs and may garner more community support.

Third, there are opportunities to help local entrepreneurs develop the business capacity necessary for successful biomass utilization. Although there is much interest across the zone in these types of projects, there is also a general lack of knowledge regarding project specifics, such as financing, ownership structures, technology, suitability of feedstocks, and timelines for project development. Better understanding of the components of institutional heat projects that would enable community leaders and facility managers to make the best-informed decisions for investment. New partnerships and business linkages could create sources of technical assistance and training. In Wallowa and Trinity counties, nonprofit organizations have provided assistance with business planning and the risks of initial capitalization. There is also a need for support for public and market policies that can provide accessible funding and programs to small businesses. The Rural Voices for Conservation Coalition (a policy coalition that Sustainable Northwest coordinates) has a biomass utilization working group that works to inform decision-makers about policy priorities to foster sustainable renewable energy use. Awareness of the multiple benefits of biomass utilization to forest restoration, carbon dioxide offsets, and socioeconomic outcomes could help encourage state and federal investment.

Fourth, biomass utilization businesses need proactive and strategic market approaches. There are opportunities to access rural and urban markets both within and external to the zone to achieve sufficient economies of scale. Most of the communities in the zone are rural and not heavily populated. Successful business models can operate in the zone while also seeking a share of larger urban markets.

There is also an opportunity for small-scale producers and larger manufacturers to network to provide a broader range of market outlets for forest managers and a larger market presence with customers. One example could be the development of a firewood cooperative that pooled production to capture a larger, more regional market opportunity that individual businesses would not be able to meet.

Further market opportunities are the development of demand for commercial and institutional heat. This offers several important competitive advantages for biomass businesses in the zone. First and foremost, it is an untapped market segment that is experiencing strong annual growth. Second, biomass thermal heating systems can utilize a bulk pellet that contains a higher level of foliage and needles. This allows the facilities producing bulk pellets to utilize restoration by-products, such as material forest health treatments and harvest slash for which there is limited competition. Third, commercial and institutional heat users would be less likely to switch to fossil fuel as biomass thermal systems offer strong energy savings compared to fossil fuel sources. Lastly, the size of the commercial or institutional market may be able to generate a demand for increased production capacity over time.

Communities and businesses across the zone are interested in the promise of woody biomass utilization to create economic opportunities and support forest stewardship. A distributed network of appropriately scaled combined heat and power facilities offer the potential to utilize the byproducts of forest restoration across the zone while providing employment opportunities and inputs to local economies in multiple communities. Community-scaled integrated models have the capacity to expand local entrepreneurship, support business partnerships, and provide socioeconomic benefits while producing for a regional market. The lessons of the early innovations and successes in eastern Oregon and northern California can be shared across the zone to help confront its obstacles of isolation from markets and transportation corridors. The zone is poised to further its existing innovations and use biomass utilization as a tool for sustainable forest stewardship and community development.

VII. Chapter Four—Community and Organizational Capacity

Over the past decade, a range of stakeholders has engaged in building local capacity for sustainable forest stewardship in the communities of the Dry Forest Zone. These include conservation groups, federal agencies, technical assistance providers, community and county governments, community-based nonprofit organizations, collaborative groups, and the private sector. The result has been the growth of numerous community-based, local collaborations. Key steps to building community capacity in the zone have included, but are not limited to technical assistance to increase the skills of local businesses and community leaders; collaborative planning and problem-solving; support to improve community infrastructure and technology; grants and loans available for business development, educational pursuits, skill-building, and the costs incurred in these activities; and delivery or coordination of government services. In addition to building capacity in communities, organizations and service providers have also begun to “scale up” their efforts and capitalize on years of successful work. It is essential to focus on both the mechanisms for local capacity-building and the ways in which this capacity is disseminated and mobilized for positive change throughout the zone. To this end, we describe the range of institutions able to provide capacity and where these institutions are found in the zone. We then discuss the accomplishments of zone communities and organizations in building trust, implementation capacity, business assistance, and access to government services and resources. In conclusion, we highlight opportunities for increased scope and scale of forest stewardship activities through better coordination of nonprofit, collaborative, and governmental organizations in regional networks.

ORGANIZATIONS IN THE ZONE

Collaborative groups 1) are comprised of diverse interests that may represent local, regional, national, and other distant interests; 2) agree to work together to identify common ground; and 3) agree to advance solutions based on that common ground. Many collaborative groups work out agreements through project development, design, implementation, and monitoring; others simply develop and advance recommendations; and others may do a hybrid of both.

Collaborative groups vary in structure and formality. They may or may not be staffed, have nonprofit tax-exempt status, or meet on a regular schedule. Most collaborative groups have documents that articulate their purpose for working together and their decision-making processes. Collaboratives that have been consistently active build up trust and momentum for agreement. However, longstanding collaboratives can also potentially fall into challenging transitions when a key leader leaves, or suffer from community fatigue and inertia. Some collaboratives have yet to develop formal processes and structures; others deliberately remain informal in order to maintain flexibility. Nonprofits are important because of their ability to implement projects on the ground, which many collaboratives lack.

Community-based nonprofit organizations are entities that generally have a nonprofit tax-exempt status, a board of directors, staff, and programs, although some community-based organizations run on volunteers with very few staff members. These organizations implement projects in the community on their own, through collaborative efforts, or in partnership with other entities, including businesses and county, state, and federal agencies. The type of capacity-building activities that a nonprofit community organization or collaborative engages in depends on its structure, focus, and “maturity.” A mature nonprofit is one that has an operating board, 501(c)3 status, and a staff capable of developing and implementing projects. These organizations can be more readily able to leverage funds and maintain stability than mid-capacity nonprofits. A mid-capacity organization may not have a well-developed board, durable funding sources, or an adequate staff. Several community-based organizations in the zone provide the facilitation and staff support to collaborative groups. One example of this is the Lake County Resources Initiative, which assists the Lakeview Stewardship Group in collaboration around the Lakeview Stewardship Unit.

In addition to community-based nonprofit organizations and collaboratives, local governments and delivery mechanisms for federal services can play a critical capacity building role. Since much of the zone is public land, county governments serve as

the interface between communities and the federal government. County commissioners are important local opinion leaders and decision makers. Many of the county commissioners in the zone have experience with natural resource management issues and make that a significant component of their work by working with natural resource advisory committees, which play an advisory role on natural resource issues; on community wildfire planning; or in collaborative organizations, although their involvement across the zone varies. The presence of delivery mechanisms for federal-government-based resources is a fourth source of capacity. USDA Forest Service, USDA Rural Development, USDA's Rural Conservation and Development Program, and Economic Development Districts have field offices in the zone. Although our assessment process did not gather extensive information about these government mechanisms at this time, they can be significant sources of capacity.

A SNAPSHOT OF CAPACITY ACROSS THE ZONE

Each of the institutions described here can function to build capacity for sustainable forest stewardship. Community capacity is the collective ability of residents to respond to social, economic, and environmental stresses, create and take advantage of opportunities, and meet the needs of the community.¹⁴ There are several trends in capacity building in the zone: 1) collaborative groups are building and maintaining trust while increasing forest management activity; 2) there are durable nonprofits with implementation capacity; 3) nonprofits are supporting and growing forest-based businesses; and 4) federal service providers have limited engagement with land management issues.

Collaboration and trust building

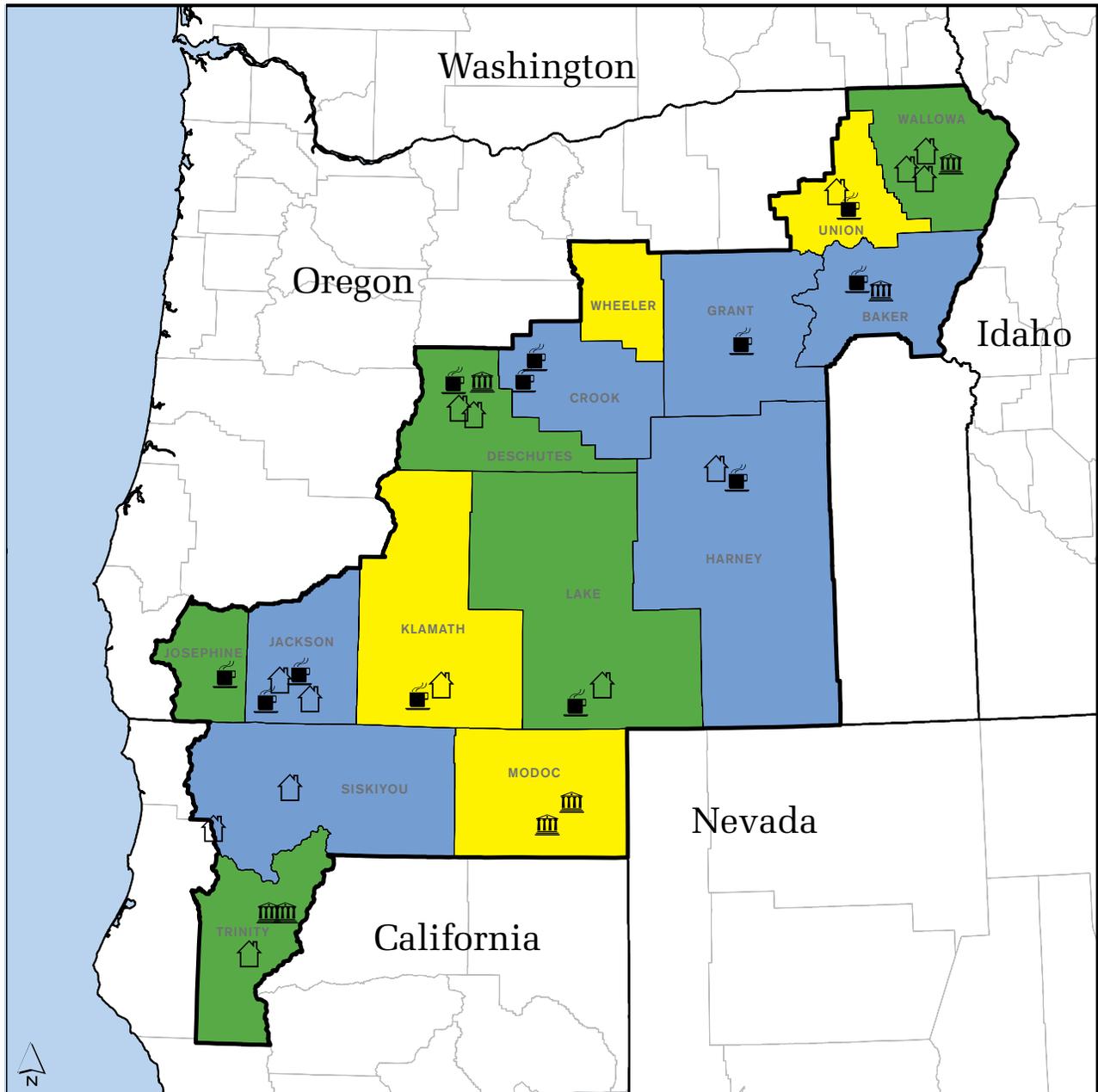
There are collaborative groups in nearly every county of the zone (*Figure 15, see 48*). These groups have identified a purpose for collaboration and developed procedures for meeting. Some have met for years, whereas others are newer. Collaborative organizations reflect their local contexts and offer valuable opportunities for rural stakeholders to participate in the decisions that impact their lands and communities. Moreover, they can be effective mobilizers in an area that also has nonprofit capacity. When stakeholders, agency staff members, and community resi-

dents first begin to meet in a collaborative setting, they are brought together by a shared problem such as disagreement over local forest planning. Starting small, conducting demonstrations, finding tools for decision-making, and monitoring active projects are key steps for collaboratives. In Trinity County, collaboration has taken place on a project-by-project basis with the Watershed Research and Training Center (WRTC) facilitating. These projects have included the Post Mountain stewardship contract and the Fire Learning Network. In each instance, collaboration began with small-scale initiatives that could offer tangible results. To build agreement and provide knowledge, they arranged demonstrations of forest practices on public lands (or on private lands if agreement on public land was not possible). These treatments offered the opportunity for first-hand observation and opened space for the different kinds of dialogue possible when in the field. In southern Oregon, communities have been collaborating since 1992 through defined groups like the Applegate Partnership, the first watershed councils in the state, a small-diameter collaborative, and a stewardship organization. Similar principles of starting small and building trust have guided their work, and this long history of working together has instilled a culture of collaboration in Josephine and Jackson counties.

More recently, collaborative activity has grown in central Oregon. While earlier collaborations in Trinity, Josephine, Jackson, and Wallowa counties emerged from conflict over federal forest management in the 1990s, these more recent collaboratives found impetus to convene stakeholders in issues of wildfire protection and forest restoration. Collaboration has actually occurred for over a decade in the Metolius Basin of the Sisters Ranger District in Deschutes County. In 2002, a new collaborative called the Central Oregon Partnership for Wildfire Risk Reduction (COPWRR) formed with the purpose of finding economic use for small-diameter material thinned from federal forests. This group was issue-rather than project-oriented, marking a new type of collaboration in the area. Numerous small coalitions of homeowners and concerned stakeholders have also formed to advance treatment of the wildland-urban interface around central Oregon communities. At a larger geographic scale, an interagency collaboration called Project Wildfire has led the process of collaboratively developing community wildfire

FIGURE 15

Community and Organizational Capacity Dry Forest Investment Zone



Data Source: EWP

Community-based forestry mobilization

- Implementation of complex projects
- Assessment and limited projects
- Convening

Community-based forestry entities

-  Formal collaborative
-  Government and quasi-government
-  Nonprofit



protection plans across Deschutes County. In 2009, the Malheur National Forest, the High Desert Partnership, the Blue Mountains Forest Partners, and the Harney County Restoration Collaborative partnered with The Nature Conservancy to use spatial tools to articulate the various values of importance to stakeholders on the national forest in Grant and Harney counties. For a more extensive discussion of agreement on land management through collaboration, please see Chapter Two.

As the Forest Service implements project collaboratives, another opportunity for trust building emerges. Multiparty monitoring can provide valuable data about impacts of forest practices and facilitate community learning. The Lake County Resources Initiative (LCRI) led the Participatory Biophysical Monitoring Project in the Upper Chewaucan watershed of the Lakeview Stewardship Unit on the Fremont-Winema National Forest. This project employed eight young community members and brought information about the watershed back to the Lakeview Stewardship Group, where collaborative participants were able to further understand and discuss what was happening on the unit. Monitoring has also helped further agreement in central Oregon, where COPWRR formed an ecosystem monitoring committee in 2006. Although this committee uses trained scientists and does not create local youth capacity, it has developed a process for monitoring public lands projects and the success of its own biomass supply model. This process has helped “re-affirm” the existing agreements of the collaborative and further build trust for new consensus.

Organizations with implementation capacity

While collaboratives build the trust and agreement necessary to agree on forest management, nonprofit organizations offer different kinds of capacity—in particular, the resources necessary for project implementation. A core strength of the Dry Forest Zone is its community-based nonprofits. Organizations like the WRTC (the earliest of its kind in the zone), Wallowa Resources, and the LCRI each have more than a decade of experience with collaboration and forest-based small business development. In their counties, they have successfully accelerated community and business infrastructure development to support sustainable forest stewardship. Sustainable Northwest, which is a Portland-area nonprofit

organization, catalyzed this local capacity building in Wallowa and Lake counties. Sustainable Northwest worked with community and county leaders in each nascent organization to provide financial and staffing resources, board development, strategic planning, and program development skills. In the absence of a robust private sector and adequately funded governmental agencies, an organization that can provide this capacity is crucial to the creation of durable local institutions that can foster systemic change. Over time, Sustainable Northwest became a partner and peer rather than assistance provider to Wallowa Resources and the LCRI, and these groups became centers of local activity and innovation.

These three place-based nonprofit organizations have learned to build effective partnerships, connect stakeholders, and create opportunities by bolstering their own capacity to acquire funding and develop staff members capable of implementation. They have each played a pivotal role in increasing the mobilization of community-based forestry across their counties. The work of the WRTC began in 1993 to help Trinity County adapt to the Northwest Forest Plan. This organization pioneered much of the knowledge and experiences of community-based forestry. It conducted worker training and ecosystem monitoring, created a small-diameter processing facility, and built a small business incubator to help reduce risk for local entrepreneurs. In addition to its cooperative work with the Wallowa-Whitman National Forest and local conservation groups, Wallowa Resources has spawned a for-profit community development company, an educational institute, and a local smallwood processing business. The LCRI and the Lakeview Stewardship Group have managed a 495,000-acre Federal Stewardship Unit on the Fremont-Winema National Forest in collaboration with numerous area stakeholders.

Elsewhere in the zone, organizational capacity varies. Central Oregon is home to several nonprofit organizations that act to address a range of specific issues including land conservation and watershed restoration. This provides Deschutes and Crook counties with high levels of capacity for grant-writing and project implementation. The key organization in central Oregon is not a nonprofit, however, but is the Central Oregon Intergovernmental Council (COIC).

This is a governmental group that local governments convened to provide regional capacity for planning, transportation, economic development, and natural resource issues in Jefferson, Crook, and Deschutes counties. COIC also acts as the official Economic Development District for central Oregon and staffs COPWRR. Northern California also has two nonprofits in Siskiyou County that work on different issues than the WRTC. This capacity has helped that county carry out assessment and limited project work. Local nonprofit activity is more limited in Grant, Union, Harney, Wheeler, and Klamath counties, but national groups such as The Nature Conservancy have been actively involved in fostering agreement between local collaboratives (Grant and Harney counties) and managing conserved landscapes (such as Sycan Marsh in Klamath County). Although Klamath and Union counties do have some nonprofit capacity, their overall levels are low in comparison to counties where nonprofits have worked closely with collaboratives, businesses, and county leaders.

Business incubation and capacity

Nonprofits can also play a key role in incubating local businesses that have limited resources for start-up. The WRTC has assisted small businesses by partnering with Trinity County to build physical infrastructure for incubation. New local businesses could rent space and equipment at the Trinity Small Business Incubator without having to capitalize. As the WRTC and the county received income from rent, they reinvested in more equipment to help explore value-added processing of small-diameter materials. Other capacity-building activities included a workforce survey designed to help area agencies structure contracts to fit the size and capacity of local contractors, and an on-the-job training program to help existing businesses build their employee skill base. Wallowa Resources and its for-profit subsidiary, Community Solutions, LLC, began by conducting biomass supply studies for potential investors. But larger investors from outside the region can be “impatient” about understanding the local context and



disinterested in what a community-scaled, integrated biomass utilization model can offer. Therefore, Wallowa Resources also examined the feasibility of biomass technology and markets for local businesses, school districts, and the county government. In doing so, they helped support small businesses and provided a more complete understanding of the variables that impact their success. In the future, they hope to help businesses acquire short-term bridge capital and act as an investment partner. Although both Wallowa Resources and the WRTC performed crucial services to their local private sectors, they also experienced challenges. One challenge was their organizational capacity. Wallowa Resources had to build its staff and partner with other organizations in order to offer the appropriate businesses and economic analysis skills. The WRTC learned that it is extremely difficult to acquire funding for physical infrastructure like an incubator, and that once primary processing capacity diminishes, it is challenging to rebuild.

Elsewhere in the zone, organizations have offered local assistance with biomass utilization and stewardship contracting. COPWRR in central Oregon has worked to provide CROP models of biomass supply to potential investors, assist small businesses with retooling or new ventures, and provide a collaborative environment amenable to new business partnerships. The Lomakatsi Restoration Project in southern Oregon formed in 1995 and has focused on building a restoration workforce. This organization bids on stewardship contracts and currently holds a ten-year contract on the Rogue-Siskiyou National Forest. By providing worker training, hands-on experience, and quality local employment, Lomakatsi has supported the capacity of local communities to restore their forests.

Federal service providers and sustainable forest stewardship

Federal service providers of note in the zone include the USDA Forest Service, USDA Rural Development, USDA Resource Conservation and Development (RC&D), USDA Natural Resources Conservation Service, and Economic Development Districts. The USDA Forest Service has dozens of forest supervisor and ranger district offices across the zone and is a well-known interface with the federal government in public lands communities. The Forest Service is-

sues ARRA funding, stewardship contracts, service contracts, and timber contracts, all of which can generate local economic revenues. USDA Rural Development has eight offices in the zone. This agency can provide funding for community and economic development, energy, broadband, and other rural needs. Our assessment revealed that communities and organizations across the zone tend to have a limited degree of engagement with Rural Development. The agency held a jobs and economic development public forum in Bend and also awarded ARRA funds for rural business development to the Northeastern Oregon Economic Development District and the Southern Central Oregon Economic Development District (SCOEDD) in January 2010. USDA's Resource Conservation and Development Program creates "RC&D areas" that are able to receive federal technical and financial assistance program funds to improve natural resource and regional economic development. Six RC&D areas currently cover most of the zone, except northeastern and eastern sections of Oregon that have recently applied for designation. The USDA Natural Resources Conservation Service (NRCS) is the federal agency that provides technical assistance, outreach, and conservation services for private lands through Soil and Water Conservation Districts (SWCDs) in Oregon, and Resource Conservation Districts (RCDs) in California. District representatives are elected on local ballots and have taxing authority. There are seventeen SWCDs active in the Oregon portion of the zone, and five RCDs active in the California portion.

Finally, Economic Development Districts are another source of federal resources. There are nine Economic Development offices in the zone. These districts range in their involvement with natural resource management. Because COIC's community development program hosts COPWRR, sustainable forest stewardship in central Oregon is closely linked to economic development through both COIC's programming and the collaborative work of COPWRR. SCOEDD is another District that has engaged with natural resource issues. Through their partnership with the LCRI, they conducted a feasibility study for the proposed Lakeview Biomass Plant. However, these types of connections have been limited. Coordination between land management and economic development agencies in the zone needs to be strengthened.

OPPORTUNITIES AND NEEDS

Successful innovations in collaboration and capacity building have grown across the zone in the past decade, and these are beginning to increase in scope and scale. This growth will continue if communities can increase regional capacity for collaboration, implementation, and economic development through robust networks. To do so, collaborative and non-profit organizations can work to combine their capacities and provide small businesses with the skills and resources necessary to adapt to current market and supply challenges; and economic development agencies and districts can orient their work toward integration with land management goals.

Collaboratives and nonprofits have worked in tandem to advance sustainable forest stewardship in places like Lake County; their efforts have not been coordinated in Klamath or Union counties. Thus, although these counties are both home to collaborative and nonprofit capacity, their level of overall mobilization is lower. Although Josephine and Jackson counties have a number of organizations, their capacity to actively implement a range of complex projects has not developed. While collaborative groups help build the valuable base of social agreement, nonprofit organizations can be the “implementers” of projects and programs. Existing and emerging nonprofits in the zone must increase their implementation capacity while working closely with collaboratives to ensure that they have support. Implementation capacity includes decision-making abilities, staffing, and clear, equitable leadership structures. Collaboration has expanded in the zone in recent years, but this development must be accompanied by adequate growth of and partnership with the nonprofit sector.

Another need in the zone is the expansion of small business capacity and opportunities. This requires the development of workforce and entrepreneurship skills. Workers may be unemployed and untrained for new employment options, or may be unable to obtain training while working full time. Programs that can provide diverse and durable skills through training on the job are necessary in rural zone communities. Groups such as the Klamath Tribes are emerging as landowners who are in need of both a local restoration workforce and business capacity. Local entrepreneurs are facing difficulty from market

challenges and competition from larger operations. Many also have equipment that is not designed to conduct small-diameter logging; this inhibits them from capturing the contract opportunities available in small forests. Contractors can learn how to adapt their existing equipment and find ways to re-tool their businesses that involve less risk and support for up-front capital investments. Organizations across the zone have developed tools for business support that include assistance with startup-costs, risk reduction, feasibility studies, and negotiation of smaller contracts and sales that are accessible to local businesses. These services will help entrepreneurs adapt to current market challenges and thrive in the future.

Regional networking

Although capacity is crucial to local organizations and communities, networks are also necessary to facilitate the spread of capacity-building activities and innovations. Nonprofits, collaboratives, federal agencies, and business leaders must build robust connections across the zone in order to take local successes to the regional scale. Currently, networking in the zone tends to be localized but has begun to expand in scope and scale. Wallowa, Lake, and Trinity counties are examples of places with high degrees of connectivity within county boundaries. Wallowa Resources, the LCRI, and the WRTC each work with Forest Service and BLM officials, wood products companies, county commissioners, and conservation groups. The Nature Conservancy’s “Bigger Look” project is bringing together staff from the Malheur National Forest, Malheur Lumber Company, and both local collaborative groups across Grant and Harney counties. These connections have helped unite local stakeholders in pursuit of sustainable forest stewardship. Communities in the zone are beginning to expand their networks beyond their local areas to 1) expand county-based efforts to a regional level; 2) coordinate diverse and often disconnected collaborative efforts; and 3) connect land management and economic development agencies. All three of these approaches are essential to successful community-based forestry mobilization.

The first step in “going to scale” is the expansion of county-based activities to the surrounding region. Wallowa Resources has identified the need to work more closely with commissioners from Union

County, contractors, regional investors, and emerging community forestry organizations in Union and Baker. The WRTC is beginning to learn about and partner with groups like the Siskiyou Biomass Utilization Group and with Modoc County officials. Although Lake and Klamath counties face different forest stewardship issues, groups such as the Klamath-Lake Forest Health Partnership could increase their connections with other stakeholders across the region. This could help Klamath County develop capacity for project activity and implementation. Increased coordination in areas where there are many actors and groups is also key. In southern Oregon, for example, numerous collaboratives and nonprofits may work on the same issues in isolation. Partnership between the Southern Oregon Small Diameter Collaborative and the Josephine County Stewardship Group would help the groups to share resources while moving their focus to the landscape scale. In central Oregon, COPWRR, the Crook County Natural Resources Planning Committee, the Prineville Juniper Working Group, Project Wildfire, and the Fire Learning Network are among the many organizations that can stretch stakeholder energies thin. COPWRR and the FLN have begun to address this by collaborating on the Central Oregon Restoration Principles and attempting to draw connections between these various initiatives. Finally, the lack of coordination between land management and economic development agencies has prevented zone communities from fully accessing all potential resources for sustainable, integrated forest stewardship. RC&D areas, Rural Development offices, and Economic Development Districts already work at a regional scale and could convene with land management agencies and collaborative and nonprofit organizations to discuss shared goals and strategies for maximizing regional funding opportunities. This approach could also help federal service providers to understand and better address the local needs and nuances in their service areas.

CONCLUSIONS

Effective collaborations, nonprofits, government providers, and their networks are the critical infrastructure that helps provide an array of benefits to rural resource-based communities. These institutions can increase agreement on forest management, develop critical mass for community forest ownerships, and better coordinate stakeholders (e.g. across public-



private lands interface). For biomass utilization, they can build agreement, provide business and market support, and help negotiate biomass supply. Their participation in land management and biomass issues can help ensure that restoration and utilization work produces local jobs and local benefits, and they could work to convene leaders in land management and economic development in order to promote a coordinated approach to sustainable forest stewardship and community viability. They can also act as mechanisms for policy engagement and dissemination of policy knowledge. The future of sustainable forest stewardship lies in the continued promotion of local capacity while the zone also coalesces as a proactive and resilient region. Most importantly, community and organizational capacity are the basis of multifaceted solutions that can address the complex, interrelated challenges facing rural forest-based communities.

VIII. Chapter Five—Policy

The Dry Forest Zone is 68 percent public land; therefore, public policies are crucial to the opportunities and constraints that it faces. National laws guiding planning and harvesting practices have significantly shaped the role of federal land management agencies in providing ecological and socioeconomic benefits to communities. The large tracts of federal ownership that dominate the zone are adjacent to sparsely populated rural areas, and county governments serve as the interface between the federal government and local communities. Most of the county seats have relatively small government structures, few staff members, and limited and declining budgets. These counties are responsible for maintaining road systems, public education, health care, fire and police departments, land use laws, and other core local government functions. A longstanding system of federal funding to counties from federal timber revenues and for nontaxable federal lands has helped support county governments, but the declining timber industry continues to challenge these contributions. Given the importance of public policy in the public lands communities of the west, governmental, interest, and nonprofit groups have organized to influence policy and represent the priorities of their members. However, most of these organizations operate regionally or nationally, and there are few zone-based initiatives for policy engagement at this time. To establish the policy context of the zone, this chapter will discuss the impacts of current and proposed federal policies; the existing capacity of zone stakeholders for participating in and influencing policy; and opportunities for increased policy participation and policy changes that could help foster increased socioeconomic viability and sustainable forest stewardship.

LEGISLATIVE REPRESENTATION IN THE ZONE

National and state legislative districts provide representation for the zone. Nationally, the zone encompasses most of eastern Oregon (Oregon second congressional district), which is the seventh largest congressional district in the nation. This district covers two-thirds of the state east of the Willamette Valley and 75 percent of the zone. In California, the zone includes Trinity and Siskiyou counties, which are part of California's second congressional district,

as well as Modoc County, which lies within California's fourth congressional district. Republicans currently represent the three congressional districts that overlap the zone, and have typically represented them in the past. Representative Greg Walden (R) represents Oregon's second congressional district. Representative Wally Herger (R) represents California's second congressional district, and Representative Tom McClintock (R) represents California's fourth congressional district. Congressman Greg Walden was selected in February 2010 as the chairman of the U.S. House of Representatives Republican leadership team.¹⁵ All four senators from Oregon and California are Democrats.

In addition to Congress, citizens elect state senators and representatives. In Oregon, seven of the thirty state senators are from zone counties. Of these, six are Republicans and one is a Democrat. Thirteen of the sixty House representatives are from the zone; eleven are Republicans and two are Democrats. In California, two state senators in a forty-member Senate are from zone counties, and both are Republicans. One representative from the zone is in the eighty-member California State Assembly and is also Republican. Democrats currently control all four of these legislative bodies similar to its national representation in the House. At the county level, citizens elect county commissioners or judges who form commissions (Oregon) or boards of supervisors (California). In the rural counties of the zone, commissioners tend to be active in natural resource management and economic development issues. This is crucial in the zone where county governments are the interface between public lands communities and the federal government.

MAJOR POLICIES AFFECTING THE FORESTS AND COMMUNITIES OF THE ZONE

There are several significant federal policies and regulations that shape the forest management and economic activities of the zone. National and regional policies play a significant role in dictating local opportunities and constraints for counties and communities. There are five major areas of policy importance for the zone. First, a suite of national laws from the late 1960s onward reshaped the uses of national forests and processes for their manage-

ment, particularly by bringing new consideration for environmental impacts. These policies significantly impacted the Pacific Northwest, where forestlands had been at the core of many community economies for decades. Second, northwestern states also experienced direct conflict between industry and environmental groups such that decision-makers developed two broad bioregional initiatives (the Northwest Forest Plan and the Interior Columbia Basin Ecosystem Management Project) in the 1990s to resolve land use and forest practices issues. Third, these transformations left many rural communities and counties struggling to support their administrations and services without adequate timber revenues. Federal policies that support counties are the Secure Rural Schools and Community Self Determination Act of 2000 that replaced the past program of county payments administered by the Forest Service, and O&C payments administered by the BLM. However, the future of these allocations is uncertain. Fourth, severe fire seasons across the west in 2000 and 2003 spurred another set of national acts intended to address both the restoration needs of dense, fire-prone forests and the challenge of wildfire suppression

budget growth. Fifth, budgeting, agency capacity, and recovery and reinvestment are a significant area of policy importance for the zone. Trends in federal budgeting affect the resources available in public lands communities and have fundamentally impacted the capacity of federal agencies to staff and fund their field offices and programs. This chapter does not discuss every one of these policies in depth but highlights the driving policy levers that have shaped current conditions, pose challenges, or offer opportunity for future benefits to rural communities.

National forest management policies: 1969–89

Congress passed the National Environmental Policy Act (NEPA) in December 1969 and Richard Nixon signed it into law on January 1, 1970. NEPA is one of the most significant laws to shape federal forest management. NEPA requires federal agencies to evaluate the potential environmental impacts of all agency actions. Actions that are assumed to not have significant impacts are categorically excluded from warranting an environmental impact statement (EIS), which the agency must otherwise prepare. If the significance of potential environmental impacts is



uncertain, the agency must prepare an environmental analysis. Some stakeholders cite fear of appeals as a factor that can hamper agency activities. However, many agencies in the zone have been proactively engaging in collaboration to address potential conflicts before the NEPA process, and several recent forest management policies have provided incentives for collaboration. Collaboration has the potential to not only reduce appeals and litigation, but to also build a coalition of engaged stakeholders.

The National Forest Management Act of 1976 (NFMA) is also fundamental to forest management. It redefined the statutory authority of the Forest Service by requiring management for multiple use and sensitive species, as well as requiring forest planning. The 1982 Forest Planning Rule outlined how the Forest Service would implement NFMA by requiring each national forest to develop a long-term management plan every ten to fifteen years. For the BLM, the Federal Land Policy Management Act (FLPMA) of the same year provided similar guidance to manage BLM lands for multiple use. NEPA, NFMA, and FLPMA together structure how federal agencies plan their land management to provide ecological and socioeconomic benefits to the public. Although forest planning processes can be burdensome and lengthy, some stakeholders see forest plan revisions as a potential opportunity to institutionalize the agreements and principles that they may have built through years of collaboration on national forest management.

The importance of NEPA, NFMA, and FLPMA in dictating the constraints and opportunities for sustainable forest stewardship in the zone cannot be overstated. The Endangered Species Act (ESA) of 1973 has also been highly influential. It requires agencies to ensure that they will not take habitat from species or destroy their habitat, and that they must restore and recover species that have become threatened. The northern spotted owl, whose habitat had been degraded by logging in the Pacific Northwest, was listed under the ESA in 1989. The federal court enjoined timber harvests on federal land in 1991, halting timber sales until a plan for spotted owl protection could be formulated. This situation challenged the economic viability of public lands communities in Oregon and California. Similar injunctions followed for salmon management in eastern Oregon.

Bioregional plans for forest management

To address the spotted owl controversy, the Clinton administration convened the Northwest Forest Summit in 1993 and developed the Northwest Forest Plan. This directly impacted the zone counties of Trinity, Josephine, and Jackson, and smaller western portions of Klamath and Deschutes counties. The Northwest Forest Plan creates a vision for ecosystem-based management of federal lands in a 24.5 million acre area. Ecosystem-based management entailed scientific research and planning processes, development of late-successional reserves and spotted owl habitat areas, protection for old-growth characteristics, adaptive management areas, and an emphasis on interagency coordination for this vision. Although a component of the plan provided retraining and economic assistance, decreased timber harvests still shook communities and workers across the Pacific Northwest. It included the creation of twelve Provincial Advisory Committees (PACs) across the plan's area to coordinate plan implementation. PACs are still active on the Deschutes, Rogue-Siskiyou, and Klamath national forests.

An injunction for salmon shortly after the completion of the Northwest Forest Plan forced the establishment of interim management rules east of the Cascades while planning for ecosystem management could take place. One of these interim rules was the "eastside screens," a twenty-one-inch diameter-at-breast-height limit for logging. The Forest Service and BLM developed the Interior Columbia Basin Ecosystem Management Project (ICBEMP), which convened teams of scientists and managers to assess trends, develop strategies, and draft EIS statements to be used in forest planning. Klamath, Lake, Deschutes, Crook, Harney, Wheeler, Grant, Union, Baker, and Wallowa counties were included in ICBEMP.

This process trailed off before any of its work could become institutionalized. One legacy, however, is that the temporary eastside screens have since remained, and apply to all federal forest harvesting in counties outside of the Northwest Forest Plan area. A recent proposal by Senator Wyden of Oregon would codify the diameter limits into law as part of a broader package of measures concerning forest planning and environmental reform of federal management of eastside forests.

Federal support for rural counties

Historically, the Forest Service has been a major employer and “business” entity that has driven commerce across the zone. But a prevalence of public land also means that local governments have smaller available tax bases. Beginning in the 1930s, the federal government was obligated to provide 25 percent of its timber revenues from national forests to counties. Josephine and Jackson counties received an additional 50 percent under the O&C Act for their BLM lands. During the late 1980s and 1990s, timber revenues fell substantially, limiting county revenues and making payments more inconsistent. To assist public lands communities, Congress passed the Secure Rural Schools and Community Self-Determination Act of 2000 or “payments to counties.” County governments that had traditionally received 25 percent of the receipts from federal timber sales to support costs associated with schools and maintenance of the forest road system would now have a stable source for dedicated road and school funds (Title I of the act). These payments became a major source of revenue for zone counties. A third source of federal support is Payments in Lieu of Taxes (PILT). PILT are BLM-administered payments to local governments for the nontaxable or nonproductive federal lands within their boundaries. This law was developed in 1976. The contribution for Trinity County in California for 2009–10 was \$503,323, the highest amount ever received in the county. The Secure Rural Schools money Trinity County received in 2009 was around \$8,000,000.¹⁶ This amount from the Secure Rural Schools fund along with the PILT contribution equates to nearly 54 percent of the general fund for the county.¹⁷ Title II of the act specified funds for projects on federal lands that were not included in the Forest Service budget, and created the authority for Resource Advisory Committees (RACs) with diverse membership to recommend projects to the Forest Service. Projects are required to address road maintenance and obliteration or watershed improvement and restoration. There are seven RACs working in the zone. RACs have helped to successfully prioritize regional projects on national forests, particularly in northeastern Oregon. The Secure Rural Schools Act was reauthorized in 2008 with narrow support and significant changes. Title I now requires that states and counties must choose either to receive the 25-percent payment or to receive a Secure Rural Schools state payment.¹⁹

Wildfire and restoration policies

Wildfires of unprecedented severity impacted many zone and other western communities in the early 2000s. Firefighting expenditures soared, and communities surrounded by dense forests feared their vulnerability. In Deschutes and Crook counties, for example, regional population growth has increased development in the WUI, putting property and lives at risk. In response, Congress developed a number of policies to address fire danger and be more proactive in meeting restoration needs on public lands. The first of these was the National Fire Plan (NFP) of 2000. The NFP contains a number of new budget lines provided by Congress to enable a broad strategy for wildfire management. The Western Governors’ Association, Department of Interior, and USDA worked together and built a comprehensive plan to coordinate agencies and communities to provide adequate firefighting capacity, post-fire rehabilitation, community resources, and hazardous fuel reduction. This plan allowed for treatment of federal, state, and private land. Further large wildfires in 2002 spurred the Bush administration’s Healthy Forests Initiative (HFI), a measure that created categorical exclusions to NEPA to expedite hazardous fuels projects. The federal court has since overturned these categorical exclusions. In 2003, Congress passed the Healthy Forests Restoration Act (HFRA), which authorized the Forest Service and BLM to treat up to 20 million acres of land, prioritized treatments in the WUI, outlined the community wildfire protection plans process (CWPPs), and recommended annual budgeting for hazardous fuel reduction. It also expedited the NEPA process for hazardous fuels projects. Many environmental groups nationally and within the zone were opposed to the streamlining of projects under HFI and HFRA, but community leaders, community-based forestry practitioners, and a broad bipartisan base in Congress supported these efforts. The Tribal Forest Protection Act (TFPA) of 2004 authorizes similar funding to HFRA, but is designed to help tribes and federal agencies coordinate active management across the interface between their lands to prevent loss of tribal forests through the spread of public land wildfire.

HRFA authorized funding that federal and state agencies in the zone have been able to use for fuel reduction and fire suppression, but it has not led to landscape-scale restoration. Although the Klamath

Tribes have discussed using TFFPA in partnership with the Fremont-Winema National Forest, they are still re-acquiring their former reservation lands and have not yet worked on interface management. In 2009, Congress passed the Forest Landscape Restoration Act (FLRA),¹⁹ which authorized funding for designated projects involving collaboration for landscape level planning, utilization of material removed, and consideration of local economic benefit in public land management. The Forest Service has created the Collaborative Forest Landscape Restoration Program to fulfill the intent of the legislation, and President Obama has recommended the full \$40 million authorized for the legislation in his FY 2011 budget proposal. The purpose of FLRA is to provide funding to areas identified as priority landscapes that are 50,000 acres in size or greater with the hope of facilitating expedited restoration. If the zone or any part of this region were selected as a priority landscape under FLRA, it would have significant implications for collaboration and landscape level achievements.

Budgets and recovery

The Forest Service's budget and staffing capacity has declined since the late 1980s. As timber harvests fell before and after the Northwest Forest Plan, the agency began to reallocate funds away from Forest Service Regions 5 and 6. Consequently, it has been forced to cut its own staffing and programming, resulting in office closures, consolidation of national forests such as the Fremont-Winema and Rogue-Siskiyou forests, and overall declines in operational capacity. By 2009, federal budgets had also suffered from the huge amounts of funding that wildfires in the 2000s had demanded. In large fire years, the Forest Service has had to borrow from nonfire accounts to pay for suppression. To address this situation, Congress passed the Federal Land Assistance, Management and Enhancement Act (FLAME) in 2009. The FLAME Act creates a special account intended to reduce the need of the Forest Service to borrow funds in order to pay for wildfire suppression. Over the course of the next five years it will be important to track whether FLAME was successful in resolving this problem.

Communities and counties have also suffered from fiscal challenges as a result of the 2008 recession. In 2009, Congress passed the American Recovery and

Reinvestment Act (ARRA), or the "stimulus bill," for revitalization of employment and economic development opportunities across the nation. ARRA spending has tended to be concentrated in metropolitan counties, however, and while the agriculture and interior departments awarded over \$550 million in ARRA contracts, grants, and agreements in western counties, several nonnatural resource management agencies had over \$1 billion each to award.²⁰ Despite this, ARRA did provide new investment for restoration of the national forests and BLM lands across the zone. ARRA funding has or will have supported projects for fuel reduction, restoration, tribal workforce training, and biomass utilization on national forests; and for treatment of WUI areas for private landowners at risk. Although the balance has been awarded for fuels reduction, ARRA projects have begun to provide for biomass utilization by funding biomass transport and grinding in central Oregon, and a pellet plant in eastern Oregon.

POLICY CHALLENGES IN THE ZONE

The public policies that influence forest stewardship and economic activity in the zone can pose barriers as well as opportunities. Limited local capacity for engagement in policy advocacy and education also impacts the zone's ability to address these barriers. First, the land management agencies have experienced funding crises as a result of wildfire suppression costs. Increased spending on suppression on top of larger reductions due to limited timber harvest has greatly reduced staffing and infrastructure, which in turn has affected overall agency capacity to manage public lands and provide socioeconomic benefits. Second, county leaders in the zone are concerned for their budgetary stability. If Congress does not reauthorize the Secure Rural Schools Act or provide adequate allocations, county government and services will be further challenged. Third, funding from public sources for projects on public lands across the zone is inadequate in comparison to current needs. Although policies such as HFRA and ARRA have provided crucial hazardous fuel reduction resources, it will be difficult for agencies to foster landscape-scale restoration without more comprehensive support. Fourth, the funding opportunities that do exist are often mismatched to the scale of zone projects and goals. For example, federal funds for biomass utilization may preclude community-scaled initiatives from qualifying. Finally, although local policy

engagement is increasing, there is currently limited capacity and no dedicated local entities to help the communities across the zone to engage and influence national policy and legislation. There is adequate funding to aggregate landowners, but funding for increased capacity to actually engage and succeed in these efforts is lacking. National institutions and organizations have led most of the policy advocacy and education in the zone at this time.

POLICY CAPACITY WITHIN THE ZONE

Coalitions allow communities or stakeholders with similar priorities to collectively engage in policy advocacy. Across the zone, the capacity to engage in policy is found in government agencies, interest groups, and community-based organizations. Most of these coalitions are national in scale with regional staff members or offices in the zone.

The National Association of Counties (NACo) is a national organization that represents member county governments across the United States. Every county in the zone is a member of NACo and has access to the organization's services and educational resources. NACo brings county governance issues to the attention of the federal government and the public. At the state level, the Association of Oregon Counties and the California State Association of Counties develop policy platforms to promote county interests nationally. The Western Governors' Association, which formed the strategies of the National Fire Plan, is a coalition of western state governors. Several of their subcommittees work on issues essential in the zone—forest health, biomass, renewable energy, wildlife habitat, and climate change adaptation—and provide policy advocacy on legislation such as the Farm Bill reauthorization. These types of governmental organizations can provide policy advocacy and support to rural county governments in the zone, but the initiative of county commissioners to engage in these forums varies.

Interest groups also engage in policy work in order to make their priorities heard and to guide those who they represent in adapting existing policy to their best advantage. Although these groups can provide policy awareness and advocacy, not all groups have applied this capacity to broad, collaborative solutions. National industrial organizations include the American Forest and Paper Association

(AF&PA) and the American Forest Resource Council (AFRC). Although AF&PA formed in 1993, it represents the convergence of several longstanding forest industry groups dating to the late 1800s. AF&PA advocates on behalf of industry interest at the state, national, and international level and acts as a trade association. A subgroup of AF&PA, the American Wood Council, works to promote wood use and public policies supportive of wood products manufacturing. AF&PA is based in Washington and does not have field offices in the zone, but its members include the Oregon Forest Industries Council and Oregon Women in Timber. The AFRC is another national industry group and has offices in Portland and Eugene as well as a former staff consultant in Bend. Like the AF&PA, it formed from the merger of previous groups—the Independent Forest Products Association and the Northwest Forestry Association. Environmental interest groups such as the Western Ancient Forest Campaign (W AFC), which later became known as the American Lands Alliance before folding in 2009, were active in bringing local environmental protection voices to Washington, D.C., in the 1990s and in using policies such as the Endangered Species Act to litigate against federal agencies. Although the American Lands Alliance no longer exists, some of its constituent local environmental groups are active in the zone. This includes Oregon Wild (formerly the Oregon Natural Resource Council) and the Hells Canyon Preservation Council. Oregon Wild appeals and litigates forest management decisions, but also has a central Oregon representative who is active in collaboration in the zone. The Sierra Club is headquartered outside of the zone, but has an eastern Oregon chapter called the Juniper Group, which has actively filed appeals against national forests while also collaborating in the zone. A small local environmental group, Blue Mountains Biodiversity Project, has also had significant impact on forest projects in the zone through appeals and litigation, as well as by participating in collaborative group processes. Finally, broader organizations like the Western Environmental Law Center provide legal capacity to smaller conservation groups and can litigate on behalf of coalitions; they have represented environmental groups in the zone.

There are other environmental nonprofit organizations active in the zone that take a collaborative

approach to policy advocacy and do not engage in litigation. The Nature Conservancy (TNC) is a nonprofit with offices in Enterprise, Bend, Klamath Falls, Medford, and Chico. In Deschutes County, TNC staff members from the Fire Learning Network are helping to coordinate a planned application for FLRA funds. Organizing for FLRA has helped to build more cohesive networks between the diverse organizations and collaborations in central Oregon. There are also a number of land trusts that can enhance policy understanding and increase the influence of communities on the lands upon which they depend. Land trusts typically have 501(c)3 status and will purchase or accept donations of land for conservation. They can also play an active role in promoting state and local policies that limit land development. The Deschutes Land Trust is a zone organization that hopes to demonstrate the value of working landscapes in Oregon through the Skyline Community Forest (see page 79) and to advocate for further legislative protection for such conservation.

The Rural Voices for Conservation Coalition (RVCC) is currently the only known policy coalition that acts to promote conservation-based policies in zone counties. Sustainable Northwest coordinates RVCC. RVCC convenes stakeholders and decision makers from across the western U.S. in order to bring rural policy issues to the attention of national decision-makers. An array of government leaders, agency staff members, small business owners, community-based forestry advocates, and more gather in RVCC's issue-based working groups. These working groups collaborate to produce issue papers and RVCC coordinates an annual delegation to Washington, D.C., to provide briefings and deliver these issue platforms to lawmakers. Representatives from about twenty entities in the zone take part in RVCC meetings and working groups, including the LCRI, WRTC, COIC, Wallowa Resources, Applegate Partnership, Southern Oregon Small Diameter Collaborative, several businesses, and county commissioners.

At the local level, there has been limited organization on policy issues in the zone. In 2004, the Gilliam County judge led the formation of the Eastern Oregon Rural Alliance, an eighteen-county organization that focuses on promoting state laws that can help rural communities. More recently, commissioners from eight eastern counties have begun to form

the Eastern Oregon Regional County Organization, which would include the zone counties of Wallowa, Union, Baker, Harney, and Grant. This group intends to convene around existing public lands issues and not to work directly on policy development. In northern California, supervisors of rural counties have attempted to organize through the Regional Council for Rural Communities, but have not yet been successful in that arena. Most policy advocacy occurs by individual counties rather than collectively through clusters of neighboring counties.

LOOKING AHEAD

In February 2010, President Obama released his proposed FY2011 budget recommendations. The most significant for the forested lands within the zone is the consolidation of three line items under the National Forest System into one 'Integrated Resource Restoration' line item. Line items to be consolidated include: wildlife and fisheries habitat management, forest products, and vegetation and watershed management. Pending congressional and other budgetary actions, this framework sets in motion an increased need for comprehensive restoration, collaboration, and building capacity for rural communities. This is an encouraging proposal for the zone, as it would change the incentives that the Forest Service has to meaningfully manage lands for multiple value streams.

In 2010 and beyond, federal budgets and laws will always continue to play a role in defining the opportunities and constraints for sustainable forest stewardship and economic development in the zone. To cope with the challenges that public policy poses while actively fostering an environment beneficial to rural resource-based communities, leaders in the zone could focus on building local and regional capacity for policy engagement. This capacity building would require concerted capitalization on the resources offered by national, governmental, interest, and nonprofit groups through increased coordination and networking. There is a need to increase both local policy capacity and regional networks. Regional networks can serve to disseminate resources and education necessary for local capacity building. They can also "scale up" the voices of local actors by providing strength in numbers. A well-organized regional network could ensure that decision-makers outside of the zone hear diverse local voices yet also

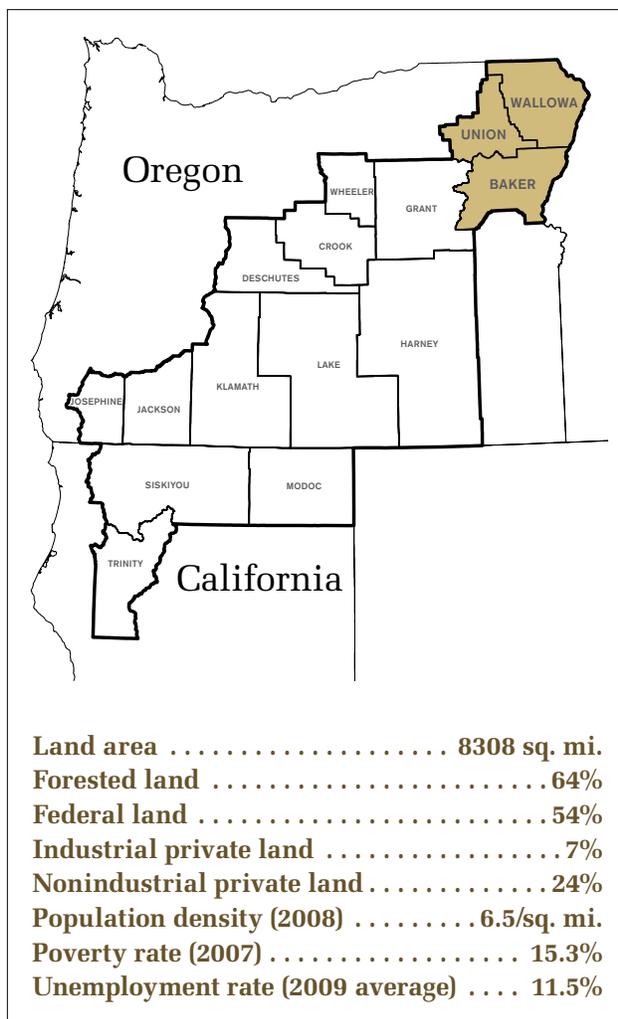
receive clear, coherent rural policy messages. One example of this coordination is found in the RVCC. This coalition began as a network of community-based forestry advocates who focused on influencing land management policy. Over time, a broader base of stakeholders began to participate in RVCC's meetings and working groups, including business leaders and county governments. This has enabled RVCC to address the relationship between economic development and land management and advocate for policies that can support an integrated vision for community and forest well being. RVCC participants have also found that although they organized to influence policy, the partnerships that the coalition has built have also stimulated on-the-ground work in other areas.

Despite its limited political representation, the zone is a place that can play a valuable role in public policy change. Public lands have long provided our nation with critical supplies of timber, wilderness areas, economic growth, fresh clean water, and countless ecosystem services. In order for national forests and federal lands to continue serving these functions, decision-makers must work to empower public lands communities to act as responsible stewards. Federal forests need stewardship today to allow for active restoration, wildfire protection, and a sustainable suite of socioeconomic benefits. The voices of the Dry Forest Zone can speak regionally and nationally to ensure that policy will support their capacity to develop and protect these benefits for all.



IX. Chapter Six—Subregional Perspectives

A. NORTHEASTERN OREGON: UNION, BAKER, AND WALLOWA COUNTIES



Union, Baker, and Wallowa counties are in the northeastern corner of Oregon. This region's economy was built upon forest products, ranching, and agriculture for much of the twentieth century. The 1990s saw decreased timber harvests and shrinking employment opportunities, which challenged northeastern Oregon's vitality. In response to this decline, however, community-based collaborative processes, nonprofit organizations, and new business opportunities have emerged in recent years. Wallowa County, the most rural and isolated of the three counties, has built tremendous collaborative capacity and a strong nongovernmental organization, Wallowa Resources. Wallowa Resources and the Wallowa County Natural Resource Advisory

Committee have helped develop biomass utilization facilities, landscape-scale watershed analysis and planning efforts, and the active engagement of local leaders in state and national policy deliberations. Although similar levels of collaboration do not exist in Union and Baker counties, they have other important components of a forest-based economy. Union County has retained the only corporate wood products mills. These include stud and veneer plants in Elgin and a particleboard plant in Island City. Union County commissioners, state officials, and investors recently worked to create a community-owned forest in the region, the Mount Emily Recreation Area. The Baker County Small Woodlands Association has been active in addressing local private land issues and has been considering expanding its focus to include public land issues. Elkhorn Biomass, LLC and BioChar Products, which are small biomass utilization businesses, operate in Baker County, and proposals for more facilities could further expand the scale of biomass processing and utilization.

Community leaders, entrepreneurs, and other stakeholders have started to build cross-county networks in recent years. For example, Wallowa County-based Renewable Energy Solutions has conducted supply and feasibility studies for the Baker Small Woodlands Association and Elkhorn Biomass in Baker City. Renewable Energy Solutions has also conducted feasibility studies for thermal heat retrofitting of schools across the three counties. Wallowa Resources has conducted forest certification, landowner outreach, and education workshops. It has fostered organizational capacity-building in all three counties. As these organizations have partnered in support of local collaborative and business development efforts, an opportunity has emerged to benefit from regional-scale work. Communities across northeastern Oregon could more effectively foster sustainable forest management, landscape-level restoration, and economic objectives through this integrated approach.

Land management and alternative value streams

The federal government controls 54 percent of the lands in Northeastern Oregon. The 2.3 million-acre

Wallowa-Whitman National Forest is the largest single landowner, spanning all three counties. Since the early 1990s, the national forest has struggled to reorient its planning in response to policy changes and dwindling management capacity. Challenges have included insufficient staffing, minimal funding for project implementation, and a history of adversarial relations with local environmental advocacy organizations. As a result, the current pace of active management on the national forest has not been adequate to address overstocked stands, disease outbreaks, and high levels of mortality. Ranger districts on the Wallowa-Whitman have used stewardship contracting authorities successfully, but typically for only small-scale and short-term projects. The proposed 30,068-acre Snow Basin stewardship project on the Whitman District would apply stewardship contracting at a larger scale over a period of roughly five years. In Wallowa County, the Natural Resource Advisory Committee has led watershed assessments of both the Upper and Lower Joseph Creek watersheds. The NRAC designed these assessments to help the Wallowa Valley District conduct more efficient planning and implementation of large-scale projects such as forest restoration thinning, road decommissioning, and removal of fish migration barriers.

Major private landowners in this region include Forest Capital Partners (a TIMO that manages all of Boise Corporation's former industrial lands), RY Timber, D.R. Johnson, and hundreds of smaller private nonindustrial forest owners. Nonindustrial management objectives range from timber production to recreation to ecological restoration. Forest Capital's largest landbase is in Union and Wallowa counties. They have intensified timber management on their most productive and well-consolidated lands and have been offering less productive or higher amenity value parcels for sale through their real estate arm, Westslope Properties. Many residents and stakeholders see the parcelization and sale of former industrial forestlands as a threat to working landscapes in northeastern Oregon. In response to Forest Capital's proposed sale of its land on Mount Emily, Union County purchased 3,669 acres of the sale and one-third of the timber volume in 2009 to establish the county-owned Mount Emily Recreation Area. The county used an Oregon State Parks and Recreation Department ATV grant to purchase this land, and the forest is currently managed for recreation with a

focus on motorized recreation. The Blue Mountains Conservancy, a La Grande-based land trust, is interested in establishing a second community-owned forest in Union County with a focus on conservation rather than motorized recreation. Wallowa County leaders have also recently initiated conversations with both Forest Capital and potential financing entities about creating a community-owned forest on Forest Capital land in that county.

Nonindustrial private forestlands play an important role in sustaining forestry activities and infrastructure in northeastern Oregon. On roughly one-third of Wallowa County's landbase, nonindustrial families have traditionally lived and worked to produce timber or agricultural products, but this has been changing. Local families have increasingly left the area to seek other opportunities, and as a result of rising land and home prices, the landowners who replace them tend to be nonlocal, absentee, or retiree. These newer forest owners in some cases have lacked forest management and market knowledge, or have been reluctant to engage in active forest management. For those who do seek to manage their forests for timber production, the weak markets and limited local wood products processing options have become challenging. Increased outreach and education capacity may be needed to address these challenges, particularly as traditional avenues (extension, state forestry agents) struggle with cutbacks in funding. Currently, many nonindustrial private landowners have been participating in the Oregon Department of Forestry's cost-share fuels reduction programs. Extension agents and small woodland owner organization leaders report that many nonindustrial landowners are interested in accessing value-added markets and alternative value streams as they become available. If multiple small owners organize cooperatively, they may be able to participate cost-effectively in emerging markets and receive a greater premium for traditional wood products in their negotiations with local log buyers such as Boise Cascade LLC.

Integrated woody biomass utilization

Several biomass utilization facilities have emerged in northeastern Oregon in recent years. Both Baker City and Wallowa have been developing models of integrated woody biomass utilization that maximize efficiencies and add value to submerchantable mate-

rial of variable size and quality. These facilities utilize biomass for a range of purposes—densified fuels, combined heat and power, chips, firewood, and soil amendment products. In the community of Wallowa, plans for an integrated smallwood processing campus began in 2004 with the Community Smallwood Solutions post-and-pole plant. In September 2009, Integrated Biomass Resources colocated firewood and densified fuel operation to utilize byproducts from the post-and-pole plant as well as lower-value logs from thinning projects. Wallowa County recently received ARRA funding to help finance a one-megawatt combined heat and power facility to also be colocated at the wood campus. This facility will utilize some of the lowest-value woody residues to supply electricity to both Integrated Biomass Resources and Community Smallwood Solutions, and heat to dry densified fuel products. In nearby Enterprise, Ant Flat Renewables has been planning to develop a chipping and densified fuel facility.

In Baker County, Elkhorn Biomass has been chipping submerchantable logs and bundling firewood at the old Ellingson mill site in Baker City. Elkhorn plans to expand into densified fuel production. BioChar Products is a new business that uses a pyrolysis process to turn low-value woody material into biochar soil amendments and bio-oil (a substitute for petroleum-based fuel). The owner of BioChar is currently testing a one-ton per day capacity mobile unit that can be hauled into the woods for on-site processing. BioChar's longer-term plan is to scale up to a ten-ton per day capacity mobile unit. Other biomass businesses such as International Wood Fuels LLC from San Diego, California have expressed interest in establishing facilities in Baker County. Less biomass utilization development activity is underway in Union County, though there is potential for Boise Cascade LLC to add cogeneration capacity to their plants in Elgin and Island City. Several of the existing or prospective densified fuel producers have also been looking to the possibility of co-firing biomass with coal at Pacific Gas and Electric's Boardman power plant as an emerging market opportunity.

The use of thermal heating in public facilities, another method of biomass utilization, has slowly increased in this region. The Enterprise school converted to a thermal biomass heating system in September of 2008 and the integrated biomass cam-



pus in Wallowa provides their supply. Several public schools in Union County have been interested in exploring conversion to biomass-based heat, and further opportunities exist across the region to retrofit municipal heating systems. Thermal heat retrofits would help to build a local market for the fuels produced by Integrated Biomass Resources and other emerging businesses. Growth of this heat-based market in difficult economic times would require additional technical and capital investment assistance, but would lead to a successful network of local businesses and consumers.

Future opportunities for biomass harvesting development in northeastern Oregon will depend on the entry of other regional producers or consumers of biomass products, the level of harvesting activity across all ownerships, and state and federal policies (transportation subsidies, renewable energy incentives, and national forest policy). Two major challenges have been the limited harvest on pub-

lic forests and the expense of sorting and hauling small-diameter material. Agreement on public land management and successful implementation of landscape-scale work would help contractors and biomass facilities produce and utilize biomass for emerging markets.

Community capacity and collaboration

Northeastern Oregon has built significant community capacity over the last two decades, but these developments vary by county. Wallowa County is nationally recognized for its innovative leadership and collaborative approach to natural resource conflicts. Wallowa Resources, a NGO, and the collaborative Natural Resource Advisory Committee have led a number of projects in the county to address natural resource needs. These include the Upper and Lower Joseph Creek watershed assessments, the Wallowa County-Nez Perce Salmon Plan, the Wallowa County Community Wildfire Protection Plan, and local economic development initiatives such as the Community Smallwood Solutions post-and-pole plant. Wallowa County also has an active land trust—the Wallowa Land Trust—which has not worked extensively on forested lands, but has the potential to be an important player in future land transactions.

A handful of collaborative and capacity-building initiatives have surfaced in Baker County, though none have been as well developed as the Wallowa County entities. The Baker Small Woodlands Association has been active both in addressing private forest issues within the county as well as networking with Wallowa Resources and other organizations outside of Baker County. They have been organizing a private forest landowner cooperative, conducting local economic development planning, and recently began a collaborative forum to address public forest management. Baker County has also commissioned a Natural Resource Advisory Committee with subgroups tasked to develop county policy for forestry, forest roads, wildlife, and water use.

Less collaborative momentum and capacity-building organization has developed in Union County. The collaborative Union County Community Forest Restoration Board (which existed prior to and was uninvolved in the establishment of the Mount Emily Recreation Area) has been limited by a lack of agreement on forest management. The recently

established Blue Mountains Conservancy has been interested in leading private land conservation efforts in the county, but requires organizational capacity-building before it can take on this role. A number of individuals in Union County have been interested, willing, and knowledgeable regarding sustainable forestry but there has been no effective local organization to channel these energies.

Across northeastern Oregon, most collaboration on public lands issues to date has taken place at the district level. The effectiveness of collaborative efforts could be increased by scaling up to work across counties at the level of the entire Wallowa-Whitman National Forest. Wallowa Resources and the Natural Resource Advisory Committee could play a key role in coordinating participants from the region in a new dialogue. This would build opportunities for landscape-scale work as well as stronger local capacity within each county.

Public and market-based policy

Community leaders from northeastern Oregon have been active in policy discussions at multiple levels (county, state, national). Wallowa County elected officials, Wallowa Resources staff members, and staff members from the Hell's Canyon Preservation Council, an environmental group, have long participated in the Rural Voices for Conservation Coalition working groups and meetings. County commissioners from all three counties also have been involved with the National Association of Counties. Beyond participation in these forums, most policy engagement in the region has not typically occurred through formal organizations. For example, private nonindustrial forest owners may provide leadership in county planning processes, or commissioners may meet individually with congressional representatives. Despite their somewhat different social and economic contexts, the three northeastern Oregon counties share the potential to benefit from increased engagement in policy advocacy. One key area is public forest management, where conflicting policies and current budgetary constraints hamper active restoration on the Wallowa-Whitman National Forest. All three counties are also confronting major ownership turnover on both industrial and nonindustrial private forests and share common interests in addressing these challenges collectively.

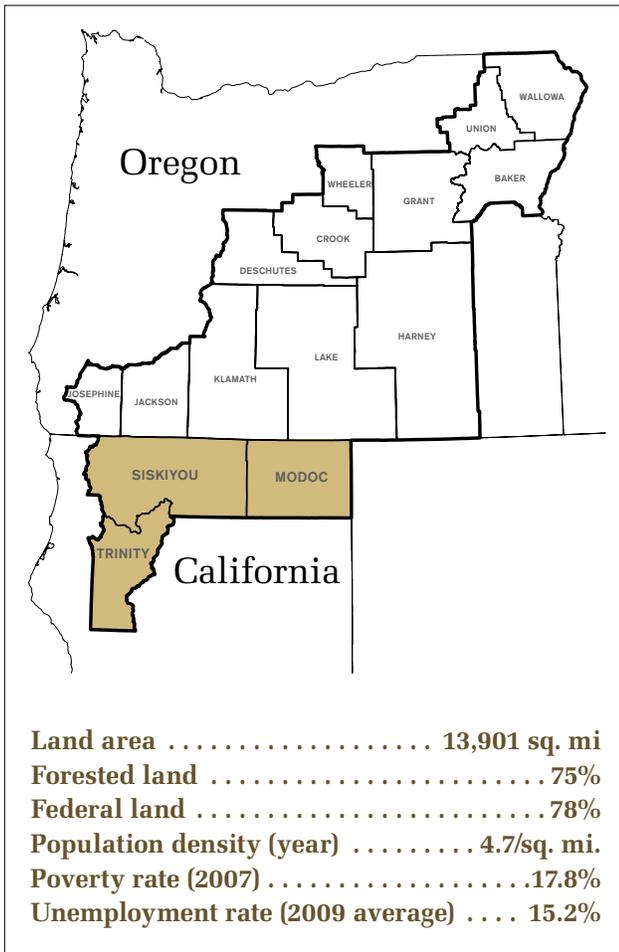
Conclusion

Northeastern Oregon faces many of the issues typical of rural communities across the Dry Forest Zone, including a frustrating public forest management context, private land ownership transitions, limited markets for wood, and challenges in adding value to small-diameter material. However, this region also has demonstrated the potential that community-based initiatives have to address these challenges and simultaneously sustain forest ecosystems and rural economies. Wallowa Resources and Wallowa County's Natural Resource Advisory Committee have proven to be effective models for supporting

community-based forestry, collaboration, and sustainable natural resource-based economic development. Local collaborative initiatives, biomass utilization businesses, and nongovernmental organizations across the three-county area are poised to tackle some of the most pressing ecological, social, and economic challenges facing sustainable forestry. There is real opportunity to create cross-county business, collaboration, and policy networks in this part of the state that could address some of the place-specific needs and also act to "scale up" community activities to bolster regional capacity.



B. NORTHERN CALIFORNIA: TRINITY, SISKIYOU, AND MODOC COUNTIES



The counties of Trinity, Siskiyou and Modoc share a legacy of economies focused on the harvesting, processing, and export of timber and agricultural products. This region contains large expanses of public forest and rangelands. Each county has experienced declines in the timber industry, faltering markets for local agricultural crops, and the challenges of the recent recession. Entrepreneurial flight, lack of access to capital, and aging populations challenge economic development and stewardship across the region. Northern California’s diverse geography and ecology have helped create culturally and socioeconomically varied communities. The potential for the people, businesses, and institutions of each county to implement sustainable forest stewardship varies. While some communities are home to collaborative groups and wood products processing infrastructure, others are less actively engaged.

A large public land base and rich organizational capacity characterize Trinity County. Although the Six Rivers National Forest covers a significant area, the Shasta-Trinity National Forest dominates the physical landscape and politics of this county. Several high-capacity NGOs and government entities work in partnership in the county to implement community wildfire protection, and watershed and fisheries restoration. Despite numerous collaborations that have sought to build agreement on public forest management over the years, durable progress is only evident in treatment of the wildland-urban interface and plantations. Even though Trinity River Lumber (the county’s last remaining sawmill) imports most of its wood from outside the county, the owners have expressed interest in biomass development. Meanwhile, innovators in the Hayfork Valley continue to pursue an “integrated wood campus” that would merchandize and add value through a range of traditional and biomass products.

Siskiyou is the most geographically diverse of the three counties. It contains steep seasonally wet mixed conifer forests, sweeping valleys, and high volcanic plateaus. Interstate 5 bisects the county, offering access to markets. Several primary wood processing facilities operate in this area and rely primarily on private timber. Private timberlands have enjoyed relatively long tenure, and residents expect that trend to continue. A recent land deal in the Scott Valley has resulted in the creation of LandVest, the region’s first large REIT. To the west, isolated rural and tribal communities in the Mid-Klamath watershed are working to partner with the Six Rivers and Klamath National Forests on restoration and prescribed fire use. Water rights and the Klamath River fishery are central to county politics and livelihoods, and the ongoing Klamath Basin Restoration Agreement will inevitably drive natural resource trends in the county’s future.

Modoc County is the most remote and dry landscape in the region. Much of the county sits on the Modoc Plateau, a high Great Basin landscape dominated by sage-steppe habitat. Public range allotments and private ranches are at the heart of the county’s economy. The Warner Mountains contain much of the

county's historic timber-base. Juniper removal has become a central focus in that area for restoration of both sage grouse habitat and rangeland values. Both the BLM and Forest Service manage large portions of the landscape and will be central to growing efforts at sustainable resource management. Modoc County lacks local NGOs that drive resource-based economic development, but county government and local leaders are working through ad hoc committees to find solutions.

Land management and alternative value streams

Public land management is central to the communities and businesses of all three counties. Each county is making strides toward forging durable agreements on public lands management, but each also faces daunting challenges. While private lands make up a smaller portion of the landscape, they remain central to the region's economy and serve as the foundation of the remaining forestry sector.

In Trinity County, Sierra Pacific Industries, and to a lesser extent Green Diamond, continue to practice sustained yield harvesting on their county holdings. Small private landowners intermittently manage lands for sustainable timber harvest, but harvest volumes are low, especially given current market conditions. The Resource Advisory Committee, the Trinity County Fire Safe Council, the Post Mountain Stewardship Contract, and the Weaverville Community Forest have demonstrated the potential for using collaborative processes to reach agreement and implement public land management. The Shasta-Trinity National Forest is also working within the relatively narrow "zone of agreement" to complete "programmatic" NEPA documents for thinning nearly 50,000 acres of plantations across the forest. However, these activities are limited in scale and do not grapple with the larger challenges of balancing sustainable forestry, restoration, and preservation on the landscape. The traditional environmental community and forest industry remain entrenched in debates about diameter limits, appropriate canopy closure, and temporary road construction to access thinning units. Partners such as the Trinity County Resource Conservation District, the Research and Training Center, The Wilderness Society, The Nature Conservancy, and Trinity County are attempting to work through the California Klamath-Siskiyou Fire Learning Network in a Conservation Action Plan-

ning process that may help move these stakeholders toward broader agreement.

Siskiyou County contains portions of the Six Rivers and Shasta-Trinity National Forests and the entirety of the Klamath National Forest. Administrative complexity, geographic diversity, and social divides have contributed to a lack of collaboration or stewardship initiatives at the county level, although smaller partnerships abound. Dozens of community-level Fire-Safe councils work at local levels to advance community wildfire protection. In the Scott Valley and Mid-Klamath region, higher-capacity NGO partners such as the Northern California Resource Center and the Mid-Klamath Watershed Council work to forge agreements around more comprehensive public land management and economic development. Forest industry participates in these collaborations and partnerships. However, progress toward viable agreement with the local environmental community has been challenging. The Siskiyou Biomass Utilization Group (SBUG) is a newly convened collaboration that holds promise for building this agreement.

Sierra Pacific Industries, Fruit Growers Supply Company, Timber Products Company, and Roseburg Forest Products all own significant portions of private industrial lands in Siskiyou County. These four companies continue to manage for sustained timber yield and produce the majority of the timber volume harvested in the county annually. This industrial activity creates a solid foundation for a relatively healthy contracting workforce that also implements projects on federal lands. Fruit Growers recently sold several thousand acres in the Scott Valley to Land-Vest, a southwestern U.S. REIT. They are working in partnership with the Northern California Resource Center (NCRC) and attempting to ensure some local benefit from their lands in Scott Valley. The Natural Resource Conservation Service and Siskiyou Resource Conservation District are important partners to private landowners through their many technical assistance efforts, cost-share programs and special initiatives.

In Modoc County, ranching and agriculture are dominant in the natural resource economy and culture. Most ranchers depend on grazing allotments on public lands for a portion of their annual income. Juniper encroachment has reduced suitable grazing

lands by approximately 3 million acres over the last century. The BLM, the Forest Service, Modoc County, the Cattleman's Association and others collaborated for nearly eight years to complete a 4-million-acre environmental impact statement targeting sage-steppe habitat restoration. Implementation of this plan will improve grazing and restore habitat for the endangered sage grouse. This plan presents both opportunities and challenges to Modoc County. Markets for juniper primarily are for nonlocal biomass plants, and juniper removal impairs grazing quality for at least two years after implementation. Additionally, the contracting workforce has withered with the lack of consistent timber harvest, which will create challenges for responding to new management opportunities on public lands. Thus, the plan is not fully supported or economically optimal. However, the potential for overcoming these challenges exists and environmental opposition is unlikely.

Capture of alternative value streams such as payment for ecosystem services is in its infancy in this region. Sierra Pacific Industries has completed an initial carbon credit sale outside of the zone, this approach may be possible for other private industrial timber lands in the future. Industrial timberland owners are also engaged in certification through Sustainable Forestry Initiative (SFI) and Forest Stewardship Council (FSC) systems. Modoc and Siskiyou counties may have opportunities for grass banking as well. The role of the region's vast public lands in capturing alternative value streams for local communities remains unclear at this time.

Integrated woody biomass utilization

A number of opportunities for integrated woody biomass utilization exist across the region. These range from public facility heating retrofits and small-scale pellet production to large-scale combined heat and power (CHP) projects. Past activity in the region led to harvest of the rich natural resources and labor, export of benefits, and a backlog of restoration, brownfields and poverty in its most rural areas. As biomass development moves forward, it will be critical to explore both tested and novel approaches to wealth capture for rural counties and communities.

In Trinity County, Trinity River Lumber Company is working in partnership with the Redding Utility District to investigate the feasibility of building a

10- to 20-megawatt CHP plant at their sawmill that would use their mill residues to generate electricity for the utility and heat to run the company's dry kilns. This would both add value to their lumber products and produce renewable energy. However, Trinity River Lumber faces significant challenges with water availability and air quality permitting. This project is in the early stages, and has been set back by a recent fire that destroyed much of the sawmill during the winter of 2009. They have also expressed interest in pellet manufacturing. In Hayfork, the Watershed Research and Training Center has been developing an integrated wood campus for a number of years. They already possess a small-log sawmill, a post-and-pole peeler, and a larger radial sawmill designed for hardwoods. Also located in Hayfork, Jefferson State Forest Products and their parent company, Upstream 21, use local woods for tertiary manufacturing and currently hold a Woody Biomass Utilization Grant to install merchandizing capacity. Together, they form a foundation for an integrated biomass facility. WRTC has been working in partnership with a number of firms, including United Kingdom-based Biojoule, to investigate bringing in a readily deployable pellet mill that could use both residuals and in-woods biomass to manufacture wood pellets. This project is mature and holds great potential for near-term success, but success will hinge on consistent supply from public lands.

In Siskiyou County, there are a number of prospects for biomass utilization. A Coordinated Resource Offering Protocol (CROP) assessment has been completed for the central Siskiyou County area and the Klamath National Forest has submitted a proposal to build a CHP plant in the area that would be owned by the federal government. The most mature project is the pending construction of a CHP facility at Roseburg Forest Products veneer mill in Weed. Environmental appeals surrounding their air quality permit are the only impediment at this stage. Timber Products Company has also expressed interest in adding biomass utilization capacity, be it densified fuels manufacturing or CHP, and increased partnerships and public participation may help contribute to success. However, neither of these projects is depending on supply from public lands. Likewise, NCRC is exploring the potential for creating a biomass concentration and sort yard in the Scott Valley that could also utilize firewood, pellets, posts and

poles, and offer other manufacturing. Although in its early stages, this project could yield significant local economic development opportunities and add value to both public and private lands biomass. NCRC has convened a diverse suite of partners around the Siskiyou Biomass Utilization Group (SBUG) in an effort to coordinate and build agreement around future biomass utilization in the county. Thus far, they have strong participation and they hope to use the group as a forum for scaling up integrated biomass utilization.

In Modoc County, there is currently less woody biomass utilization. While leaders in the county recognize the opportunities associated with juniper and pine utilization from the Warner Mountains, they were recently let down by a cadre of biomass developers whom they paid to conduct a feasibility study for siting a CHP facility. With over 10,000 acres of juniper harvest potential per year at approximately 10 dry tons of biomass per acre, supply volumes could be adequate to support a CHP project. It is unclear whether haul distances are suitable, and whether and how transmission to distant markets would be achieved. There is also the challenge of displacing cattle after juniper harvesting, which is limiting support from the Cattlemen's Association and local ranchers. Alternative grazing arrangements on productive private lands could offset impacts and free up more public lands to juniper management. Along with this prospect, the owner of Surprise Valley Lumber's shuttered mill in the Surprise Valley has expressed interest in renewing operations given improved market conditions and consistent supply from national forest lands. He could operate at a minimum of 4 mmbf per year. Without a clear lead business or NGO driving biomass development, the county has taken a lead through an ad hoc committee known as Modoc Vitality. They are open to bringing in external resources to help them move forward in developing biomass utilization capacity to support economic development and land stewardship in the county.

All three counties may benefit from increased public facilities and commercial facilities heating with woody biomass. Both the Alturas (Modoc) and Etna (Siskiyou) school districts have conducted feasibility studies for heating with biomass, but lack the financing to advance their projects. One potential strat-

egy that holds promise for the entire region would be assessing the potential for all of the public and commercial facilities in the region for biomass retrofits. Project managers and developers could then aggregate those that show the greatest preliminary feasibility into a package that could more readily attract financing.

Organizational and community capacity

All three counties are home to a host of organizations, committees, planning groups and collaborations dedicated to advancing community development through sustainable forest and natural resource stewardship. In addition to this homegrown capacity, all three counties benefit from active resource conservation districts and resource conservation and development councils.

Major players in Trinity County include the Watershed Research and Training Center, the Trinity County Resource Conservation District, the Trinity County Resource Advisory Committee, and the Trinity County Fire Safe Council. Both the Watershed Research and Training Center and the Trinity County Resource Conservation District are mature and high-capacity organizations. Each works in partnership with multiple state and federal agencies, the county, local business, and the communities to plan and implement stewardship-focused projects, conduct outreach and education, and build social agreement around natural resource management. The Trinity County Resource Advisory Committee, which was chartered to direct federal funding appropriated through Title III of the Secure Rural Schools and Community Self-determination Act, is comprised of representatives from forest industry, the environmental community, recreationists, the county, and the community at-large. This diverse group has worked to build a zone of agreement around community wildfire protection and hazardous fuel reduction, and has prioritized funding for important projects around the county for almost eight years. With their federal charter, existing structure, and diverse representation, the Resource Advisory Committee may be able to broaden their scope to help overcome other natural resource-based impasses in the county going forward. The Trinity County Resource Conservation District is a partnership managed by the Trinity County Resource Conservation District in cooperation with the Watershed Research



and Training Center. As one of the nation's first Fire Safety Councils, the Forest Service, BLM, Calfire, and other related state, federal, and county agencies work to develop and update the county's CWPP, coordinate planning and projects, and educate the public about wildfire safety.

In Siskiyou County, leading organizations include the Northern California Resource Center, the Siskiyou Biomass Utilization Group, the Mid-Klamath Watershed Council, and the county's many Fire Safe Councils. The Karuk Tribe also plays an important role in western Siskiyou County, carrying out a range of natural resource management projects. The Northern California Resource Center, which has been active since the early 1990s, works primarily in the vicinity of the Scott and Shasta valleys in partnership with private landowners and public land management agencies to plan and implement a wide range of projects and initiatives similar to those in Trinity County. They have recently convened the Siskiyou Biomass Utilization Group as an ad hoc committee of the county's major stakeholders to coordinate on strategies for increasing the harvest and utilization of woody biomass in the county. The Northern California Resource Center also serves as fiscal sponsor for a number of the county's small community-based Fire Safe councils. The Mid-Klamath Watershed Council operates out of the town of Orleans in western Siskiyou County. This group implements watershed and fishery restoration projects and runs the Orleans-Sommes Bar Fire Safe Council. They effectively lead collaborations with the Forest Service and community around forest restoration and community wildfire protection.

Representatives from both Siskiyou and Trinity counties are currently engaging in a bioregional collaboration that holds promise for building social agreement and increasing synergies around sustainable forest stewardship. The California Klamath-Siskiyou Fire Learning Network is a regional network managed by the Watershed Research and Training Center in partnership with The Nature Conservancy. Landscape partners across the region hope to use the Fire Learning Network as a forum for sharing ideas and expertise, overcoming collective challenges, scaling up forest restoration, and working toward Forest Landscape Restoration Act funding in the near future.

Much of the organizational capacity in Modoc County is housed in state, federal, and county agencies. The county does have a functioning Resource Advisory Committee, which allocates funding to fuel reduction projects. Collaboration and coordination is largely accomplished through ad hoc committees such as Modoc Vitality. This diverse group works to plan and implement economic development strategies. Although they do not focus exclusively on natural resource-based development, many of their strategies are inevitably based upon land stewardship and adding value to forestry and agricultural products. The Modoc Cattleman's Association is another important organization. Their focus on supporting healthy rangelands will drive juniper management in the county. The Fort Bidwell Indian Tribe works in and around the Surprise Valley and Warner Mountains, taking the lead in implementing fuel reduction and restoration projects on the Modoc National Forest in that area.

Across this region, a rich mosaic of organizations, institutions, and partnerships are actively working to advance the goals and objectives at the heart of the Dry Forest Zone project. It is clear that the capacity to overcome pressing challenges to forest stewardship and economic development varies widely, and that these groups have a range of needs.

Policy

The most pressing policy challenges for this region are in land management, energy, and rural development policy. County leaders, businesses, and NGOs are actively growing their engagement in policy advocacy and development through engagement in coalitions like RVCC, the Regional Coalition of Rural Counties (RCRC), and the Secure Rural Schools Coalition. Administrative and legislative policy for public lands must elevate the roles of counties and local communities. Collaboration, cooperation, and coordination need to be institutionalized, stewardship authorities must be used to their full potential, and the need for consistent wood supply must be balanced with meaningful ecosystem restoration. Energy policy needs to value the contributions of small community-scaled projects that contribute more to local economies rather than simply sending megawatts to the grid. They must value all biomass equally and recognize the importance of thermal energy generation (heat). Rural development policies and programs

must be reformed to be integrated, accessible, and delivered with adequate support to ensure that counties, businesses, and partners can be successful.

Conclusion

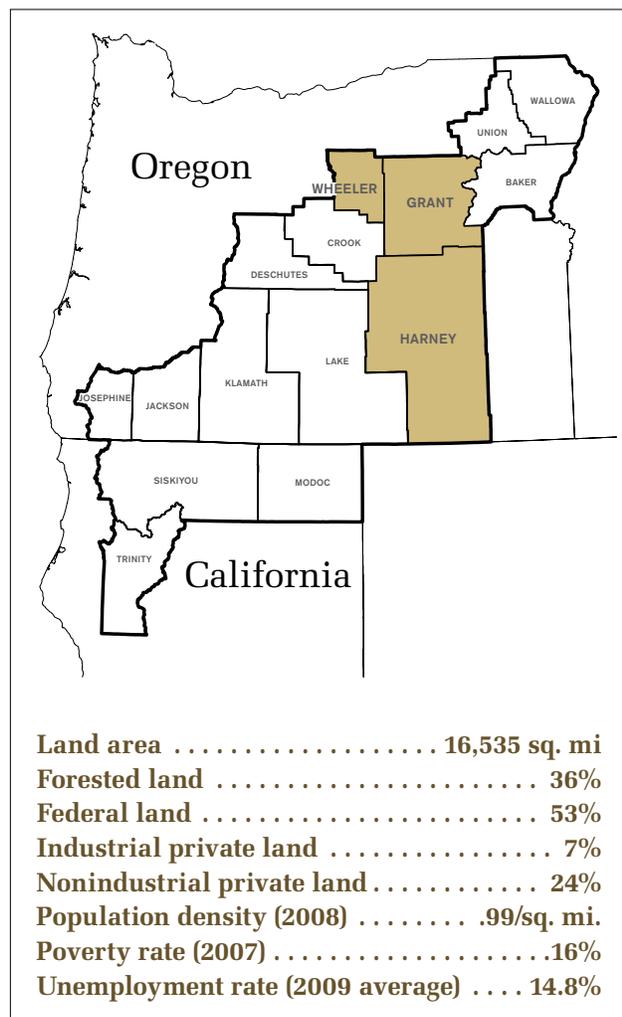
Overall, county, agency, business, and community leaders in this region share a vision for sustainable forest stewardship that includes sustainable harvests, ecosystem restoration, and economic development around integrated biomass utilization. Each county faces a suite of social, economic, environmental, and capacity-related challenges. Each county also has its own array of assets. Increasing collaboration around public land management, commitments by the federal agencies to meaningful ecosystem restoration at larger scales, a desire to explore and capitalize on new business opportunities associ-

ated with woody biomass utilization, and a drive to ensure that federal policies work for counties and communities alike are all positive trends.

In Trinity County, private contractors and local wood products businesses have shown strong interest in partnering around new biomass development. In Siskiyou County, the SBUG and NCRC have indicated their need for facilitation and technical assistance. In Modoc County, agency and county leaders have been welcoming fresh perspectives on how they might overcome their land management impasses to eventually develop biomass energy infrastructure. Collaborations in all three counties focusing on landscape-scale forest restoration and management hold the potential to yield increasing benefits to both local economies and ecosystems.



C. EASTERN CENTRAL OREGON: WHEELER, GRANT, AND HARNEY COUNTIES



The rural landscape of Wheeler, Grant, and Harney counties includes arid grasslands, forested mountains, and river canyons. Declining forest products and housing markets have greatly reduced employment and economic vitality in this region's small communities. These communities have relied on their natural resources of timber, agriculture, and ranching for decades. As a result of low population density, political influence and social services are limited. Despite these challenging conditions, residents of eastern central Oregon maintain strong connections to the land and its resources. Collaborative groups have been committed to improving forest stewardship, and small forest-based businesses have been actively developing new economic opportunities. The Harney County Restoration Collaborative, a collaborative group, has built agreement around fuel reduction in low-elevation ponderosa

pine on public lands in Harney County. The Blue Mountains Forest Partners has reached similar levels of agreement on federal forest management in Grant County. Although much of the forest industry's infrastructure has been lost, some of Grant County's remaining contractors and forest products businesses have moved toward new biomass ventures to harvest and utilize restoration byproducts. In Wheeler County, a few small businesses use juniper, a species that has expanded far beyond its historical range, for wood products and small-scale thermal biomass. This region is isolated from urban markets, yet has been also home to emergent innovations in energy generation and thermal heating.

Land management and alternative value streams

The Ochoco, Umatilla, and Malheur national forests manage nearly all of the public forest land in this region. On these national forests, management activities have been oriented toward forest restoration and hazardous fuels reduction to decrease the risk of uncharacteristically large wildfires. Most activity has been occurring on the Malheur National Forest, using timber sales, service contracts, and stewardship contracts. Projects range between 10,000 and 40,000 acres in size and are at various stages in Forest Service planning and implementation processes. Both the Blue Mountains Forest Partners and the Harney County Restoration Collaborative have supported treatments that focus on low-elevation, ponderosa pine-dominated forests. Participants have not been in agreement on how to manage mixed conifer and other forest types.

In addition to public lands, private industrial lands have historically supplied the region's forest products companies, particularly in Wheeler County. However, the decline of the timber industry during the 1990s led to a subsequent divestment of these private landholdings. Ochoco Lumber Company continues to own 17,000 acres in eastern central Oregon while other remaining industrial landowners have smaller-sized tracts. Although Ochoco Lumber and other owners such as D.R. Johnson have begun to sell portions of their land, to date, the sold lands have remained in forestland, but in many cases, new owners have not been managing their parcels for timber production or practicing active management.

There are numerous nonindustrial private landowners in eastern central Oregon. Landowners have used cost-share programs from the Freshwater Trust and the Oregon Watershed Enhancement Board for riparian and in-stream improvements, but there has been minimal utilization of alternative value streams across the three counties. There has not been education or outreach to private landowners for development of FSC certification, carbon storage, or other ecosystem services. Currently, it appears that landowners have not seen certification as worthwhile because its pricing advantages cannot be realized in a depressed log market. Another challenge has been that many of the landowners, who have recently acquired their property or are absentee, are not knowledgeable about forest ecology or management. An opportunity exists to provide outreach to interested parties on the potential of alternative value streams such as payments for ecosystem services, which do not rely on the traditional timber economy.

Although challenging market conditions have curtailed forest products manufacturing, they are also spurring public land communities and private landowners alike to pursue new revenue sources. This could lead to the maintenance of a broader range of marketable ecosystem values in the future.

Integrated woody biomass utilization

Interest in woody biomass utilization has rapidly grown in this region. Potential investors and new biomass businesses are working with a wide range of utilization options—pellets, bricks, thermal heat, and electricity. Several of these initiatives use an integrated and community-scaled model. In other areas of the subregion, businesses and stakeholders may see biomass facilities as only an electricity or co-generation opportunity.

There are currently eight biomass facilities in place or in active development in eastern central Oregon. Seven of these are in Grant and Harney counties. The largest is Prairie Wood Products in Prairie City, which currently utilizes wood chips shipped from outside the region to produce electricity (10 MW) and heat. It is collocated with a sawmill, which is currently curtailed. Malheur Lumber Company will build a biomass utilization facility in John Day during the summer of 2010. This facility will add a wood densification process (wood pellets and bricks)



to their existing lumber mill and will source 45,000 tons per year of biomass material from public and private land in eastern and central Oregon. Malheur Lumber's sawmill is currently the only active wood processing facility in the region. There has been a small post-and-pole facility in Seneca capable of processing lodgepole pine and other species, but it has not operated for several years. Reduced timber harvests, low lumber prices, procurement, and supply chain challenges have been responsible for regional inactivity.

In addition to energy production, community leaders across eastern central Oregon have grown increasingly interested in developing biomass thermal heating systems for their larger buildings. The Burns High School has installed a pellet boiler and plans to switch to pellets in spring 2010. The Harney County Hospital has been operating a pellet boiler since 2007. In Grant County, the Blue Mountain Hospital is seeking to secure the funding needed to install a pellet boiler with a projected savings of \$40,000 in heating costs. The Grant County Airport has been in the process of building the infrastructure and installation of a pellet boiler, which should be operational

in July 2010. Other potential projects include district heating in Burns and several Wheeler County communities, as well as recruitment of a pellet manufacturer to a former Hines mill site.

These developments suggest that a regional biomass market is emerging in eastern central Oregon. However, the costs of capital investments in facilities and the question of supply remain.

Community capacity and collaboration

Eastern central Oregon has two significant collaboratives. The Blue Mountains Forest Partners, which works on the north end of the Malheur National Forest, formed in 2006 to enhance forest ecosystem health, economic opportunities and public safety in Grant County. The Harney County Restoration Collaborative, which meets in Burns, works on projects on the southern portion of the national forest. Sustainable Northwest, the High Desert Partnership, The National Forest Foundation, and Oregon Solutions have assisted both groups with the development of operation protocols, board development, group decision making procedures, forums to discuss the science of forest restoration, and lessons learned from other collaboratives.

Both collaborative organizations work to implement active restoration and share many similarities, although two distinct groups are necessary to appropriately address the large landbase and diverse range of issues on the Malheur National Forest. They have diverse and active memberships, and many stakeholders participate in both collaboratives. They have successfully built agreement on restoration treatments for thinning low-elevation ponderosa pine forests that are ecologically departed from historic range of variability. This departure is due to the exclusion of fire as a natural part of the ecosystem as well as past management activities. The groups also agree on the importance of aspen stand restoration and the retention and recruitment of old growth trees. There has been disagreement about projects in moist, mixed-conifer forests and harvest of trees over twenty-one inches in diameter at breast height. There has been also disagreement on removal of small-diameter trees that have old growth characteristics. These groups will see their initial projects, which range in size from 7,000 to 33,000 acres, completed in 2010. Yet, the lack of agreement on these

issues creates challenges for both groups as they attempt to plan larger-scale restoration.

A notable project that may help address these disagreements is the “Bigger Look.” The Nature Conservancy, the Forest Service and the High Desert Partnership have been working with both collaboratives to help them articulate the key ecological, social, and economic values of the Malheur National Forest and then visualize these values through a mapping exercises designed to prioritize areas for future restoration. The momentum of these active collaboratives and their use of innovative tools for decision-making could help invigorate regional forest restoration and improved ecological function on public lands.

Public and market-based policy

The public and market-based policies that affect the entire zone also impact Wheeler, Grant, and Harney counties. Several agency personnel and a county judge from this region have supported or actively worked to further federal land management policy through the Rural Voices for Conservation Coalition, a program of Sustainable Northwest. The input from these participants helps form the policy goals that RVCC works on to enhance the economic and ecological viability of rural communities.

Access to “green building” markets remains limited for local manufacturers because so much of the forestland is federally managed and none of the major private landowners have been FSC certified. FSC certification and LEED design standards have not included federal lands. However, a particular market opportunity seems to be emerging for ponderosa pine window and door stock for FSC-certified manufacturers. This may encourage private landowners and mills in the area to become FSC certified if the market trend continues.

Conclusion

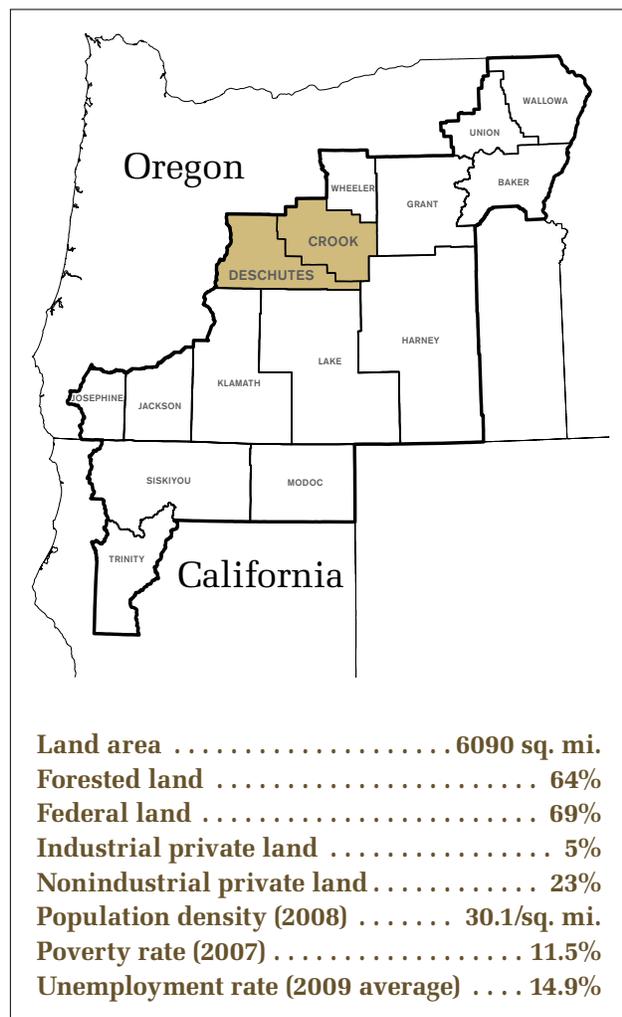
Although they are far from markets and political centers, communities in eastern central Oregon have been dedicated to building economic viability and finding tools to improve federal forest health. The two collaborative groups working with the Malheur National Forest successfully planned several restoration projects and have been developing tools to help prioritize new areas for treatment and management. Opportunities exist to increase the capacity of these

groups to reach higher levels of agreement and support active forest management. With resources and assistance, private landowners could increasingly access alternative value streams and successfully practice stewardship on their property. This region has also been rapidly advancing in its ability to utilize woody biomass as feedstock for building space heat and energy production. A new pellet mill and the retrofitting of multiple large buildings appear to be among the new opportunities. As biomass utilization expands, active forest management on pub-

lic lands may produce some of the necessary supply for an increasingly integrated regional market. Remoteness and low population density challenge this region's capacity for organization and political influence. However, collaborative participants, county governments and others in this region are supporting forest management and entrepreneurial activities that could eventually succeed in simultaneously addressing eroded socioeconomic and ecological conditions.



D. CENTRAL OREGON: DESCHUTES AND CROOK COUNTIES



In central Oregon, pine forests and fertile lands helped Deschutes and Crook counties grow a robust sawmill industry, ranching, and agriculture. However, traditional resource-based economies have shrunk since the mid-1990s in comparison to the profitable recreation sector. This region is now known for its wilderness, mountain biking, skiing, and resorts. It has experienced rapid population growth over the past two decades, although population has slowed or reversed since the recent recession. Population centers such as Bend and Redmond offer access to services, educational resources, and markets. Numerous smaller communities have suffered loss of forest-related employment and infrastructure, but retain the identity and knowledge that could help rebuild the capacity for sustainable forest stewardship. Public lands, which cover large areas of both counties,

are crucial to the economic and ecological health of this region. A strong collaborative group focused on wildfire risk and small diameter utilization has fostered productive relationships and promoted active restoration, although disagreement over appropriate public land management practices remains. Biomass utilization opportunities are also rapidly emerging in central Oregon. Investors and local businesses have explored investments in the communities of La Pine, Prineville, and Redmond. There is a critical mass of entrepreneurial skills and interest in the region; however, most business proposals focus on energy generation and do not consider community-scaled and thermal heat biomass applications. Policies that support biomass harvest and utilization are essential to further expansion of this sector. These counties also would benefit from policies that improve forest planning processes, increase funding for economic development activities, and help build agreement on public land management. In many aspects, central Oregon has substantial barriers yet ample opportunities for an integrated forest-based economy.

Land management and alternative value streams

In Deschutes and Crook counties, public land management is a) focused on wildfire risk reduction, b) increasingly collaborative, and c) moving toward landscape-scale restoration. First, most stakeholders and residents believe that active management and fuel reduction are necessary to restore the Deschutes and Ochoco national forests. Some environmental groups dispute the impact that harvesting can have on wildfire dangers, and do not see the need to vigorously treat overstocked stands. Moreover, many homeowners, particularly in Deschutes, have built in the wildland-urban interface and are resistant to losing the aesthetic appeal of their forested properties. There are several programs and grants that have helped reduce wildfire risk in central Oregon. For example, Project Wildfire in Deschutes County is a collaboration of agencies and private sector leaders that coordinates and implements community wildfire planning. The Nature Conservancy's Deschutes Fire Learning Network (FLN) examines strategies for returning forests to their historic range of variability. These projects have not only increased community safety, but have also helped build new partnerships and levels of agreement. Second, the Central Oregon

Partnership for Wildfire Risk Reduction (COPWRR) has convened stakeholders from industry, environmental groups, communities, and agencies to build agreement for public land management and to assist to forest-based businesses. This collaborative has been active since 2002. Its participants have found common ground in the treatment of second-growth ponderosa pine. However, agreement has been more difficult when proposed projects include juniper and lodgepole pine, and most difficult for mixed conifer and old-growth stands; stakeholders continue to debate issues such as dwarf mistletoe impacts on older ponderosa pine. Furthermore, industry representatives have been concerned about adequate public land supply for their businesses and feel that the Deschutes and Ochoco National Forests should offer more timber sales. Landscape-scale projects are difficult to implement as a result of these limited areas of agreement. The Deschutes National Forest has been developing a 39,000-acre vegetation management project in the Crescent Ranger District, and COPWRR's leader has been facilitating stakeholder involvement on the decision-making process. This attempt to move to landscape scale presents a significant opportunity for active restoration and biomass supply.

Private lands in Deschutes and Crook counties include large industrial holdings, many of which are now owned by Fidelity National Financial Corporation, and nonindustrial private family forest and rangelands. The rapid growth and relative proximity of Deschutes County threaten its productive landscapes; in comparison, although Crook County shows an increasing trend of subdivided ranchlands and absentee landowners, developers have not as frequently targeted destination resorts and lodges. The state clashed with nearby Jefferson County in 2009 regarding planned developments in the Metolius Basin, which is adjacent to Deschutes County. Although these have stalled, the Ponderosa Land and Cattle Company still owns 40,000 scenic acres near Sisters and has continued to plan a resort in the area. Many new residents of central Oregon are opposed to such development, but this is often a desire for untouched wilderness rather than support for working forests.

Although Deschutes County contains less private land than Crook, it is home to a developing commu-

nity forest project that has generated excitement for working landscapes. The Deschutes Land Trust is in the process of acquiring 33,000 acres of Fidelity National's land near Bend for conservation as the Skyline Community Forest. The purchase of this land will partially rely upon community forestry bonds, demonstrating their use for community ownership; and the Land Trust plans to conduct harvests for revenue while also managing for recreation and possibly ecosystem services markets. The economic viability of the future Skyline Forest and private lands across central Oregon will depend upon the development of alternative value streams. Discussions with landowners and scientists in this region showed high levels of interest in building payments for water and carbon management into existing land use plans in order to offset the depressed timber market. The region also benefits from the presence of Oregon State University Extension, which has collaborated with landowners to explore ecosystem services opportunities. However, the business dimensions of payments for ecosystem services are still not clear. Although landowners are interested in certification, they do not see its benefits when log prices are low. There is a need for knowledge, networking, and technical assistance to help catalyze the development of these markets and to encourage the option of forest certification.

Integrated woody biomass utilization

Biomass utilization is another value stream that communities across the zone wish to capture. Contractors have been harvesting biomass in central Oregon but typically transporting it across the Cascades for use in cogeneration facilities in White City, Roseberg, or the Willamette Valley. There is widespread desire for regional biomass utilization, but proponents of this opportunity focus solely on biomass electricity and seek investors who will develop large (10-megawatt or more) plants. This approach has not yet led to a new facility. Capital investment per megawatt is substantial. Although COPWRR has generated fiber availability models using a Coordinated Resource Operating Protocol (CROP), guaranteed long term supply from public lands is not predictable. Loss of primary milling infrastructure in the region poses another barrier to colocation and integrated utilization. As a result of these obstacles, energy projects proposed in Prineville and La Pine have yet to break ground, although



BioGreen Sustainable Energy has purchased land for a 20-megawatt plant in the La Pine industrial park. Warm Springs Biomass in nearby Jefferson County has been seeking new market tax credits and other financing to expand their small combined-heat-and-power (CHP) facility from six to 20-megawatts for production for the energy grid.

Other options for biomass utilization are community-scaled models, production of densified fuels (pellets or bricks), or thermal heat. Ochoco Lumber recently received American Recovery and Reinvestment Act funding to build a pellet plant at its Malheur Lumber Company sawmill. Although this mill is to the east in Grant County, Ochoco Lumber is based in Prineville and may obtain a portion of its supply from its private lands in Crook County and the Ochoco National Forest. There are several thermal retrofitting initiatives proposed, including the new Deschutes National Forest office and Deschutes Correctional Facility. Although COPWRR has conducted feasibility studies and worked to promote these heating systems, most of these proposals have not resulted in boiler conversion. Community scaled and local thermal heat biomass utilization options may be appropriate for the smaller communities and businesses of central Oregon, but investors and county officials have given more attention to the large electricity facility model.

Central Oregon's need for hazardous fuels reduction is not the only factor that makes biomass a promising opportunity. It is also home to a well-developed network of contractors and manufacturers who have endured years of market turmoil. As a result, there is a high level of business experience and knowledge in this region. Several skilled businesspeople have applied for 2010 Woody Biomass Utilization Grant funding for a range of new projects, among them an integrated smallwood processing yard in La Pine. Such a facility would demonstrate the integrated "biomass campus" ideal that Wallowa County has pioneered. It would also show local business networking and strengths. Other potential projects include expansion of an existing shaving system for animal bedding at JTS Animal Bedding in Redmond, mobile kiln drying and logging equipment for firewood production at Intermountain Wood Energy, and a new facility for T2 Inc. to produce high-quality hog fuel and soil amendment products. In summary, central

Oregon has high levels of business capacity for biomass utilization, and is well-positioned for future development of opportunities.

Community capacity and collaboration

Deschutes and Crook counties are home to several notable nongovernmental organizations and collaborative groups. As already suggested, COPWRR works to collaborate on public land management and small diameter utilization. The Deschutes Fire Learning Network (FLN) is designed to help restore fire-driven ecosystems to their historic range through a collaborative approach. In Crook County, the Crook County Natural Resources Planning Committee convenes stakeholders on forest management, with a focus on the unique issues and resources of the Ochoco National Forest. Other collaborations include the Prineville Juniper Working Group (organized by COPWRR), Project Wildfire, the Deschutes-Ochoco Resource Advisory Committee, and the Deschutes Provincial Advisory Committee. Regional NGOs of note are the Deschutes Land Trust, Deschutes River Conservancy, Upper Deschutes Watershed Council, Sierra Club, Friends of the Metolius, and Oregon Wild.

These various organizations provide central Oregon region with high levels of skill and capacity. This diversity also has led to complexity and a lack of coordination. Stakeholders and members of the public have been unsure of which organization performs which function, and fatigued from numerous meetings and processes. The organizations themselves could suffer from competition for similar resources and "reinvention of the wheel", or may never be forced to develop the capacity to work together cooperatively. However, COPWRR and the FLN have begun to address these challenges by partnering on the development of common principles of restoration for central Oregon, and by seeking new ways to coordinate their work. They have also explored the possibility of reinvigorating collaboration on the Metolius Basin. This important area has a rich history of collaboration and multiparty monitoring, but activities have waned in recently years. Continued development of strong networks between organizations in central Oregon could further encourage sustainable forest stewardship and viable business opportunities. Networking outside of the region to learn from other successful collaborations may also

aid stakeholders in Deschutes and Crook counties in overcoming the acrimony and lack of agreement that has stalled progress on public land activities.

Public and market-based policy

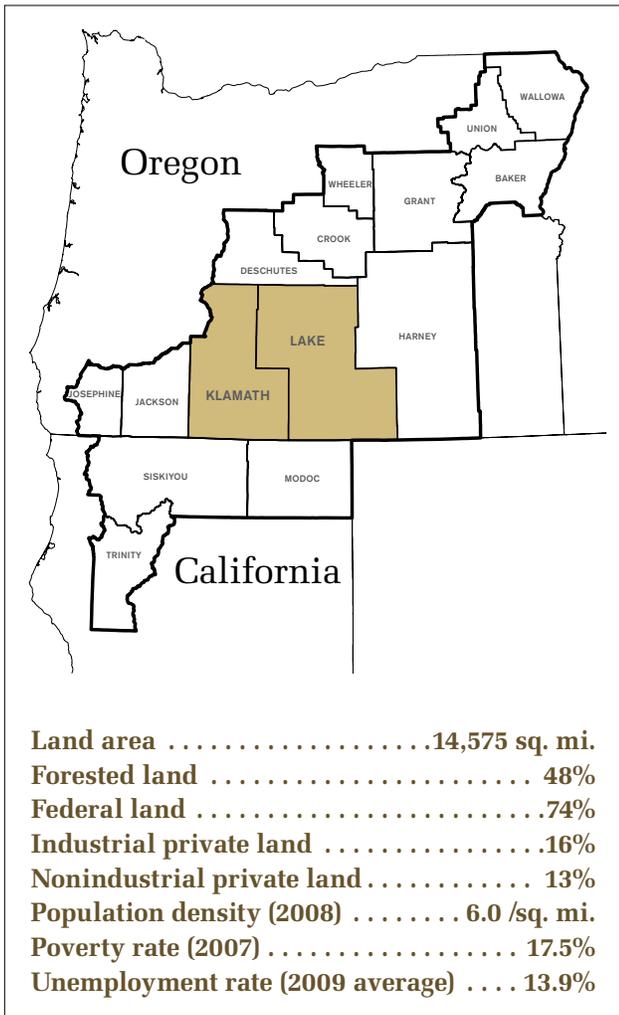
The public and market-based policies that affect the entire zone also impact Deschutes and Crook counties. Discussions with key stakeholders revealed, for example, that NEPA remains cumbersome for forest planning; biomass development is constrained by the high percentage of federal lands; and there are disincentives for federal agencies to participate in collaboration. This region has relatively high levels of policy awareness and capacity for planning, grant-writing, and public participation. Furthermore, it is geographically closer to centers of political influence than many other parts of the Dry Forest Zone. Local members of organizations such as The Nature Conservancy and the American Forest Resource Council actively advocate for their policy priorities at the state and national levels. Representatives from COPWRR and Oregon Solutions have participated in the Rural Voices for Conservation Coalition. These organizations have expressed interest in further policy engagement, and hope to have increased contact with congressional staffers and other avenues for supporting desired policy changes in the future.

Conclusions

The counties of central Oregon exemplify the opportunities and challenges that face the entire zone. They have access to urban markets locally and in nearby western Oregon, but retain a strong rural character. Although obstacles to effective public lands policy and management exist, collaborative efforts have arisen to promote multiple values and active restoration. The number and diversity of collaborative and NGO groups in this region means that there is sufficient capacity to address an array of important land-use issues. While forest-based employment and wood products markets have dwindled, a core of entrepreneurial and experienced businesses remains dedicated to sustainable forest stewardship and economic development. Many stakeholders and organizations are actively seeking increased policy engagement, education about thermal heat and community-scaled biomass, and conflict resolution tools. Central Oregon has transformed from a rural resource-based region to a populous and varied landscape. However, its forests, communities, and businesses still would benefit from increased landscape scale restoration, a broader suite of biomass utilization facilities, and stronger connections to decision-makers.



E. SOUTHERN CENTRAL OREGON: KLAMATH AND LAKE COUNTIES



Klamath and Lake counties cover thousands of square miles of dry forests and rangelands in southern central Oregon. Although they both share the Fremont-Winema National Forest, these counties have their own distinctive geographies and economies. Klamath County is closer to urban markets of western Oregon than Lake County, and at the height of the forest industry’s activity, it had substantial sawmilling and secondary manufacturing infrastructure. The Klamath Tribes were part of this successful forest economy; they managed much of their previously extensive landbase for timber. Today, they are seeking to expand their landholdings and create an integrated green energy industrial park featuring a biomass facility. Klamath Falls is the largest community in the region. Its metropolitan region is home to about 40,000 residents

and has a growing service sector. Lake County has a much smaller population (7,239 in entirety), and its few communities are scattered across a remote landscape. Lake County residents support and identify with a natural resource-based economy. However, four of their former five mills have shut down. The county seat of Lakeview is home to the remaining operation, the Collins Company’s Fremont sawmill. This mill has adapted to changing times; it offers FSC-lumber from Collins’s certified industrial lands, and restructured for small-diameter utilization in 2008. Collins is an active partner to the nonprofit Lake County Resources Initiative (LCRI) and collaborative Lakeview Stewardship Group. Successful collaboration between the diverse members of this group has become an inspiration and model in forest conservation by incorporating ecological restoration and community values in land management goals. The Stewardship Group and the LCRI also have been working to develop a biomass plant and other renewable energy opportunities.

In contrast, Klamath County lacks a similarly strong collaboration around public lands management and community development. It has a more diversified economy and a less tightly knit community of stakeholders. However, federal, state, conservation, and private land representatives have been meeting for over a decade in the Klamath-Lake Forest Health Partnership to address forest health issues on private lands. A majority of this county’s stakeholders have been actively involved in processes surrounding the Klamath Basin Restoration Agreement (KBRA), which is intended to reconcile water users’ rights across the watershed of the Klamath River in Oregon and northern California.

Land management and alternative value streams

The Fremont and Winema national forests combined in 2002. Challenges to active restoration on this national forest include low value of timber, limited ability to use stewardship contracting, environmental opposition from Ashland and Medford-based organizations, and negative perceptions of the Forest Service. However, there are important characteristics that distinguish public lands management in each county.

Lake County has a higher proportion of public lands than Klamath County. With the assistance of Sustainable Northwest, local citizens, environmental groups, agencies, and businesses formed a stewardship group in 1998 to request reauthorization of the former Lakeview Federal Sustained Yield Unit as a new stewardship unit. The Stewardship Group collaboratively drafted their visions into a plan for future management of this 495,000-acre area. This vision took a long-term perspective on lands that were formerly managed for timber production and other uses under the Multiple Use Sustained Yield Act, and emphasized the need for fuel reduction, restoration, protection of wildlife habitat, and maintenance of roadless areas through a holistic and adaptive forest practices strategy. The Fremont National Forest approved this plan in 1999, and the collaborative group has since continued to meet and help implement their goals on the stewardship unit. As a result of this process, Lake County's stakeholders have developed high levels of agreement around public forest management. For example, recent projects have addressed white fir encroachment on pine stands by allowing case-specific removal of fir over twenty-one inches in diameter at breast height. Relationships between the Forest Service, BLM, Collins Company,

and environmental groups (Defenders of Wildlife, Concerned Friends of the Fremont-Winema, The Nature Conservancy, and the Wilderness Society) have become largely positive and productive through this collaborative.

A different suite of issues exists on the Winema side of the national forest. In Klamath County, the first factor is proximity to larger populations. Greater public use of the Winema puts pressure on the forest road system and requires well-developed travel management plans. A second factor is the role of the Klamath Tribes. Much of their terminated reservation lands are now part of the Klamath, Chiloquin, and Bly ranger districts of the national forest. For those lands, the tribes work closely with Forest Service staff members to plan harvesting and management activities. They intend to expand the scope of their partnership in the future. Planned joint projects include the development of a special management area on land with specific cultural and historical significance to the tribes; development of a process for creating a federal lands biomass supply; and planning to reduce wildland fire risk on the interface between public lands and future tribal forestland holdings.



Private forests compose a greater share of Klamath County than Lake. The largest industrial landowner, JWTR LLC, possesses upwards of 693,000 acres in total in Klamath, Lake, and Jackson counties and in California. JELD-WEN Inc., a multinational window and door producer, also manages 49,000 acres of timber and agricultural land. The J-Spear Ranch Company has 15,660 acres in Lake County. While JWTR is using its forests for timber, other industrial lands are overcut and currently not managed. Fidelity National has a controlling share of Cascades Timberlands LLC and the former forests in this region. The Gilchrist Tree Farm is in the process of becoming a new state forest of 68,000 acres. The Oregon Department of Forestry will manage this entire tract. The Klamath Tribes may purchase the Mazama Tree Farm, which Fidelity National owns, if they can obtain the necessary funds promised to them in the Klamath Basin Restoration Agreement. This 90,000-acre region would be significant for the tribes' plans to create an integrated biomass utilization facility. Tribal planners are concerned about wildland fire moving across the public-private interface and would like to have greater coordination with the agencies in the future. Another unique landowner is The Nature Conservancy, which manages the 30,000-acre Sycan Marsh area for educational and scientific opportunities. Other, smaller owners include Whiskey Creek Lumber Company, and numerous nonindustrial families.

A depressed timber market has challenged private landowners and led to increased interest in alternative value streams in the region. Prices for ponderosa pine in particular have declined sharply with the loss of mill infrastructure; competition for timber sales between several mills would set higher timber values in the past. With the current recession, prices for all types of timber are now low. Existing use of alternative value streams is limited. However, the lands of the Collins Company in Lake County became FSC-certified in 1998. Collins is able to offer certified lumber and capture increased value from its forests. The LCRI has researched how wildlife mitigation certification and carbon markets might work in partnership with local private landowners and the Forest Service. However, no landowners have developed these opportunities. There is inadequate information about the feasibility and structure of payments for ecosystem services in both counties. As communi-

ties seek ways to treat overstocked forests and find new sources of revenue, they remain interested in obtaining this information, and also want to explore the potential of commercial biomass utilization.

Integrated biomass utilization

There is high awareness of biomass energy generation potential in this region. Businesses and communities have not pursued the options of densified fuels and thermal heating of public facilities with the same level of interest. In 2005, Governor Kulon-goski designated a proposed 15-megawatt co-generation biomass plant at the Collins Company sawmill site in Lakeview as an Oregon Solutions project to ensure state support for its implementation. This is the most significant biomass utilization development in southern central Oregon. The LCRI coordinated initial planning of this project with the Forest Service, the Lakeview Stewardship Group, the South Central Oregon Economic Development District, the Collins Company, the BLM, and energy companies. If this project succeeds, it could be an example of how diverse stakeholders can build enough agreement to achieve active restoration and utilization of the byproducts for energy. It could also demonstrate the value of coordination between land management agencies and economic development organizations. Plans for the plant are currently behind schedule, and the project faces several critical supply and planning obstacles before it can become a reality for Lake County.

Klamath County does not have a critical mass of partners who are actively pursuing a biomass development akin to the Lakeview Biomass Plant. Interfor Pacific runs one of the few large operational sawmills in the county in the community of Gilchrist. This mill does have on-site thermal heat from wood waste, but has not expanded to commercial production of energy. Another large mill of note is JELD-WEN's Thomas Lumber in Klamath Falls. In 2008, the Klamath Tribes purchased a former mill site north of Chiloquin. They intend to build an integrated campus, the Giwas Green Energy Park, to utilize small-diameter materials in a biomass cogeneration plant, post-and-pole business, firewood sales, and other potential processing plants. This project is at a prefeasibility stage and will rely on supply from the Mazama Tree Farm. Acquisition of the tree farm and development of the mill site hinge on federal

funding sources, which may not be consistent and sustainable in the future.

The Lakeview biomass plant and the proposed Giwas park offer valuable opportunities for energy development and employment, but businesses and communities in southern central Oregon have not fully explored other uses of woody biomass. Our assessment did not reveal any current community-scaled cogeneration, thermal heat, or densified fuel production projects. This may be a result of the burgeoning geothermal and solar industries in this region. Both Klamath and Lake counties have significant capacity to produce and market these alternative energies, which are more cost-effective than biomass electricity or heat. Many public buildings in Klamath Falls utilize geothermal heat. Oregon's State Energy Program recently awarded American Recovery and Reinvestment Act (ARRA) funding for further geothermal development at Henley High School in Klamath County and the Lakeview Geohat Barry Well Site in Lake County. However, private landowners in particular indicated their interest in working cooperatively to supply community-scaled facilities, and production of fuels such as bricks or pellets. They are aware of the benefits of biomass utilization, but are in search of education and resources to help actualize these developments in the region.

Community capacity and collaboration

Collaboration can be difficult in southern central Oregon as a result of the long distances, socioeconomic conditions, and time-consuming Klamath Basin Restoration Agreement process. However, collaboration has become fundamental to resource management in Lake County. The Lakeview Stewardship Group redefined public land management in its region through its work on the Lakeview Stewardship Unit. This group obtained reauthorization of the stewardship unit in 2008 and will be able to implement its plans for holistic, integrated forest practices for the next ten years. The collaborative continues to meet and build support for landscape-scale restoration. The LCRI, which is an NGO, coordinates the Lakeview Biomass Plant project as well as other renewable energy opportunities. As a result of these collaborative and NGO strengths, Lake County stakeholders now have over a decade of experience with innovative and productive relationship-building. However, both organizations are run with limited staff

members and capacity. They may require expanded personnel and capacity-building assistance in order to increase their efficacy and ability to promote active forest stewardship and economic development in the future.

The rich collaborative experience of Lake County has not been replicated in the context of Klamath County. There is no comparable federal forest unit, resource-based NGO, or public lands collaborative. The Klamath-Lake Forest Health Partnership is a collaborative that meets in Klamath Falls to discuss private land management. The partnership's participants include Oregon Department of Forestry, Forest Service, and BLM staff members, The Nature Conservancy, and private landowners. The group's meetings are informal; they are led by participants on a rotating basis and do not follow any strict decision-making process. In late 2009, this group developed a new strategic plan to increase its ability to provide resources for private landowners. It hopes to respond to the challenges posed by the downsizing of the Oregon Department of Forestry, which traditionally provided services to landowners (insect control and damage mitigation, replanting, wildlife programs, and cost-share grants). It has sent a survey to 1,200 area landowners to elicit priorities and needs and will use the responses to further develop its approach as appropriate. The partnership also intends to address stand density, economic challenges, and climate change impacts across both public and private lands. It plans to redefine and focus its work could help increase the visibility of collaborative approaches in Klamath County.

Public and market-based policy

Representatives from the LCRI, Fremont-Winema National Forest, and Southern Central Oregon Economic Development District have participated in the Rural Voices for Conservation Coalition to make their policy concerns known. These concerns include the ability of the Forest Service to appropriately restore its lands and offer an adequate timber supply. Stakeholders and many agency staff members support stewardship contracting, particularly in Lake County, but are unsure of its efficacy at a time of depressed market conditions. They also feel that the forest planning process has not engendered quality treatment and maintenance of public forest acres. Communities and private landowners worry



about wildland fires that begin on public land and ultimately damage private land, and there is no policy mechanism to regulate public-private interface management. The Tribal Forest Protection Act is one exception. This 2004 measure allows a tribe to enter into an agreement with a federal land agency to treat overstocked and fire-prone forests adjacent to tribal land.

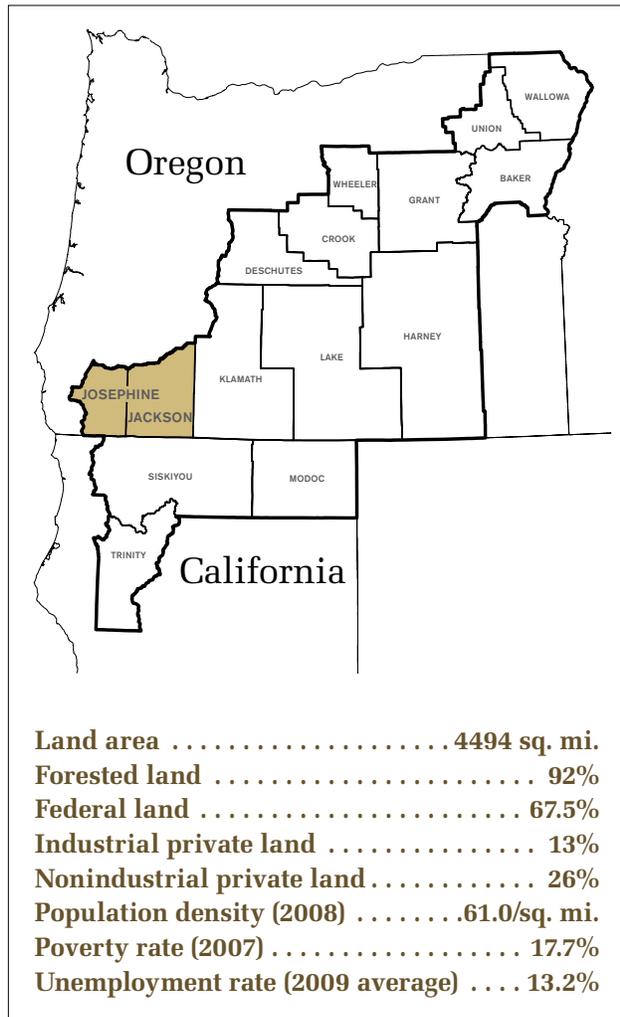
Market-based policies also influence the constraints and barriers to alternative value streams and biomass utilization in this region. Those who seek biomass development are limited by the congressional definition of biomass, and by a lack of strong state-level energy credit programs. They desire a policy and market environment that is supportive of biomass energy, but are unsure of how to effect change. Other revenue streams from public lands could emerge if FSC-certification included federal forests. At this time, market conditions impact the viability of policies that could otherwise help improve harvesting methods and forest products pricing options.

Conclusions

Communities in Klamath and Lake counties have distinctly different opportunities, but share similar challenges. County commissioners, businesses, communities, and environmental groups have been anxious to restore their forests to historic ranges of variability and protect their homes from wildland fire. These stakeholders also have been seeking viable, family-wage employment to improve their socio-

economic situation. Proposed projects such as the Lakeview Biomass Plant or the Giwas Green Energy Park depend on forest products pricing options and energy demands. Traditional market-driven economies may not be sufficient to manage forested landscapes. Changes in forest economics, being more volatile, with global influences on profit margins, has decreased forest management. Incentives to manage forest have been shifted to risk-based assessments on public lands. In addition, the forest management workforce has dwindled to a point where the new workforce will need specialized training. Collins Company has demonstrated how an industry partner can maintain profits while providing innovative, sustainable forest products and community commitments, but the number of forest-based businesses in the region has declined. The remaining large employers are JELD-WEN and Columbia Forest Products (a hardwood plywood producer that does not source local supply). Mature collaboratives find themselves at a crossroads, in need of new visions and capacities to help effect tangible change. If the Lakeview Biomass Plant and the Giwas Green Energy Park come to fruition, it will be because they have developed an economic model to address the myriad issues associated with forest management. This model will be essential and could build momentum for future economic development that is based in sustainable forest stewardship. Southern central Oregon is a place that could flourish if it capitalizes on its resilience, innovative energy production potential, and strong partnerships.

F. SOUTHERN OREGON: JACKSON AND JOSEPHINE COUNTIES



Where the Cascade and Siskiyou mountain ranges intersect in southern Oregon, forest types differ from other regions of the Dry Forest Zone. Douglas-fir, pine, other conifers, as well as hardwoods including oak and madrone cover Jackson and Josephine counties. Although there are many similarities across county lines, Jackson County has experienced a rapidly growing urban population, while Josephine County continues to be rural. Josephine remains more economically reliant on natural resources, and its poverty rate is among the highest in Oregon. Historically, the region’s Douglas-fir and mixed conifer forests supported an extensive timber industry. Timber harvest revenues once supported schools and other social services through direct payments to local governments. Due to increased environmental pro-

tections, past logging and wildfire suppression, and the growing threat of wildfire, forestry efforts now tend to focus on hazardous fuels reduction to promote forest health and protect homes. These projects are smaller in geographic extent and timber value compared to past harvesting operations. Utilization of the small trees and brush is currently limited to a few biomass co-generation and value-added operations. The regional forest products manufacturing capacity has declined considerably. Yet Jackson County continues to have a significant concentration of large-scale wood products manufacturing as well as many logging and forestry services contractors and workers. Forest-based collaboration has a long history in both counties, and participants in these groups are invested in pursuing further agreement and more active management.

Land management and alternative value streams

The BLM Medford District and the Rogue-Siskiyou National Forest are the primarily federal forest landowners in Josephine and Jackson counties. Public land has the potential to provide ecological, social, and economic benefits to a region via timber and other value streams. However, BLM and Forest Service staff members and various stakeholders in southern Oregon have been frustrated by the lack of active forest management, especially at the landscape scale. Agency personnel and collaborative participants (such as community leaders and representatives from environmental organizations) share a desire for public land restoration to address forest health issues and create employment opportunities as soon as possible. They also seek a comprehensive vision to guide the planning, implementation, and monitoring of public forest management for long-term productivity. Three factors have contributed to agreement on public land management. First, in recent years, fire planning has built strong interagency relationships and helped accelerate thinning and hazardous fuel reduction. Second, by starting at a small scale and conducting projects with less controversial species and diameter limits, BLM field staff members in the Grants Pass Resource Area and Forest Service staff members in the Wild Rivers Ranger District were able to gather momentum and build trust for stewardship contracting and future work. Third, numerous partners and organizations are also helping the

two agencies move toward a broader suite of sustainable forest stewardship objectives in the region. The Josephine County Stewardship group and the Southern Oregon Small Diameter Collaborative are the most prominent. These groups have developed high levels of agreement but have had varying degrees of success in terms of project implementation. Some of the ranger districts and field offices have used collaboration and stewardship contracting, but they have not used them across the Medford District or the Rogue-Siskiyou National Forest.

Private forestlands are also a significant part of the southern Oregon landscape. Regional, family-operated companies such as Perpetua Forest Company, Indian Hills, LLC, and Lone Rock Timber Company own and manage industrial forestland in the region. However, a considerable portion of industrial forestland has changed hands since the mid-1990s. This includes the 2004 sale of 140,000 acres of former Boise Cascade, LLC lands in Jackson and Josephine counties to Forest Capital Partners, LLC. Other landowners in the region include Plum Creek Timber Company and Fruit Growers Supply Company, a cooperative affiliated with Sunkist. Community leaders have been concerned about the loss of working lands due to future conversion as well as permanent protection of forestlands through federal acquisition and designation in the Cascade-Siskiyou National Monument. Industrial forestland owners do not appear to be planning any real estate development at this time. Given a history of intensive management, some residents expressed concern about the sustainability of forest practices on these lands even if they remain in production.

Many nonindustrial private landowners in the region actively manage their land for timber production and are interested in restoration and fuels treatments to treat overstocked stands and reduce wildland fire danger. Some of these landowners have been taking advantage of the financial incentives such as cost-share programs to assist with fuels reduction that the Oregon Department of Forestry (ODF) and the Natural Resource Conservation Service (NRCS) offer. The local chapter of the Oregon Small Woodlands Association also provides active management and technical assistance opportunities. These initiatives have been helping increase landowner management capacity. However, because the

amount of biomass removed during fuels treatment projects is typically small and the material is piled and burned, landowners see no income from the work. Another challenge is the number of landowners who are: (1) unaware of resources to aid their management plans, (2) aging and may face limited options for intergenerational transfer, or (3) inexperienced or uninterested in forest management. There is a need for outreach to nonindustrial private landowners and large landowners about technical assistance and restoration and fuels treatment opportunities.

Although the Forest Stewardship Council (FSC) has certified no forestland in the region, Rough and Ready in Josephine County and Murphy Company in Jackson County have sought FSC-certification for chain of custody, and several thousand acres of industrial forestland are managed under the industry approved Sustainable Forestry Initiative. Several southern Oregon landowners are interested in selling carbon credits and the Southern Oregon Research and Extension Center in Jackson County is working with the Oregon Small Woodlands Association to educate landowners about potential opportunities to do so.

Integrated woody biomass utilization

Forest Service and BLM personnel and active community members generally support biomass market development as a tool for restoration, creating jobs, and developing renewable energy. They agree that this development should occur at multiple scales ranging from small, local projects such as thermal district heating systems to large-scale energy development and integrated value-added projects. Despite concerns about competition with existing businesses and removing biomass from the forest, both BLM and Forest Service personnel and community leaders agree that more removable biomass could be available from federal lands.

Biomass markets currently exist in southern Oregon, but are limited to electrical at Biomass One in Jackson County (approximately 35 MW) and cogeneration at Rough and Ready in Josephine County (approximately 2 MW). Although there are several value-added utilization businesses in the region using small-diameter material. Further development of biomass markets is hindered by the lack of a consis-

tent, guaranteed supply, high costs associated with in-woods biomass removal, and lack of investment capital. Another barrier is the lack of organizational and programmatic linkages between economic development efforts and land management. Despite these barriers, some entrepreneurs have focused on biomass market development in this region.

Southern Oregon has an experienced forest restoration contracting and workforce. Several local contractors have the capacity to remove biomass and transport it. Some of these contractors have also been experimenting with increasing the efficiency of biomass removal from the forest. Current efforts to grow the regional market for biomass include a project in Josephine County by A3 Energy Partners to build a pellet and densified wood fuel brick manufacturing facility. This project is currently in the feasibility business planning stage and enjoys fairly broad community and local government support. In Jackson County, the Forest Energy Group, which consists of local contractors, is trying to develop a large-scale integrated cogeneration and value-added facility in White City. At least two public schools in Josephine County have been moving ahead with biomass thermal projects and Southern Oregon University is also interested in retrofitting. Those engaged in biomass development identified the government financing programs including the Woody Biomass Utilization Grants, Biomass Crop Assistance Program, and Oregon's Business Energy Tax Credit to foster further development. Efforts to create a consistent, guaranteed supply of biomass and link these projects with capital and business planning assistance are needed as well.

Community capacity and collaboration

There are several environmental and conservation nonprofit groups active in forestry issues in the region. These include Klamath-Siskiyou Wild, The Siskiyou Project, and The Nature Conservancy. These organizations have been interested in finding collaborative solutions but they have little funding for such efforts. In addition, there are several local, place-based collaborative groups like the Applegate Partnership and several watershed councils who work actively to promote solutions and projects within their communities. Another important federal lands project in Jackson County is the Ashland Forest Resiliency Project, which has brought together the city

of Ashland, the Forest Service, and other stakeholders including The Nature Conservancy and Klamath-Siskiyou Wild to prioritize and develop specific restoration, fuels reduction, and multi-party monitoring projects across several thousand acres in and around the Ashland City Watershed. Private landowners in both counties benefit from highly organized community wildfire protection and planning efforts coordinated by the Jackson Josephine Local Coordinating Group. Many NGOs and collaboratives in this region have worked locally at the county or subcounty level but may lack the capacity for broader coordination and cohesion.

The Southwest Oregon Resource Conservation and Development organization sponsors two county-level collaboratives, Josephine County Stewardship Group and Southern Oregon Small Diameter Collaborative (aka. the Knitting Circle), which has been active in Jackson County. They both contain a diversity of participants, including Forest Service and BLM representatives, forest contractors, environmentalists, and local government officials. These groups benefit from the many informal relationships these participants have with each other based on prior active engagement in forestry and other natural resource issues. The goal of the Josephine County Stewardship Group has been to foster local economic development using forest restoration and fuels reduction, community wildfire protection, and collaborative decision-making. Currently, the work of the Josephine County Stewardship Group has been on hold until they hire a new facilitator, which should occur in spring 2010. Much of this work has focused on specific projects; however, the group has the potential and desire to go beyond project level involvement and help develop a comprehensive vision for forest restoration in Josephine County.

The goals of the Small Diameter Collaborative have been to reduce fire risk and dense forests through fuels reduction and to develop a regional marketplace for logged material. They also have sought to promote forest worker and industry well being during the transition to new and different types of forest-based work. Thus far, most of the work of the collaborative has focused on developing a "declaration of cooperation" to guide the group and "productive harmony standards" for sustainable forestry. The collaborative has been conducting a landscape-

scale assessment of federal lands in both counties to identify projects that fit within these principles. The group has not directly implemented any on-the-ground projects although many participants are eager to experiment with projects based on this analysis. Upcoming plans for the collaborative in 2010 include becoming a 501(c)3 nonprofit, engaging in policy development, and working with the BLM to develop two on-the-ground projects based on their agreed upon principles and landscape assessment.

There is a need for greater coordination among the many groups that are active in the region, and for resources to support extensive collaboration within the BLM, the Forest Service, and stakeholder groups. The plurality of organizational activity in southern Oregon has led to occasional conflict over funding and activities among the many organizations. However, there are also beneficial ad hoc relationships between agency personnel and various important community stakeholders. Although several of these



groups promote sustainable forestry as economic development, there is no organization that works specifically at the nexus between economic development and natural resource management. These developments may help these stakeholders to articulate a compelling comprehensive vision and action plan for forestry and economic development in the region.

Public and market-based policy

The most significant policy challenge in southern Oregon is that existing agency policies and funding streams do not adequately address the current ecological, social, and economic conditions of the region. The O&C Lands Act of 1937, which provides revenue from BLM timber harvest to local governments, and development and subsequent withdrawal of the Western Oregon Plan Revisions (WOPR) have created confusion and conflict concerning the management of BLM lands. Other constraints are the land allocations under the Northwest Forest Plan and the lack of flexibility in the Oregon Forest Practices Act for conducting fuels reduction projects in riparian areas. Many community leaders and Forest Service and BLM personnel have agreed that the current system of planning is time-consuming, expensive, and ineffective. Additionally, many of these people continue to fear legal action from environmental organizations. With the rising costs of fire suppression the Forest Service has greatly reduced funds for forest restoration and related activities. Finally, frequent federal personnel changes make consistent agency collaboration difficult.

Both agencies have been using stewardship contracting and the Healthy Forests Restoration Act, but the Forest Service and BLM have been using stewardship contracting differently. This may be due to the flexibility of the Forest Service to use restoration authorities versus the requirements to provide revenue to counties as required by the O&C Act. Both contractors and federal agency personnel agree that contract terms are just as important as contract length. Long-term contracts cannot guarantee work if the agency does not issue task orders regularly.

Many of those involved in federal land management in the region, including Forest Service and BLM staff members and active community members, want federal lands policy that allows for implementation and decision-making at the local level. Within

that framework, it is important that the agencies and stakeholders capitalize on the success of small-scale projects to show policy makers what has been done and what is possible. In many cases, existing authorities like stewardship contracting have been used with success and it is a matter of institutionalizing these authorities across the region. There is a need for education and technical assistance regarding effective implementation of existing authorities like stewardship contracting on a larger scale.

Stakeholders recognize the importance of regional access to tax incentives and subsidies for developing new and existing markets for biomass energy. They agree that tax incentives and government subsidies like BCAP, WBUG, and Business Energy Tax Credit (BETC) are necessary for developing these markets.

Conclusion

Despite major changes in the forest industry over the last few decades, the current context in southern Oregon presents several opportunities for active forest restoration and economic development, particularly for improved public lands management. BLM and Forest Service staff members and community leaders have worked together to successfully complete several projects at the local level. They agree on the need for landscape-scale management and have organized accordingly within the Josephine County Stewardship Group and the Southern Oregon Small Diameter Collaborative. There is considerable existing capacity for biomass utilization, and several proposed biomass utilization projects are moving forward. Existing collaborative groups are eager to articulate a compelling comprehensive vision and action plan for forestry and economic development in the region. There are opportunities to build upon existing areas of agreement and local success stories to support existing and proposed biomass utilization projects. Although southern Oregon's population has grown and its economy has diversified since the 1990s, a range of stakeholders remains committed to the vitality and renewal of a forest industry. If they could continue to harmonize the diffuse and often disconnected collaborative institutions of the region, the residents of Jackson and Josephine counties could help make integrated, sustainable forest stewardship, healthy forests, and family wage employment a reality.

NOTES

1. P. Hessburg and J. Agee, "An Environmental Narrative of Inland Northwest United States Forests, 1800–2000," *Forest Ecology and Management* 178 (2003): 23–59.
2. W.H. McNab, D.T. Cleland, J.A. Freeouf, J.E. Keys Jr., G.J. Nowacki, and C.A. Carpenter. *Description of Ecological Subregions: Sections of the Conterminous United States* [CD-ROM] (Washington, D.C.: U.S. Department of Agriculture, Forest Service, 2007), 80 pp, Gen. Tech. Report WO-76B.
3. P. Hessburg, J. Agee, and J. Franklin, "Dry Forests and Wildland Fires of the Inland Northwest USA: Contrasting the Landscape Ecology of the Pre-Settlement and Modern Eras," *Forest Ecology and Management* 211 (2005): 117–139.
4. C. Millar, R. Neilson, D. Bachelet, R. Drapek, and J. Lenihan, "Climate Change at Multiple Scales. *Forests, Carbon and Climate Change: A Synthesis of Science Findings*. (Corvallis, Oregon: Oregon Forest Resources Institute, 2006) 31–60.
5. Data on number of employees in the forest sector is withheld in many counties of the zone and is not available; therefore, number of businesses is the measure that we use to assess changes in forest-based employment.
6. www.census.gov/cgi-bin/sssd/naics/naicsrch?code=113&search=2002%20NAICS%20Search
7. www.census.gov/cgi-bin/sssd/naics/naicsrch?code=115310&search=2002%20NAICS%20Search
8. Cassandra Moseley and Yolanda Reyes suggest that logging and forestry support workers "move in different parts of the economy" and that logging workers are part of a larger forest products market while forestry support workers may come from an agricultural labor market. However, their study is focused on the entire state of Oregon. Larger firms on the western side of the state contribute to the majority of economic activity in forestry support, and are more likely to have a contractual forestry support workforce that is drawn from agricultural and often multiethnic workers. In central and eastern Oregon, the local labor market is small. Rural residents who are not as mobile often have a number of diverse jobs to provide income and are accustomed to adapting to local changes and opportunities. See C. Moseley and Y. Reyes, "Comparing Job Quality in Logging and Forestry Services in Oregon," *Journal of Forestry* 105, no. 6, (September 2007): 293–300.
9. *ibid*
10. The Bureau of Labor Statistics calculates a broad state-wide measure of average labor underutilization or underemployment, which includes total unemployed, marginally attached workers, and total employed part time for economic reasons, as a percent of the civilian labor force. Bureau of Labor Statistics, 2009, www.bls.gov/lau/stalt.htm.
11. Research from the ICBEMP defines resilience in the Inland West as "a community's ability to respond and adapt to change in the most positive, constructive ways possible for mitigating the impacts of change on the community" (7). See C. C Harris, W. McLaughlin, G. Brown, and D. Becker, "Rural Communities in the Inland Northwest: An Assessment of Small Communities in the Interior and Upper Columbia River Basins." From *Interior Columbia Basin Ecosystem Management Project: Scientific Assessment*, Edited by Thomas Quigley, (Portland, OR: U.S. Department of Agriculture, Forest Service, 2000), 120 pp, Gen. Tech. Rep. PNW-GTR-477.
12. E. Donoghue and R. Haynes, *Assessing the Viability and Adaptability of Oregon Communities*. (Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, 2000), 13 pp, Gen. Tech. Rep. PNW-GTR-549.
13. (Harris et al. "Rural Communities," 91–92)
14. Definition adapted by Maia Enzer from the Rural Voices for Conservation Coalition, *Building Community Capacity*, (Portland, Oregon: Sustainable Northwest, 2007).
15. This is politically significant as 2010 is a national mid-year election and it is common to see increased partisan behavior during this time. Regardless of the party in control, this partisan balance often makes it more difficult to advance solutions at the national level. It is not the aim of the project to influence the voting patterns of the citizens of these counties; however, it is important to consider resident's political leanings to understand how policies that impact the zone can have maximum political durability. Real and lasting solutions to the challenges facing the zone must be bipartisan, supported across interest groups, and appeal to both urban and rural constituents.
16. This money does not go into the general fund, because it is programmed money for schools and roads and therefore not budgeted at the local level
17. Trinity County Budget, Ernst and Young, LLC, www.dacbond.com/.
18. A county that received a share of the state payment greater than \$100,000 annually is now required to direct 15 to 20 percent of its share to projects under Title II of the act, projects under Title III, or to return the funds to the government.
19. FLRA was included as Title IV of the Omnibus Public Land Management Act of 2009.
20. C. Moseley, M. Nielsen-Pincus, J. Gordon, and Z. Walmer, *Local Benefit in the West from the American Recovery and Reinvestment Act*, (Eugene, Oregon: Ecosystem Workforce Program, 2009), Briefing Paper Number 20.

About the Contributing Organizations

Ecosystem Workforce Program, Institute for a Sustainable Environment, University of Oregon is built on the fundamental belief that ecology, economy, and governance are intimately interconnected. It believes that by understanding the relationships between ecological health, economic well-being, and a vibrant democracy, we create the building blocks of a sustainable society. It serves rural forest communities and other people that face limited economic opportunity, political exclusion, or degraded landscapes with applied research, policy education, and technical assistance.

Sustainable Northwest helps people and communities restore and maintain ecological health, balance diverse interests, and promote economic opportunities. It is headquartered in Portland, Oregon. Through collaboration, it works to bridge rural and urban interests, encourage entrepreneurship, and build trust in sustainable natural resource management and utilization in the western U.S.

The Resources Innovations Group helps communities plan for climate change and develop renewable energy and stewardship solutions that benefit working lands and local communities.

Wallowa Resources works through partnerships with a diverse group of people to design and realize a new, healthier, rural community. In 1997, the Wallowa County Court passed a resolution establishing the Wallowa County Chamber and Wallowa Resources as the lead agencies implementing the Wallowa County Strategic Plan for Economic Development.

Watershed Research and Training Center was started in 1993 to promote healthy communities and sustainable forests through research, education, training, and economic development. This work centers around the belief that the relationship between local communities and the public forest must change so that the economy can rebuild itself based on an ethic of land stewardship. Their activities reflect this attempt to develop and encourage sustainable forest-based activities and a vibrant economic system for Hayfork and all of Trinity County.

Photography: Jesse Abrams (p. 1), Wynne Auld (p. 67), Nils Christoffersen (pp. 42, 64), Emily Jane Davis (pp. 12, 85; inside back cover), Nick Goulette (front cover; p.p. 20, 73, 75), Marcus Kauffman (table of contents; pp. 88, 91), Cassandra Moseley (p. 56), Max Nielsen-Pincus (pp. 35, 83), Jessie Schmidt (front cover inset), Josh Smith (p. 45), and Sustainable Northwest (inside title page; pp. 53, 54, 78).



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