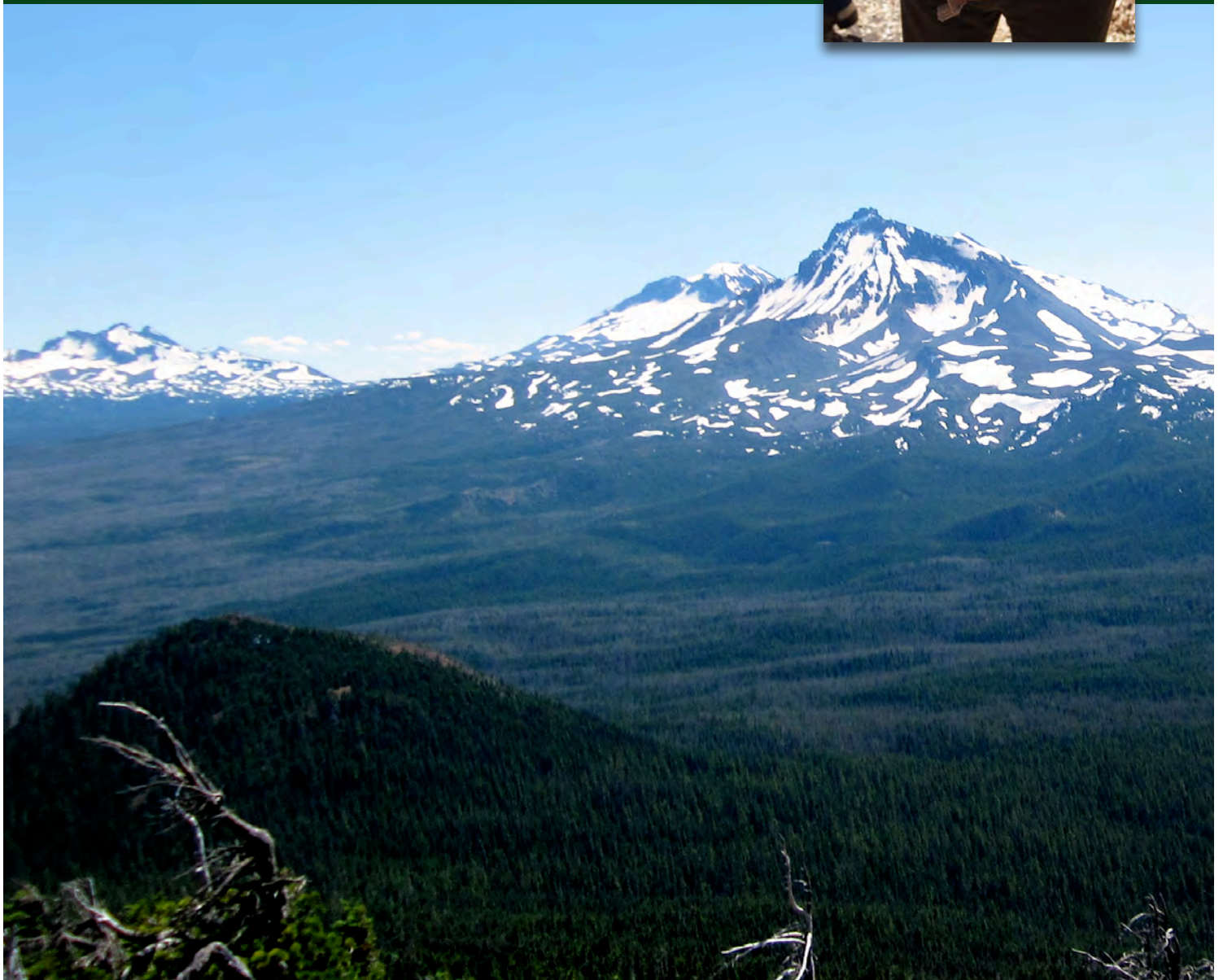


Economic development and sustainable forest stewardship in the Dry Forest Zone: a mid-term report

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About the Dry Forest Investment Zone

The Dry Forest Investment Zone (DFZ) is a five-year project to address common natural resource-based economic development challenges through increased networking and capacity building at a regional scale. Sustainable Northwest leads this project in partnership with Wallowa Resources in northeastern Oregon, the Watershed Research and Training Center in northern California, and the Ecosystem Workforce Program at the University of Oregon. The central components of the DFZ strategy are: 1) To build strong local nonprofit organizations and collaborative processes to achieve forest and economic resilience, 2) Create multiple value streams from land management and incentives for forest restoration and stewardship, 3) Develop integrated biomass utilization and renewable energy; and 4) Create the policy conditions to support sustainable forest stewardship on public and private lands.

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Executive summary

The Dry Forest Zone (DFZ) project is a five-year collaborative effort to foster an integrated approach to forest stewardship and economic development in eastern Oregon and northern California. The DFZ project invests in enhancing a range of capacities for community-based natural resource management at multiple scales. By working simultaneously at different geographic, social and institutional levels, the DFZ project creates and connects enabling conditions for transformative change. At the mid-point of this project, the DFZ team and partners have achieved important gains and learned valuable lessons:

- **Investments in organizational and community capacity can result in improved land stewardship and ecological outcomes.** Where DFZ leaders and partners have deliberately built capacity, diverse stakeholders have more robust abilities to find agreement on land management at larger scales for multiple ecological, community and economic benefits.
- **Accelerating woody biomass utilization benefits from simultaneous work on a diversity of project applications at different scales.** By helping thermal energy conversions and integrated utilization projects come to fruition on the ground, the DFZ project provides knowledge and evidence to affect more ripe political and financial conditions for investment.
- **Building core organizational capacities and strong community and regional networks is crucial to the future resilience of DFZ communities.** The DFZ project targets longstanding vulnerabilities in the socioeconomic fabric of this region by creating deliberate programs and forums for community-based organizations and collaborative groups to face common capacity challenges.
- **Decision leaders and land managers increasingly understand the need for policies that support integrated restoration and community economic development.** With the assistance of rural part-

ners, federal land agencies are seeking programs and budget structures that break down institutional divisions and may enable aggregate impacts across watersheds, larger landscapes, and landownerships.

- **Collaborative groups and partnerships are often providing the base support for progress on land stewardship, organizational capacity building and community and economic development issues, thus multiplying the impacts of investments in local organizations and collaboration.** By working at the nexus of land management, economic development and community building, collaboratives are efficiently building integrated strategies that grow stronger institutions and systems.

For the remainder of the DFZ project, the team will continue to focus on building or maturing necessary networks. For example, there is broad interest in all-lands stewardship in the zone, but the DFZ team has less robust networks with federal agencies beyond the Forest Service and private landowners. Although the DFZ capacity-building program has created stronger networks between CBOs, these organizations may not yet see how they can expand and use these relationships for collective action. Deliberate approaches to strengthening and densifying networks as well as identifying the outcomes of these networks will help the team and partners face ongoing economic challenges and political uncertainties. To show how networks can lead to improved land management and economic development outcomes, the team can increase its focus on telling stories that clearly link DFZ investments to specific impacts. The DFZ project can also take a more deliberate approach to creating communications tools to effectively convey important lessons about complex issues, such as the combination of public and private sector resources to support biomass businesses.

The Dry Forest Zone (DFZ) project is a five-year collaborative effort to foster an integrated approach to forest stewardship and economic development in eastern Oregon and northern California. The project seeks transformative change in this region through 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 project applies multiple strategies to tackle the DFZ region's interrelated social, ecological, and economic challenges. Two anchors—(Wallowa Resources in Oregon and the Watershed Research and Training Center in California)—develop and disseminate innovation. These organizations each have more than a decade of experience with collaboration and forest-based small business development. They provide assistance and support to emerging collaborative groups and business efforts in adjacent counties and across the zone. The DFZ team also expands and enriches networks across the entire zone. The project operates on the premise that by increasing the density and strength of networks over the five-year project period, it can help build the capacity for transformative change at local, regional, and national scales. Successful implementation of restoration projects and the growth of infrastructure to utilize restoration byproducts and create community benefit will ensure that people working in rural communities can see the fruits of their collaborative labor.

THE MONITORING PROCESS

The DFZ project includes an annual monitoring component to track trends, assess the impacts of team investments, and allow for adaptive learning.¹ In the first year of the project, the team conducted an initial assessment of conditions and key opportunities

and challenges in the zone, which created a baseline for future monitoring.² To gather information for the mid-term report, the team performed integrated monitoring by:

- Tracking team progress toward annual targets
- Documenting team activities and impacts of those activities
- Mapping socioeconomic conditions and federal agency investments
- Analyzing how interorganizational networks in the zone have changed during the first half of this project, and how these relationships are contributing to team accomplishments
- Interviewing thirty partners and key stakeholders across the DFZ to obtain their perspectives on the impacts of our work to date

THIS MID-TERM REPORT

In this report, we synthesize outcomes and impacts of the DFZ project at its halfway point, as well as lessons learned and observations from our experiences. Sections One to Four scan the state of each strategic focus. Although we divide our work into these distinct areas, the strategies we use and the outcomes we achieve are highly interrelated and integrated across these areas.

- Land management and alternative value streams (pp. 3–7)
- Integrated woody biomass utilization (pp. 8–13)
- Community and organizational capacity (pp. 14–16)
- Public policy (pp. 17–18)

We conclude by discussing how the DFZ project is fostering communication and learning while increasing networks in Section Five (pages 19–21). An appendix contains a list of team documents and resources for further information (pages 22–23). At the completion of the DFZ project in 2014, we will produce a comprehensive final report that evaluates our accomplishments and challenges, explores changes in the DFZ over the course of the project, and recommends strategies and actions for building on progress.

Section I: Land management and additional value streams

Much of the forestland in the DFZ is degraded and highly departed from historic conditions, resulting in diminished wildlife habitat and ecosystem services and increased risk from uncharacteristic wildfire. The DFZ project fosters restoration of public and private lands to create socioeconomic benefits in rural communities, and develops additional value streams such as third-party certification of forest management to help support restoration activities. The goal of this strategy is to foster resilient forests that are able to produce a range of benefits including forest products, renewable energy, ecosystem services (carbon sequestration and water quality), wildlife habitat, and recreation.

TRENDS

Capacity building is leading to improved land stewardship and ecological outcomes

The DFZ project is building capacity at both the “deep”/local scale and at regional/network scales. These investments have included extensive technical assistance with collaborative meetings, planning, building skills and knowledge about land management and biomass utilization, project-level multiparty monitoring, and increasing networking and policy engagement opportunities. This raises the profile of community-based organizations and highlights the importance of collaborative organizational capacity in land management. In places where the DFZ proj-

ect has invested, there have been clear and specific positive outcomes:³

- High-capacity organizational structures that are able to facilitate agreement, keep diverse participants engaged, and communicate consistently with Forest Service partners to help them accomplish projects
 - Trained organizational staff and participants that are able to provide critical services such as group facilitation, process design, analysis, strategic planning, project monitoring, and adaptation
- Collaborative efforts that increasingly take their agreements to a landscape scale and plan restoration across larger acreages
- More streamlined planning and implementation on some national forests
- Agreement that has helped national forests avoid costs and delays associated with appeals and litigation
- Broader recognition from local leaders, national forest and regional office staff, decision makers, and others that capacity building will improve land management outcomes

There is institutionalized support for landscape-scale, all-lands planning on national forests

Over the course of the DFZ project, there has been an increase in momentum towards landscape-scale planning of forest restoration projects. Federal agencies and local stakeholders have strong desires to scale up restoration and stewardship activities and create community benefits.

Planning for landscape-scale forest management has taken place both with and without the support of formal Forest Service programs. In 2010, the US Forest Service established the Collaborative Forest Landscape Restoration Program (CFLRP).⁴ This provides formal support and funding for landscape-scale restoration projects based in collaboration and best science. The development of the CFLRP signifies that the US Forest Service and decision makers recognize the crucial need to support and scale up dry forest

Investments in organizational and community capacity result in improved land stewardship and ecological outcomes

Land management outcomes by the numbers

- Number of CFLRP landscapes selected and funded: 3
- Number of acres in proposed CFLRP landscapes: 3.7 million (planning); 461,950 (implementation)
- Number of acres directly treated using DFZ resources: 4,120
- Number of landowners assisted: ~100
- Number of forest products businesses certified: 3

restoration. Specifically, this program acknowledges the importance of collaboration in fostering successful active land management, and the need to link restoration and local economic development. The DFZ team and others have helped bring this need from the ground to decision makers.

Where has the DFZ project built organizational capacity?

- **Northeastern Oregon:** Wallowa County NRAC; Baker County Small Woodland Association; an emerging collaborative on the Wallowa-Whitman National Forest
- **Eastern Oregon:** Blue Mountains Forest Partners; Harney County Restoration Collaborative; Southern Blues CFLRP Coalition
- **Northern California:** Modoc County Partners; emerging collaborative on the Shasta-Trinity National Forest

With the assistance of DFZ team members, national forest staff and stakeholders on the Malheur, Deschutes, Fremont-Winema, and Modoc submitted proposals to the program in Fiscal Years 2010 and 2011 (see Figure 1, page 5). The Klamath National Forest also put forth a proposal in 2011; DFZ team members did not work with this forest on the proposal, but have since helped to secure professional facilitation for their continued forest restoration efforts. In total, these five proposals in the DFZ cover 3.7 million planning acres and 461,950 implementation acres.

To date, the Forest Service has funded CFLRP proposals from stakeholders and staff on the Deschutes (2010), Malheur (2011), and Fremont-Winema (2011) national forests. The success of these proposals shows the importance of having rich collaborative capacity and past success in reaching agreement about forest management. Stakeholders on these forests have also developed the capacity to plan at the landscape scale through strong relationships across the region and active participation in networks such as the Rural Voices for Conservation Coalition

(RVCC). The process of developing landscape-scale plans for the CFLRP has:

- Helped build or strengthen relationships between stakeholders and national forest staff and expand existing networks
- Built local and regional capacity for collaboratively planning, implementing, and monitoring forest restoration through robust, comprehensive management strategies
- Increased regional awareness about what collaboration can accomplish, particularly in the Forest Service's Region 6 office

Outside of the CFLRP effort, there has also been a general trend towards larger-scale collaborative efforts. Many existing collaborative groups are expanding the areas where they work after years of building agreement through smaller project and ranger district-level collaboration. Emergent collaborative groups are also starting with larger projects and landscapes out of the gate. These trends are the result of 1) concerted support and goodwill from land managers, decision makers, and community leaders, who recognize that social agreement and community and organizational capacity are essential to better forest management; and 2) deliberate investments in the capacity of the organizations and groups that help support collaboration; and 3) federal policies (both incentives and directives) that drive towards collaborative restoration of large landscapes (greater than 50,000 acres). These trends are also reflective of general interest and participation in community-based forest management across the inland Northwest.

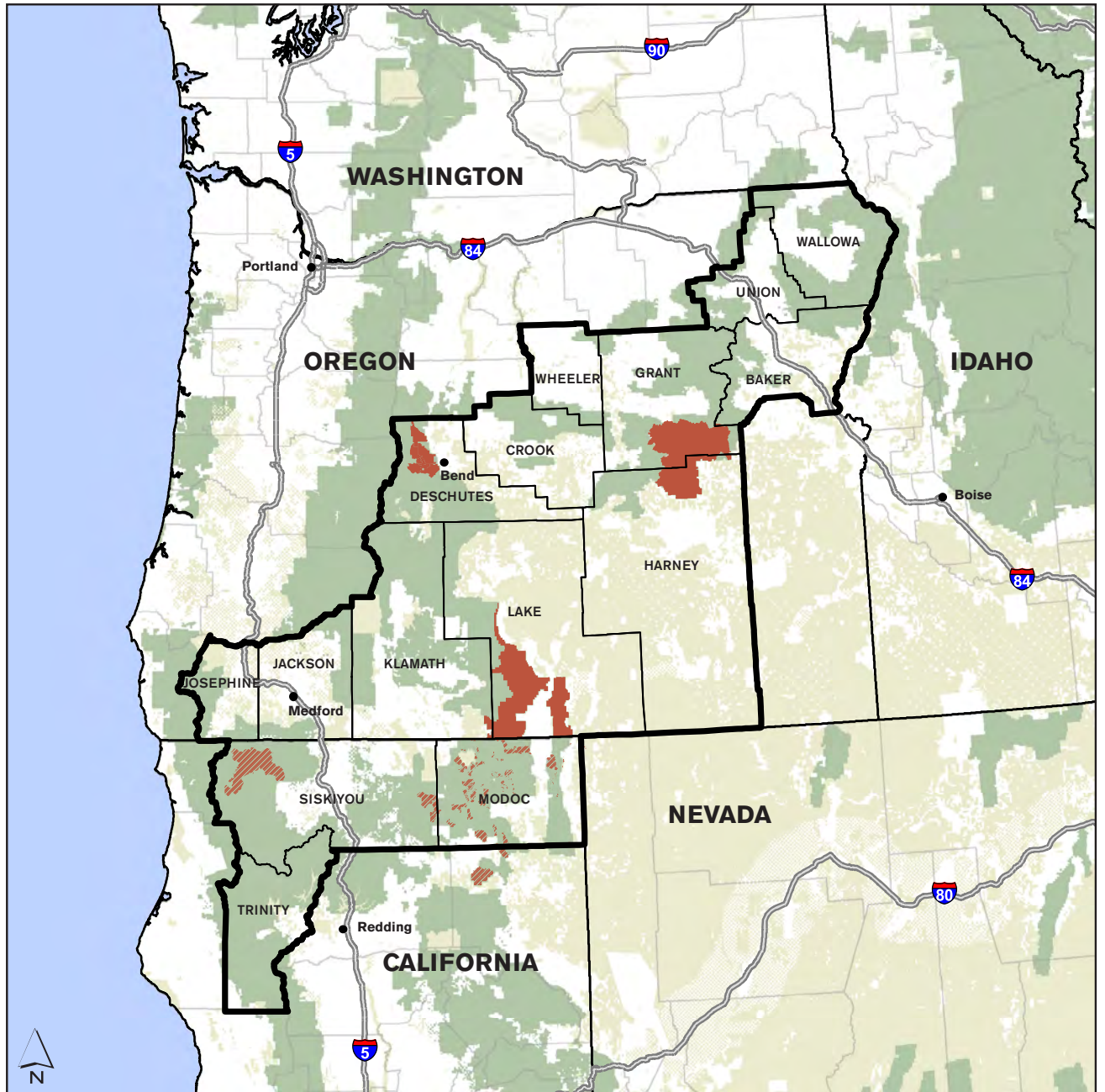
There is evidence that cost-effective forest restoration can produce community economic benefits

The DFZ team is demonstrating how land managers can accomplish forest restoration with biomass removal that is cost effective for the Forest Service and its partners while providing economic benefits for nearby communities. Wallowa Resources and the Watershed Research and Training Center have used agreements with the Forest Service to structure thousands of acres of hazardous fuels reduction and forest restoration to meet community priorities and provide jobs that match community and business capacity. These community-based organizations can help plan and implement projects that put local busi-

FIGURE 1

Collaborative Forest Landscape Restoration proposal areas

Dry Forest Investment Zone



Data source: CFLRP project proposals

0 100 Miles

Collaborative Forest Landscape Restoration proposals (CFLRPs)

In 2011, there were five regionally approved CFLRP proposals in the DFZ. As of February, 2012, the Forest Service has selected proposals on the Malheur, Deschutes, and Fremont-Winema for funding. Many other forests in the DFZ have also collaboratively developed landscape-scale plans.

CFLRPs

- Funded CFLRP
- Unfunded CFLRP

Interstates

BLM lands

U.S. Forest Service Lands

nesses and people to work, and that provide training and employment opportunities for local youth.

Specifically, Wallowa Resources has coordinated mechanical treatment on the Wallowa-Whitman National Forest to deliberately produce biomass removal opportunities and support local wood products infrastructure.⁵ Sustainable Northwest has helped to regionally disseminate this approach to collaborative efforts on the Malheur National Forest. These efforts have yielded important lessons about how fuels reduction and biomass removal can achieve the integrated objectives of ecological improvement, cost efficacy, and community benefit:

- Strong communication and planning between the Forest Service, participating partners, contractors, and biomass businesses can help all parties understand:
 - Operating costs and equipment capabilities of local contractors
 - Supply specifications of biomass businesses
- Single entry biomass removal treatments with commercial sawlog components can manage whole stands for suites of values that offset costs. For example, sawlog sales can help cover road and haul costs for biomass removal
- Stewardship contracting can:
 - Combine the removal of high and low value material and contractually require the removal of low-value material
 - Reduce reliance on appropriated budgets
 - Support local contractors through best value criteria
 - Reduce site-level ecological impacts and increase administrative efficiencies

The Forest Service and stakeholders are adopting stewardship contracting to accomplish integrated restoration

The DFZ team and partners have encouraged the use of stewardship contracting where it may be appropriate, enhancing benefits for the Forest Service and communities. For example, Sustainable Northwest helped local leaders advocate for greater flexibility in applying stewardship contracts on the Malheur National Forest to create more opportunities for local businesses. Sustainable Northwest's connections to

the Forest Service's Region 6 office helped the regional office understand the Malheur's local business needs, and allow for flexible use of stewardship authority to suit the local context. Region 5 leaders and national forests are also attempting to explore the full range of stewardship flexibilities to fit local needs. In addition, BLM leaders in the DFZ are developing stronger interests in stewardship contracting with local support in O&C counties.

Landowners have growing interest in working together to seek additional value streams

Private nonindustrial forestland owners are increasingly working together and with intermediary partners to address shared concerns such as wildfire risk, watershed degradation, upland juniper encroachment, declining timber values and limited access to additional value streams. The DFZ team has helped several small landowner groups consider options for adding value streams by providing technical assistance and networking opportunities. Examples include the Blue Mountain Forest Cooperative, which was formed by a group of landowners in Baker County to explore various mechanisms collectively to increase market value for harvested timber.

Farm Bill programs and intermediary organizations are helping landowners conserve their land for diverse ecological values

Despite high levels of interest, markets for ecosystem services remain fairly undeveloped. The DFZ project is exploring existing and emerging PES programs and policies, and factors necessary to make these opportunities accessible to small forest and ranch owners.⁶ There are few examples of market-based models that work at this scale. Many of these landowners currently use Farm Bill conservation programs to accomplish stewardship and restoration activities. These programs provide important incentives and assistance, but there can be barriers to landowner understanding and access. Intermediary organizations, such as nonprofits, often help landowners connect to conservation program opportunities through a range of technical assistance roles. This suggests that landowner as well as local organizational capacity will continue to be crucial to future development and adoption of models for payments for ecosystem services.

There is growing interest and knowledge about how to retain and create local working forests in eastern Oregon

The DFZ team has examined how working forestlands may generate local value streams and foster local capacity. Through this work, the DFZ team has learned that there may be many necessary partners in local ownership, including community-based organizations, land trusts, county governments, and state governments. The appropriate ownership and management model for a given land parcel will vary in size, values to be managed, and interest and capacity of local organizations and governments. Local ownership requires available conservation money to buy down the portion that timber and ecosystem service values will pay back; a management strategy to generate and reinvest in additional land values; and a high-capacity intermediary to facilitate acquisition process and guide implementation.

CHALLENGES TO DFZ LANDS AND VALUE STREAMS STRATEGIES

The ability of the DFZ project to foster public land stewardship may face future challenges if federal agency budgets continue to decline. However, to date, CFLRP has received maximum allowable funding, which is promising for the ability of these projects to achieve landscape-scale restoration.

Another challenge may be the community and organizational capacity to implement CFLRP projects. CLFRP projects in the DFZ are built on years of collaboration and capacity building. Taking this work to the landscape scale may require sustained or increased investments in capacity.

In addition, since CFLRP projects in the zone have been built on years of public lands collaboration, CFLRP participants may not be sure how to leverage relationships and resources with private landowners and the Natural Resources Conservation Service (NRCS) to work across all ownerships as directed in the Collaborative Forest Landscape Restoration Act. Intermediary organizations could assist with this; however, DFZ partners have typically had limited private lands stewardship networks, so more relationship-building and outreach would be necessary



to increase the DFZ team's capacity to assist with all-lands approaches.

There are also challenges to realizing additional value streams on private lands in the zone. Continued poor market conditions and a lack of regulatory mandates make it difficult for small private forestland owners to access additional revenue sources such as payments for ecosystem services and certification. With poor market conditions, many are unable to afford the costs of certification and cannot realize any additional market access to sale-certified logs. Interest in these additional value streams has remained high, and successful examples of implementation and evidence of benefits to landowners could help these strategies gain momentum. There is a need to explore the kinds of additional value streams that can benefit dry forest landowners.

Section II: Integrated woody biomass utilization

The DFZ project seeks to diversify markets for woody biomass products, support value-added biomass and wood products businesses, and increase use of wood-based energy, particularly with a focus on thermal energy uses. The zone is home to a growing number of institutional facilities (i.e. schools and hospitals) and businesses that utilize woody biomass (see Figure 2, page 9). The DFZ team has helped broadly accelerate woody biomass utilization by simultaneously working on several types of projects at different scales: thermal energy in schools, other community facilities, and municipal heating districts; integrated utilization campuses that include production of densified fuels; small combined heat and power; clusters of energy producers and users; and regional and state networks to support biomass policies and programs.

TRENDS

Use of wood-based heat is increasing, and clusters of producers and consumers are emerging

Since the start of the DFZ project, the number of thermal biomass boilers in use in Oregon has increased from two to 12. The DFZ team has helped to increase thermal energy use by offering feasibility assessments, boiler scans, and technical assistance that is accessible to lower-income, small communities interested in locally-scaled facilities. These kinds of activities have been successful because they

are feasible, timely, and fit well with local desires to support forest stewardship and wood products processing.

In northeastern Oregon, Wallowa Resources has completed several feasibility studies and has plans to conduct analyses for other community facilities in a three-county area. They are beginning to explore opportunities for larger thermal energy consumers (e.g. Eastern Oregon University in La Grande). Wallowa Resources has also been working with the Enterprise School to understand and overcome the challenges with their newly installed boiler system.

Addressing these issues has been important for public perception of wood-based thermal energy in the region, and to realizing the full cost-savings potential. There will be opportunities to increase thermal energy use in the future with the development of the integrated biomass campus and supply of densified fuel products in Wallowa County.

In eastern Oregon, several biomass thermal end-users have emerged. Prior to the DFZ project, the Harney County Hospital and Burns High School had retrofitted their heat systems to thermal biomass boilers. The success of these retrofits has since encouraged further development of biomass thermal capacity in Grant and Harney counties. In 2010, both the Grant County Airport and the Blue Mountains Hospital installed wood pellet boilers. The success of these retrofits has since encouraged further development of wood-based thermal installations in Grant County. These facilities are using pellets from Malheur Lumber, creating a regional cluster of biomass producers and consumers.

In central Oregon, there has been an increase in scale of thermal energy consumers. Central Oregon Intergovernmental Council (COIC) and Sustainable Northwest have provided technical assistance to project champions at Mt. Bachelor Resort, the City of Sisters, and Redmond Parks and Recreation Depart-

Accelerating woody biomass utilization requires simultaneous work on several types of projects at different points in the supply chain

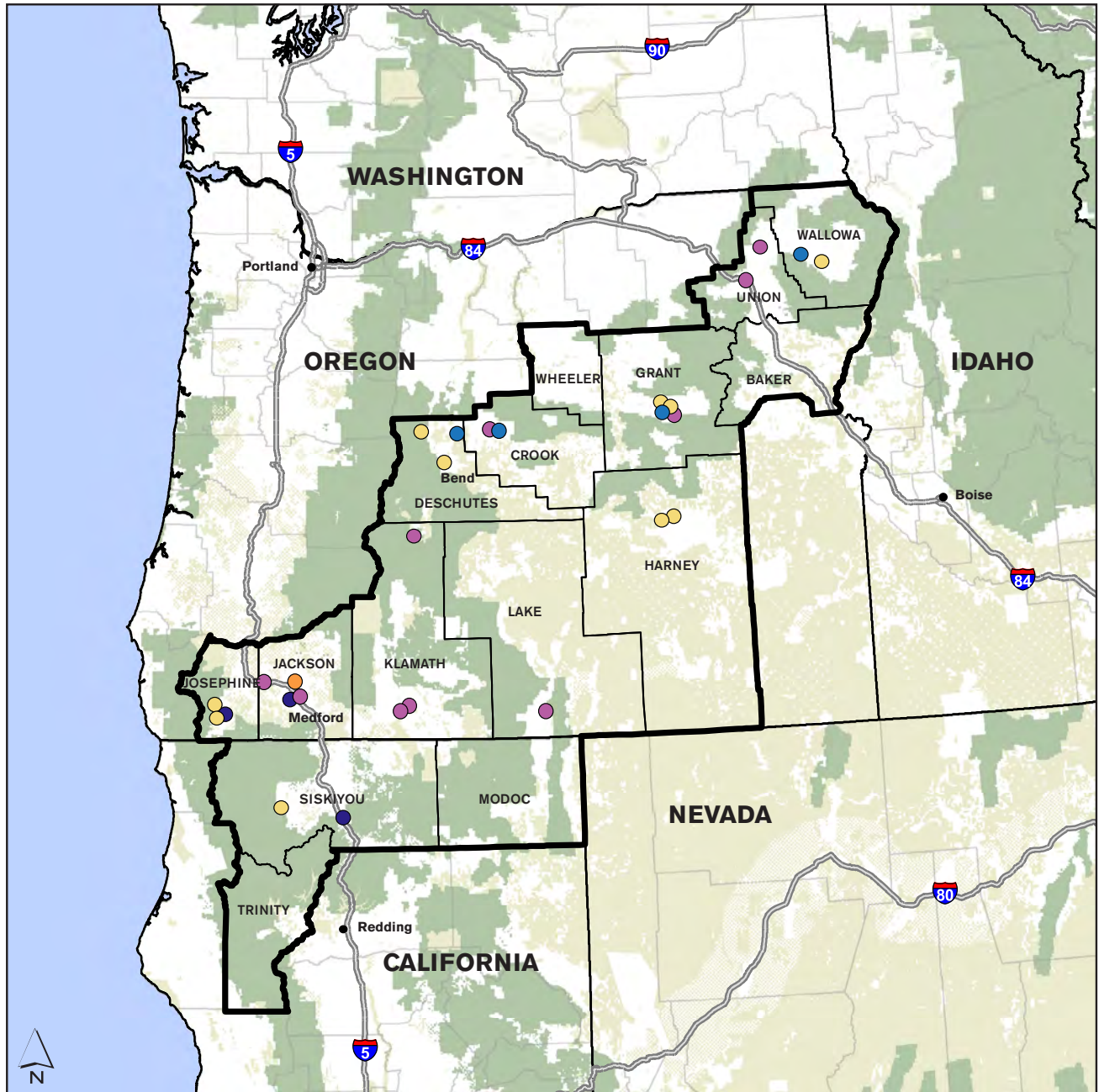
Integrated biomass utilization outcomes by the numbers

- Number of woody biomass businesses developed or retained: 7
- Number of locally-owned new businesses: 6.5
- Number of new or planned heat users: 20
- Number of feasibility studies completed for new heating systems: 14

FIGURE 2

Wood-to-energy market

Dry Forest Investment Zone



Data source: Oregon Department of Energy, Sustainable Northwest, EWP

Biomass facilities

The DFZ has diverse infrastructure for producing and utilizing woody biomass from forest restoration. Clusters of biomass energy producers and users have emerged across the region.

Biomass facility type

- CHP
- Densified fuels
- Electricity
- Space heat
- Process heat

0 100 Miles

Interstates

BLM lands

U.S. Forest Service Lands

Feasibility studies conducted through the DFZ project, 2010–12

- **Northeastern Oregon:** Imbler School, Wallowa School, Wallowa Resources Stewardship Center, Eastern Oregon University (Zabel Hall), Wallowa County Fairgrounds, City of Enterprise, Enterprise Public Library, US Forest Service Wallowa Mountains Office, Wallowa County Courthouse, Sam-O-Swim Center, Baker City Hall, Baker City Shop and Warehouse, Baker County Courthouse
- **Central Oregon:** Mt. Bachelor, Redmond Parks and Recreation Department, City of Sisters
- **Northern California:** Devil's Garden Conservation Camp, Trinity Conservation Camp, City of Alturas, City of Weaverville

ment to explore a district heating project. Interest in scaling up thermal energy in this region has grown as smaller projects, such as the Sisters High School boiler conversion, have been accomplished.

In northern California, there are no operational examples of thermal biomass energy use, and there is a need and opportunity to pioneer this model for the region and state of California. The Watershed Center partnered with the northwest California RC&D to complete feasibility studies for conservation camps and district heating systems in Trinity and Modoc counties. These studies found that biomass systems at these conservation camps could provide energy savings, and that district systems in both Weaverville and Alturas could serve as thermal biomass infrastructure. The Watershed Center has worked with CAL FIRE and other partners to raise funds for an engineering study at two conservation camps, and for a district system for the City of Alturas. Momentum on these projects has built as the Watershed Center has garnered interest in this project from several state agencies, at state-level Forest Biomass Working Group, and other regional stakeholders.

Through these feasibility studies and successful projects, the DFZ team has found that future boiler conversions and use of thermal biomass may be most feasible where there are institutional users with larger-scale energy needs. For example, the relatively small energy consumption at some community facilities will result in longer payback periods for retrofits to wood-based fuels. Institutions with larger and more constant energy needs, such as prisons and hospitals where there is a 24/7 demand for hot water, present opportunities at a more commercial scale. Working at a range of scales is important to market development for wood-based fuels. Scale is also an important consideration for market development. Currently, pellet production in Oregon far exceeds the needs of existing thermal energy users. This warrants an integrated approach to market development focused on developing both institutional and commercial scale consumers.

Interest in distributed, integrated utilization facilities is growing

The DFZ team and partners have helped accelerate knowledge and innovation around smaller-scaled, integrated biomass facilities that generate a range of products. These models can diversify revenue streams from forest restoration activities and are often more appropriately sized in rural communities. Many local leaders see community-scaled, integrated facilities as appropriately sized to their forest restoration needs, within the “zone of agreement” of forest collaborative groups, and as part of their community’s resilience.

Despite poor economic conditions, the DFZ team and partners have helped support four successful biomass businesses by connecting entrepreneurs across the supply chain, and sharing knowledge and innovations as they have emerged. Also, as projects develop on the ground, the DFZ team has cultivated “local champions”, such as county commissioners, to share stories of success and increase local interest in further developments.

In northeastern Oregon, Wallowa Resources has shepherded an effort with multiple partners and have begun construction on the Integrated Biomass

Energy Campus (IBEC). Wallowa Resources facilitated a land acquisition with county government to site the facility, arranged for diverse businesses including post and pole, bundled firewood, densified firelog, and log sorting/merchandizing to operate on the site, and obtained financing for a combined heat and power system. Wallowa Resources also signed a memorandum of understanding with the Wallowa-Whitman National Forest in April 2010 to help ensure more stable supplies of biomass from federal lands for businesses co-locating at the IBEC site.⁷

In eastern Oregon, Malheur Lumber in John Day began operating a 22,000 ton-per-year pellet system at its sawmill in partnership with Bear Mountain Forest Products and A3 Energy Partners, who respectively provide marketing and engineering assistance.⁸ Sustainable Northwest connected these business partners. DFZ assistance to the Blue Mountains Forest Partners, a local collaborative partner, was also instrumental in this effort as the group provided support to the establishment of the new production facility. Malheur Lumber also fires a boiler to provide process heat (steam) to their dry kilns. This integration and product diversification will help Malheur Lumber increase efficiencies and reduce costs.

In central Oregon, Quicksilver Contracting of Deschutes County has continued to develop plans for a small-diameter utilization site in La Pine where multiple businesses can co-locate to produce a range of products, but financing at key steps of this development has inhibited the project. COIC has worked with Quicksilver to try to overcome this obstacle.

In northern California, the Watershed Center is currently unable to operate its small diameter facility due to supply limitations and is investigating other business options, including chipping, mulch, firewood and compost. Connections with the DFZ team and partners help the Watershed Center continue to explore new options.

A blend of networks and leaders has helped foster these investments in integrated biomass infrastructure. The work of the DFZ team and partners has

shown that there are key factors that may advance initial investment in biomass utilization businesses and thermal energy use. These included:

- A broad definition of biomass utilization that includes a range of products and end uses
- Private sector and community leaders who act as sponsors, enhance market connections, and set an example
- Public sector leadership and support
- Proof of concept and successful examples
- A strong planning foundation that includes design work, financial plans, and contractual relationships with business partners
- A network of partners including county governments, local businesses, and federal agencies that is able to collectively leverage resources and problem-solve when circumstances change
- Capacity to fundraise, manage partnerships, and administer a complex process of supply chain and market development and financing (in the case of Wallowa County, this was found in Wallowa Resources)
- The re-use and re-building of existing infrastructure to “rebuild,” rather than starting with new infrastructure

Given these factors, different strategies tailored to maximize investment in different places may be able to create the greatest leverage appropriate to local conditions.

The profile and density of networks around biomass utilization are growing

The local adoption of community-scaled and thermal energy biomass models also relies on broader networks that can share knowledge and cultivate support from investors, decision makers, and other partners. The DFZ team has helped develop and densify these networks in several ways.

First, DFZ team leaders and partners have helped convene state-level biomass working groups, which are an important new scale of organization. State-level groups are able to convene partners across diverse landscapes, and bring rural voices to state agencies and decision makers. Sustainable North-

west has been instrumental in serving as a co-chair of the Oregon Forest Biomass Working Group and is facilitating the development of a state-level biomass utilization strategy. The Oregon working group aims to tier this work into the Governor's overall energy planning process and tee up recommendations for the upcoming 2013 Legislative Session.

In northern California, the Watershed Center has helped convene regional and state-level groups around biomass issues. The North Coast Integrated Regional Water Management Plan (NCIRWMP) is

a collaboration of seven counties, including Trinity, Siskiyou and Modoc Counties, that seeks to restore and protect watersheds in northern California. The Watershed Center has played an active role in helping NCIRWMP explore and report on opportunities for restoration-based biomass development. The presence of this group shows growing regional agreement that collective solutions to wildfire risk, watershed health, and economic development problems are necessary. At the state level, the Watershed Center has helped convene a working group of state and federal agencies and forest stakeholders to learn



about biomass utilization and advocate for state biomass policies. This ad hoc forest biomass working group is building dialogue between entities that may not typically work together, such as CAL FIRE, the California Energy Commission, the Forest Service and other agencies, public utilities, private landowners, and local governments. The California biomass working group and NCIRWMP also both provide opportunities for a shared, strong voice about the importance of biomass energy in northern California.

CHALLENGES TO DFZ BIOMASS STRATEGIES

Despite promising developments in biomass utilization, there have been several challenges. First, the ongoing recession and poor economic climate continue to restrict access to capital to initiate and implement projects. The focus on near-term budget restrictions has prevented public sector projects from taking advantage of wood-based heat solutions that provide long-term savings. In many cases, community facilities owners and managers are not in a position to currently take on new debt. For larger scale projects, most private sector equity partners seek a rate of return that small businesses or biomass utilization project economics cannot offer. The DFZ team has engaged with community development banks like Shorebank Enterprise Cascadia, the Northern California Community Loan Fund, and the Rural Community Assistant Corporation (California), all community development banks, about offering loans and services to borrowers who may traditionally have difficulty accessing capital. However, these types of loans carry higher interest rates than some projects can bear in the current economic climate. Some other options for capital that do exist, such as tax credits and bond financing, but do not pay until after a project is completed, so the obstacle of up-front or construction capital also remains a challenge. There may be opportunities to work more closely with entities such as the Northwest Community Capital Fund, which offers asset-based loans to projects in socioeconomically vulnerable communities. This program has assisted with development of the IBEC in Wallowa County.

In addition, some capacity gaps remain across the zone in finding financing for biomass utilization

projects. There is a need to continue to provide site-specific technical assistance with financing and market development. This kind of assistance requires extensive, consistent capacity and dedicated staff time. In addition, many investors, economic development service providers, and some stakeholders in the zone have focused primarily on large-scale energy generation projects, which have been difficult to launch due to permitting, financing, supply, and public perceptions issues. More outreach and support for financing community-scaled facilities, which may be more appropriately sized and attainable, is needed.

Further, there is strong interest in, but somewhat slow development of, clusters of biomass energy producers and users. Currently, there is an oversupply of densified fuels from DFZ producers in contrast to weak existing market demand, both regionally and nationally. Growth in thermal energy adoption among institutional users can help increase demand, but it takes time to find interested parties, assess feasibility, arrange financing, and complete retrofitting or construction. In addition, cluster development requires concerted investment in multiple sectors in the same region. This could include residential-scale investments in home heating, which has not been part of the DFZ strategy to date. Increased involvement in all sectors and scales of thermal energy would require deliberate expansion of relationships and networks. It would also require more effort to articulate the “anatomy” of thermal energy projects and highlight the combination of public and private investments that make them possible.

Finally, there is not a consistently robust policy environment to incent and support biomass infrastructure. Currently, national energy policies and federal program delivery do not include or prioritize thermal energy. State-level support for biomass utilization also is crucial. Although state governments have had to eliminate or reduce public investment in renewable energy projects due to difficult budget climates, there is strong interest from the governors of both Oregon and California in biomass energy and this presents opportunities to develop state policies and programs that support biomass utilization.

Section III: Community and organizational capacity building

The capacity to integrate forest restoration and economic development is critical to creating systemic, durable change in the DFZ. Capacity is the collective ability to respond to social, economic, and environmental stresses, and create and take advantage of opportunities. Community-based organizations (CBOs) and collaborative groups are crucial sources of capacity in the DFZ (see Figure 3, page 15). Although CBOs have actualized significant accomplishments in their communities and on the ground, sustaining their own organizational structure and functions can pose challenges. In response, the DFZ project has deliberately built local organizational capacity and leadership through sustained place-based investments in specific locations throughout the DFZ. The project has also developed a technical assistance program to support and network organizations across the region. The end result is increased awareness of the need for capacity building and its benefits among federal agencies, funders, and stakeholders. The goal of the DFZ project is to foster the capacity of organizations, communities, and businesses to play key roles in forest restoration, stewardship, and economic development.

Capacity-building outcomes by the numbers

- Number of DFZ project partners: approximately 60
- Number of organizations served through capacity-building program: 12
- Number of new collaborative groups: 5 plus 2 emerging

Building core organizational capacities and strong networks is crucial to the future resilience of DFZ communities

TRENDS

Community-based organizations are addressing common capacity challenges

The DFZ project has been able to obtain support and create new opportunities to build community-based organizational capacity by assessing capacity needs and helping create two new programs to build and fund capacity-related activities. Capacity needs common across the zone included funding diversification, stronger financial systems and support for administrative overhead, protocols for effective and transparent decision making, communicating mission, strategies and impact to external partners and community members, recruiting and engaging board members, and formal transition planning.

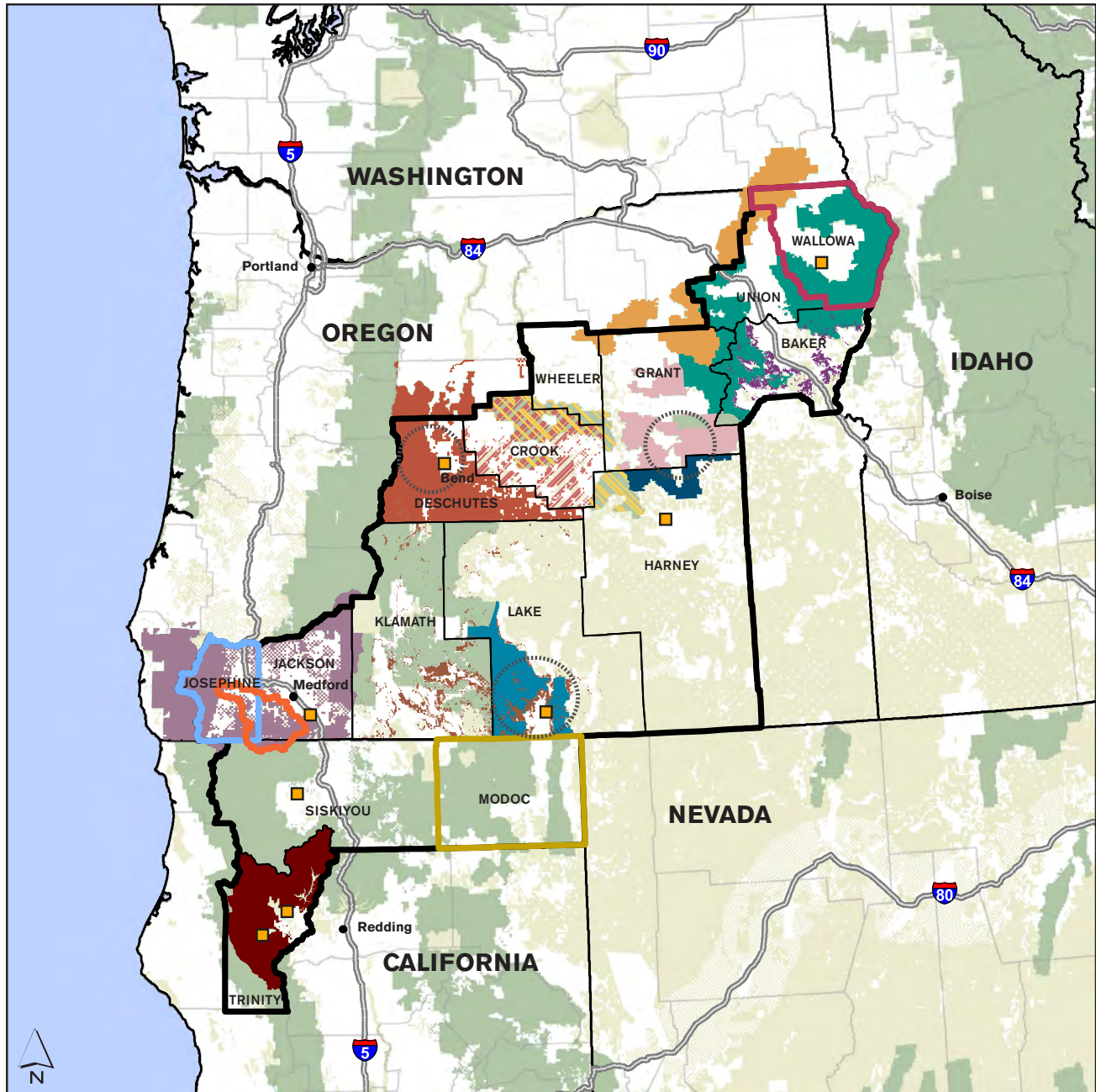
The DFZ team created a unique program of technical assistance and networking opportunities to address the capacity needs of twelve organizations.⁹ Sustainable Northwest also encouraged the formation of a community capacity grant program in Forest Service Region 6. This program fills a crucial gap by providing funds dedicated to capacity, which is rarely possible with programmatic funding. This program offers grants from \$5,000 to \$24,000, which are attainable and scaled to the needs of small CBOs.

The presence of programs to deliberately fund and build capacity has had significant impacts. It has allowed organizations that tend to be small, resource-constrained, and isolated to come together and work on common challenges. Use of meetings and webinars in the capacity-building program have created space to build cross-organizational relationships and networks, and there have also been opportunities for one-on-one assistance tailored to local needs and contexts. The DFZ capacity-building program has resulted in the following mid-term outcomes:

FIGURE 3

Community-based natural resource management organizations and collaborative capacity

Dry Forest Investment Zone



Data Source: EWP

0 100 Miles

- | | | | | |
|---|---|--|--|---|
| Public lands collaboratives | | All lands collaboratives | | Interstates
BLM lands
U.S. Forest Service Lands |
| <ul style="list-style-type: none"> Blue Mountains Forest Partners Central Oregon Partnerships for Wildlife Risk Reduction Crook County Natural Resources Committee Harney County Restoration Collaborative Lakeview Stewardship Group Ochoco Forest Restoration Collaborative (emerging) Southern Oregon Forest Restoration Collaborative Trinity Stewardship Group (emerging) Umatilla Forest Collaborative Group Wallowa-Whitman National Forest Collaborative (emerging) | <ul style="list-style-type: none"> Applegate Partnership Josephine County Stewardship Group Modoc County Partners Wallowa County NRAC | Private nonindustrial lands collaboratives <ul style="list-style-type: none"> Baker County Small Woodland Owners Klamath-Lake Forest Health Partnership | | |
| | <ul style="list-style-type: none"> CFLR project areas Community-based natural resource organizations | | | |

- *More focus and clarity about programs of work:* several local groups have gained focus, developed clear programs of work and goals, and found more space for agreement with the consistent technical assistance of an intermediary.
- *Stronger grantwriting, development, and fundraising skills:* Participants in the program are increasingly able to articulate their visions and values to grantors and funders; for example, three CFLRP proposals from DFZ partnerships and partner organizations have been successfully funded.
- *Diffusion of knowledge about biomass utilization options:* The DFZ team has disseminated knowledge about biomass technology, markets, regulations, and supply to many partners in the zone. For example, the Watershed Center has helped Modoc County leaders become more knowledgeable and strategic about options for building their local resilience.

Intermediary organizations are refining their roles as technical assistance providers

Through the DFZ project, team organizations have expanded their technical assistance services to new locations and issues. As a result, the team has learned important lessons about intermediary efficacy. An intermediary providing deep place-based investments may find it difficult to find time or resources to assist a large number of organizations. It may be more strategic and useful to partners to deliver in-depth technical assistance in a limited number of places. It takes at least one dedicated staff person on the ground to build initial relationships, develop understanding of local needs, and provide consistency. Over time, an intermediary organization can build local relationships beyond a single staff person to multiple staff people as needed and appropriate. For example, the Watershed Center has regularly invested the time of one staff person to provide core support in Modoc County, and has occasionally brought in one to two other staff to augment this, depending on the issues and needs at hand.

CHALLENGES TO DFZ CAPACITY-BUILDING STRATEGIES

Capacity lies at the core of the DFZ team and partners' ability to foster integrated forest restoration and economic development outcomes. Yet, at a crucial moment when there is growing recognition of the importance of capacity, there are limited and inconsistent resources to sustain it. There has been continuing economic and political uncertainty, and transitions in priorities of foundations and funders. Community-based organizations and others are responding by seeking new ways to demonstrate the impacts of their work, particularly their aggregate impacts across landscapes; and considering other models such as for-profit venture and fee-for-service arrangements.

A further challenge to capacity building for sustainable forest stewardship is that there are limited networks between economic development and land management entities.¹⁰ Traditional sources of economic development funding, such as USDA Rural Development or Economic Development Administration grants, tend to come to service providers such as economic development districts or county economic development groups. However, these providers do not always understand or address needs for forest and natural resource-based economic development in their local areas. They may not have strong or consistent relationships with land managers such as the Forest Service or BLM. Community-based organizations and other intermediaries have often served as this linkage, but their capacity to continue this important bridging role is stretched. Addressing these gaps and aligning economic development and land management entities is a ripe opportunity for the remainder of the DFZ project. The DFZ project could build a deeper understanding of how rural economic development service provision operates, and identify more clearly where increased natural resource-based investments and business resources may be feasible.

Section IV: Public policy

The Dry Forest Zone is 68 percent public land. Policies that guide national forest and BLM land management shape constraints and opportunities that zone communities face in sustaining their forests and growing prosperous rural economies. State-level legislation and programs are also important in areas such as forest practices and biomass utilization incentives. Despite political and economic uncertainty, leaders and stakeholders from the DFZ continued to advance common-ground solutions to shared challenges in public land management, renewable energy, and community capacity. The DFZ team has worked with partners in the Rural Voices for Conservation Coalition (RVCC) to track the implications of proposed policies, budgets, and policy changes for the zone, and to engage policy makers in understanding the priorities and needs of rural public lands communities. RVCC is a broad coalition of stakeholders that promotes conservation and economic development in the rural West.

TRENDS

Federal land management policies and programs increasingly promote integrated restoration

Due in part to the efforts of the DFZ team and partners--particularly the public lands working group of RVCC--the Forest Service has a growing focus on integrated restoration and community benefit. Traditionally, "silos" within the agency structure and its budgets have inhibited flexibility in using appropriated funds or other resources. This has made it difficult for the Forest Service and partners to integrate restoration and economic development, and track their aggregate impacts. President Obama's Fiscal Year 2012 budget emphasized integrated restoration by creating an Integrated Resource Restoration line

item, requesting full funding for the Collaborative Forest Landscape Restoration Program, and developing a Land Management Planning, Assessment and Monitoring line item.

Decision makers and land managers increasingly understand the need for policies that support integrated restoration and community economic development

The Forest Service has also developed a new approach to planning and implementing watershed restoration that focuses on entire watersheds and outcomes, rather than outputs (the Watershed Condition Class framework). DFZ leaders have built on the work of RVCC and helped the Forest Service incorporate socioeconomic considerations and performance measures into the implementation of this framework.¹¹ The Forest Service is also revising its existing land and resource management planning rules, which will require all national forests to create new forest plans. Sustainable Northwest provided assistance to seven rural community leaders to submit applications to a federal committee to advise the planning rule implementation process and continue to track this rule; one of those individuals lives within the DFZ. It is expected that the Administration will appoint committee members in June 2012.

Federal policy support remains crucial to renewable energy development, particularly woody biomass

Federal and state policy programs and incentives are necessary to foster increased biomass utilization across the zone. DFZ leaders have written, presented, and discussed various policy mechanisms to support this end with the Oregon congressional delegation and other biomass/thermal champions in Washington, D.C. To date, the political climate has proved difficult to bring new ideas to fruition. However, through the efforts of DFZ leadership in partnership with other advocacy efforts, biomass thermal was included in the initial draft of the Clean Energy Standard released by the Senate Energy and Natural Resources Committee. The Watershed Center has worked with Senator Boxer (California) on appropriations for the Community Wood Energy Program and other thermal biomass provisions. The RVCC Biomass Utilization working group has recommended that a suite of existing programs and budgets be adjusted to support the increased use of

Public policy outcomes by the numbers

- Increased engagement of DFZ leaders in policy: 17 DFZ-based organizations in RVCC working groups and 19 attended 2012 APM

woody biomass, including extending and modification of existing federal tax credits, funding for the Woody Biomass Utilization Grant program, the Community Wood Energy Program, Fuels for Schools; and the establishment of a revolving loan fund that would catalyze retrofits of boilers at institutional buildings.

Policy capacity and networks in the DFZ are growing in density and ability to serve diverse rural interests

The RVCC network has led to several positive impacts for the DFZ team and partners in relation to coordination on national policy issues. It has allowed leaders from isolated, often disconnected communities to share common challenges and goals. It has also created a stronger collective voice around public lands management and other issues important in the West. Much of the capacity to network around policy in the DFZ is found in RVCC. Part of the DFZ strategy has been to bring zone entities to RVCC to provide a venue for networking, partnerships, and shared policy advocacy. There has been an increase in zone participation in RVCC, particularly among organizations or individuals who have attended field tours or site visits with the DFZ team.

At the state level, the DFZ team and partners have also played key roles in building policy networks. For example, the Watershed Center has taken leadership in the California Biomass Working Group to articulate the public benefits of land management and biomass utilization to state decision makers, agencies, and energy commissions. Sustainable Northwest has actively participated in Oregon's Federal Forests Advisory Committee, where they have also helped state and other leaders understand public land management issues. The DFZ strategy has helped these groups capture complex information and policy needs, and share them effectively.

The DFZ project has provided an effective story and package for decision makers to understand integrated restoration, land stewardship, and economic development

The DFZ project has allowed the team organizations to synthesize the majority of their programs of work and package them as a story for policy-makers. Because the DFZ project unites the goals and programs of work of team organizations and partners across scales and geographies, it has been effective at at-

tracting interest from federal agency leadership and the White House. It has offered a compelling umbrella under which multiple entities can link and present common goals. The Obama Administration has been interested and supportive of these goals. However, it will be essential to build on existing relationships and create new ones in D.C. to keep this interest alive and capture current momentum.

CHALLENGES TO DFZ POLICY STRATEGIES

In the face of continued political and economic uncertainty, there are several challenges to DFZ policy strategies. First, although the funding of CFLRP in 2010 recognizes collaborative capacity for sustainable forest stewardship, this program primarily draws off the existing Wildland Fire and Hazardous Fuels budget line item, rather than providing a new resource. National forests and their partners in the zone may face challenges in accomplishing their programs of work if resources for fuels reduction and forest stewardship decline.

A second challenge is that stewardship contracting, a tool that has promoted restoration-based economic development, is at risk. With the 10-year stewardship authority expiring in Fiscal Year 2013, Congress will need to vote on reauthorization in Fiscal Year 2012. A few interest groups have suggested eliminating best value criteria or otherwise weakening the bill. In addition, stewardship reauthorization has been entangled with the challenges associated with the Secure Rural Schools and Community Self-Determination Act, as some interest groups are attempting to incorporate receipts retained from stewardship into payments to counties. RVCC has demonstrated the positive outcomes of stewardship by providing vignettes about stewardship successes to Congress and the Forest Service's Washington office.

Further challenges that are discussed earlier in this report include the lack of policy support for other key components of integrated forest stewardship and economic development. For example, there are no policies that incent thermal energy. There are few programs that provide direct resources for organizational and community-capacity building. The DFZ project can continue to highlight the need for policy tools that can support the many interrelated dimensions to realizing a forest-based economic development strategy.

Section V: Communicating and learning across the DFZ

The broad goal of the DFZ project is to foster integrated restoration and forest-based economic development by expanding and enriching relationships and networks. This section explores the impacts, strategies and lessons learned at the mid-term of the project; and challenges associated with building relationships and networks to date.

IMPACTS OF ENRICHING AND EXPANDING NETWORKS

Small businesses are able to diversify their relationships with less risk

Small forest products and biomass businesses often face difficulty making connections, accessing to capital, and enduring risk in expansion or diversification. Supportive relationships with intermediary organizations and other businesses are helping ameliorate these challenges. For example, biomass businesses in eastern Oregon have been able to contact other businesses in the DFZ to explore equipment leasing options without facing high risk or commitments. With stronger networks, there are also increased opportunities to match business supply needs and markets. Finally, the DFZ project has shown how intermediary partners can build multiple relationships between public and private entities to help get an integrated biomass campus off the ground.

Northern California forest communities are growing a shared voice

New relationships that the Watershed Center has built across northern California have helped forest-based communities there develop a stronger shared voice on biomass and policy issues. The presence of new networks is helping northern California, which often receives less attention and resources than other areas, to be heard in state administration and policy.

Decision leaders and funders increasingly understand the interrelation of organizational capacity, forest restoration, and successful biomass businesses

Partnerships with the DFZ project have raised the profile of several CBOs and garner increased interest from funders and decision makers. For example, Sustainable Northwest led a field tour in Grant County, Oregon, with leaders from the White House's



Council on Environmental Quality, which helped showcase the important relationship between local organizational capacity, active public land management, and successful biomass businesses for national leaders.

STRATEGIES AND LESSONS LEARNED ABOUT NETWORK BUILDING

Regional diffusion from anchors requires ripe conditions

Through the DFZ project, the anchor organizations (Wallowa Resources and the Watershed Center) have expanded and deepened their relationships in adjacent counties. For each organization, there have been some places that have a clear need for assistance and investment, and others where it has been less clear what is needed or how to engage. These experiences have helped the DFZ team learn that regional diffusion and networks may be most useful and applicable where there is:

- Common ground, e.g. isolation from major transportation corridors and markets
- An existing restoration project or plan to focus efforts
- Receptive and interested leaders, such as county commissioners
- The space for another organization to participate and add value to local activities

These regional relationships may be most effective if the anchors strategically bring in selected components of their models that are most useful to new partners. In addition, partners appreciate learning

not only about innovations, but also about paths to avoid and ways to save time in pursuing their visions. Finally, there has been strong interest in learning from the anchors in many places that are not adjacent to their counties, or from different landscapes. This suggests that geography may not always be a significant determinant of need for regional diffusion, and that broader networks that form around common interests are important. Diffusing requires both “going deep” to build local capacity in the zone, and expanding to entities and networks that may be outside the zone to bring in new capacities.

Networks can help organizations be opportunistic and strategic

In response to shifting conditions and opportunities, DFZ team organizations have developed new networks and deepened existing connections. For example, the Watershed Center has learned that specific issues in California, such as state energy regulations and utilities, warrant a deliberate focus on building statewide networks and increasing presence in state policy. In northeastern Oregon, Wallowa Resources has deepened and diversified its longstanding connections with county government and leadership as it developed the IBEC site through a new kind of relationship with the county.

Networking occurs through multiple channels and often indirectly

The DFZ team plays a range of important networking roles. Each organization brings a different kind of network to the table, allowing the team as a whole to leverage respective strengths from different roadmap areas and scales. The DFZ strategy has also created multiple points of origin of innovations and knowledge, and multiple paths for diffusion by engaging with various “champions” who can also help build relationships and networks. Often, these champions are local leaders such as county commissioners who bring new knowledge or connections to their communities in ways that are locally useful and applicable.

An integrated approach leads to aggregate impacts

Although the DFZ project is organized as a series of distinct roadmap activities, these are highly in-

terconnected and interdependent in practice. Integration helps leverage opportunities and aggregate impacts. For example, investments in capacity can bring substantial gains in land management. Where there have been rich collaborative efforts and deep investments in the zone, there have been successful CFLRP proposals. Biomass utilization can help federal agencies and landowners cost-effectively restore their forests. An integrated approach to ecological and socioeconomic wellbeing is also timely as it resonates well with agencies and funders interested in aggregate impacts and new ways of seeing their work.

Articulating the impacts of the DFZ project in a defined region has resonance

The DFZ monitoring and communications process helps reveal the networks and factors that make innovation and diffusion possible. The team and partners are able to better understand the effects of relationships and investments. It has also produced accessible documents, stories, and lessons that are easy for policy and administrative leaders to rapidly absorb. Most significantly, they are receiving the message that forest stewardship and economic development are interrelated objectives that require integrated support and investment. The DFZ project has also successfully shared stories of impacts because it has defined a region, which acts as a lens into specific places. This lens provides a focused way to talk about a set of broader issues and their realities at a scale that is meaningful, but not so large that nuances are lost. It also creates a sense of place and identity around dry forest landscapes.

CHALLENGES TO BUILDING NETWORKS FOR SUSTAINABLE FOREST STEWARDSHIP AND ECONOMIC DEVELOPMENT

Network growth and maturity

Unsurprisingly, regional networks are still emerging at the mid-term of the DFZ project. Interviews with DFZ team partners revealed that many now see themselves as part of a broader network and are excited to know that they have access to new relationships and resources. However, partners were not able to specifically describe how they were using these networks and what they had gained from them. This possibly suggests that connections between en-

tities in the DFZ are growing, but that participants may not yet have opportunities or know how to call on new relationships. Networking that occurs face-to-face, for example, through the capacity-building program, helps DFZ partners “see” their networks, but it can be difficult to frequently convene diverse partners in person. The DFZ project could also seek ways to build networks that can become self-sustaining and do not rely heavily on intermediaries in the future to broker connections.

Building interagency collaboration and all-lands approaches

The Forest Service has placed increasing emphasis on the need for interagency collaboration and all-lands approaches across ownerships. But since many federal agencies are both internally and externally “siloes”, they face administrative divisions within, and have few opportunities or resources to connect beyond their doors and find commonalities in their missions. There is growing expectation that community-based organizations will help the Forest Service build these connections. Although the DFZ team has strong relationships with the Forest Service, it has had fewer connections with other agencies. The agencies, networks, and cultures associated with private land management are often different than public land management. Building all-lands networks may yield valuable new partnerships and resources for the DFZ team and partners, but takes significant time.

Challenging conditions for additional value streams

The DFZ continues to experience poor markets for forest products, which have affected the feasibility of biomass, certification, and payments for ecosystem services to date. The ability of the DFZ project to realize these additional value streams is closely tied to the health of these markets. Proof of successful biomass businesses will be essential to obtaining future policy support and investment in biomass. Lessons from viable PES programs and projects will also be needed, as interest in PES continues to grow but there are few examples of implementation. Stronger networks and communications tools for additional value streams may be necessary to bring together such examples, which may appear isolated

or context-dependent without any intermediaries to explain their significance and draw out relevant lessons for dissemination.

CONCLUSION

At its halfway point, the DFZ project is supporting improved land management outcomes and economic development opportunities by investing in a range of capacities for community-based natural resource management. The DFZ project has worked at multiple scales to affect change. For example, as DFZ leaders make deep investments in specific places and organizations and build local agreement, they also foster broader networks that create shared voices around common policy challenges across a larger geography and among more communities and organizations. At the same time, the DFZ project supports small thermal energy conversions in schools while tracking ways to develop more robust biomass markets across the region. By creating and connecting enabling conditions for change across scales, the DFZ team and partners are able to see and share aggregate impacts.

For the remainder of the DFZ project, the team will continue to face challenges associated with building and maturing necessary networks. For land management, this may mean fostering all-lands stewardship in the zone through new relationships with federal agencies beyond the Forest Service, private landowners, and others. For biomass utilization, this may require networking for more concerted investment in multiple sectors in the same region to create clusters of biomass energy producers and users; and articulating the “anatomy” of thermal energy projects to highlight the need for combined public and private investments. Although the DFZ capacity-building program has created stronger networks between CBOs, it is not yet clear how these entities may sustain their links in the future and collectively emphasize the need for organizational capacity to accomplish sustainable forest stewardship. Finally, despite political and funding uncertainties, the DFZ team can continue to affect public policy by helping decision makers see the need for investment in all the interrelated dimensions of forest-based economic development.

Appendix 1: DFZ team resources

RESOURCES FROM SUSTAINABLE NORTHWEST

The DFZ capacity-building program For more information, please see: <http://www.sustainablenorthwest.org/programs/dfiz/organizational-capacity-building-program>.

Wallowa Integrated Biomass Campus: A Case Story http://www.sustainablenorthwest.org/programs/dfiz/Wallowa%20Case%20Story_Feb2012_final.pdf

Collaboration on the Malheur National Forest: A Case Study http://www.sustainablenorthwest.org/programs/dfiz/Collaboration%20on%20Malheur%20Case%20Study_Feb2011_final.pdf

A Regional Strategy for Wood-Based Energy: A Case Study http://www.sustainablenorthwest.org/programs/dfiz/Biomass%20Case%20Study_Feb2011_final.pdf

Stewardship Contracting Guidebooks Series <http://www.sustainablenorthwest.org/resources/publications/multiparty-monitoring-and-stewardship-contracting-guide/>

- *Multiparty Monitoring and Stewardship Contracting: A Tool for Adaptive Management*
- *Best Value and Stewardship Contracting Guidebook—Meeting Ecological & Community Objectives*
- *Stewardship Contracting and Collaboration—Best Practices Guidebook*

Rural Voices for Conservation Coalition 2011 Policy Issue Papers <http://www.sustainablenorthwest.org/resources/rvcc-issue-papers>

RESOURCES FROM THE ECOSYSTEM WORKFORCE PROGRAM

Developing socioeconomic performance measures for the Watershed Condition Framework Moseley, C., and E.J. Davis. 2012. Ecosystem Workforce Program Working Paper #36. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_36.pdf.

Wood biomass utilization trends, barriers, and strategies Nielsen-Pincus, M., Sundstrom, S., Moseley, C., and S. McCaffrey. Ecosystem Workforce Program Working Paper #35. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_35.pdf.

Fire science needs in the Pacific Northwest Abrams, J., Creighton, J., Moseley, C., Olson, C., Davis, E.J., Pomeroy, A., Hamman, S., Bruce, J., Perleberg, A., DeMeo, T., Evers, L., and S. Fitzgerald. 2011. Ecosystem Workforce Program Working Paper #33. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_33.pdf.

Impacts of the Biomass Producer or Collector tax credit on Oregon's wood fuels market and economy Nielsen-Pincus, M., Krumenhaeur, M., MacFarland, K., and C. Moseley. 2011. Ecosystem Workforce Program Working Paper #32. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_32.pdf.

Fire suppression costs and impacts of the 2008 wildfires in Trinity County, California Nielsen-Pincus, M., Moseley, C., and E.J. Davis. 2011. Ecosystem Workforce Program Working Paper #31. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_31.pdf.

The lost summer: community experiences of large wildfires in Trinity County, California Davis E.J., Moseley, C., Jakes, P., and M. Nielsen-Pincus. 2011. Ecosystem Workforce Program Working Paper #30. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_30.pdf.

Forest restoration and biomass utilization for multiple benefits: a case study from Wallowa County, Oregon Davis, E.J., Christoffersen, N., Couch, K., and C. Moseley. 2010. Ecosystem Workforce Program Working Paper #29. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_29.pdf.

Economic development capacity in public lands communities Davis, E.J., Pomeroy, A., Moseley, C., and M.J. Enzer. 2011. Ecosystem Workforce Program Working Paper #28. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_28.pdf.

Community-based natural resource management in the western US: a pilot study of capacity Moseley, C., MacFarland, K., Nielsen-Pincus, M., Grimm, K., Pomeroy, A., and M.J. Enzer. 2011. Ecosystem Workforce Program Working Paper #27. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_27.pdf.

Stewardship contracting for landscape scale projects Moseley, C., and E.J. Davis. 2010. Stewardship contracting for landscape scale projects. Ecosystem Workforce Program Working Paper #25. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/downloads/WP_25.pdf

The State of the Dry Forest Zone and its Communities An assessment for the Dry Forest Investment Zone project, Year One. Edited by Davis, E.J., Moseley, C., and M. Nielsen-Pincus. 2010. <http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/downloads/DryForestZoneAssmt.pdf>

RESOURCES FROM WALLOWA RESOURCES

To obtain these documents, please contact Wallowa Resources (contact information on page 24)

Design Benefits of Wallowa County's Integrated Biomass Energy Campus Information about the operational, environmental, and economic design benefits of Wallowa's Integrated Biomass Energy Campus.

Collaboration In Action: Upper Joseph Creek Watershed Information about restoration activities in the Upper Joseph Watershed of Wallowa County. <http://www.wallowaresources.org/CollaborationInActionBrochure.pdf>

Working Together: Wallowa's Community Planning Process Information about collaboration and the Wallowa County Natural Resource Advisory Committee. <http://www.wallowaresources.org/CommunityPlanningProcess.pdf>

Wallowa Lake Moraines and the Oregon State Parks System An information sheet on potential partnerships to conserve and restore the Wallowa Lake Moraines landscape.

Upper Joseph Creek Restoration: Roads Decommissioning Final report on Wallowa Resources' and partners' work in the Upper Joseph Creek Watershed through the Oregon Watershed Enhancement Board.

Lower Joseph Watershed Assessment An assessment of forest conditions in a planned vegetation management area.

Nonindustrial Private Forestlands Ecosystem Markets Research for Northeastern Oregon: Progress Report Preliminary feasibility assessment of opportunities for payments for ecosystems services markets (carbon and biodiversity) in northeastern Oregon.

RESOURCES FROM THE WATERSHED RESEARCH AND TRAINING CENTER

To obtain these documents, please contact the Watershed Research and Training Center (contact information on page 24)

Integrated Wood Utilization Campus Feasibility Study and Community Ownership of the Hayfork Sawmill Information about the small-diameter utilization model pioneered in Hayfork, California.

Identifying Opportunities for Conversion to Biomass Heat in Public Facilities Guidelines for assessing the feasibility of thermal biomass retrofitting in institutional buildings.

PROPOSALS TO THE FOREST SERVICE COLLABORATIVE FOREST LANDSCAPE RESTORATION PROGRAM FROM THE DFZ REGION

Southern Blues Restoration Coalition Collaborative Forest Landscape Restoration Program Proposal (Malheur National Forest, 2011, funded) <http://www.fs.fed.us/restoration/CFLR/documents/2011Proposals/Region6/Malheur/2011SouthernBluesRestorationCoalitionCFLRPPProposal.pdf>

Lakeview Stewardship Landscape (Fremont-Winema National Forest, 2011, funded) <http://www.fs.fed.us/restoration/CFLR/documents/2011Proposals/Region6/FremontWinema/Lakeview.docx>

Deschutes Skyline Landscape (Deschutes National Forest, 2010, funded) http://www.fs.fed.us/restoration/CFLR/documents/2010Proposals/Region6/Deschutes/DeschutesSkyline_CFLRP_Proposal.pdf

Sage-Steppe and Dry-Forest Restoration on the Modoc Plateau, Northeastern California and Western Nevada (Modoc National Forest, 2011, proposed) <http://www.fs.fed.us/restoration/CFLR/documents/2011Proposals/Region5/Modoc/R5ModocNF.pdf>

Appendix 2: About the contributing organizations

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. www.sustainablenorthwest.org
info@sustainablenorthwest.org

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. www.ewp.uoregon.edu
ewp@uoregon.edu

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. www.wallowaresources.org
info@wallowaresources.org

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. <http://www.thewatershedcenter.com/>
wrtc@hayfork.net

NOTES

¹ For a copy of the Dry Forest Investment Zone Monitoring Plan, please contact the Ecosystem Workforce Program (contact information on inside front cover).

² To view the Dry Forest Zone assessment, *The State of the Dry Forest Zone and its Communities*, please visit <http://ewp.uoregon.edu/research/dfz/>.

³ See *Collaboration on the Malheur National Forest: A Case Study*. http://www.sustainablenorthwest.org/programs/dfiz/Collaboration%20on%20Malheur%20Case%20Study_Feb2011_final.pdf

⁴ Established under Title IV of Omnibus Public Land Management Act of 2009.

⁵ See: Davis, E.J., Christoffersen, N., Couch, K., and C. Moseley. 2010. *Forest restoration and biomass utilization for multiple benefits: a case study from Wallowa County, Oregon*. Ecosystem Workforce Program Working Paper #29. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_29.pdf.

⁶ The Ecosystem Workforce Program, Oregon State University, and Sustainable Northwest are collaborating on a four-year project to explore how small forest and range owners can access PES programs.

⁷ For more information, see EWP Working Paper #29.

⁸ See *A Regional Strategy for Wood-Based Energy: A Case Study*. Available at: http://www.sustainablenorthwest.org/programs/dfiz/copy_of_Biomass%20Case%20Study_Feb2011_final.pdf

⁹ For more information, see: <http://www.sustainablenorthwest.org/programs/dfiz/organizational-capacity-building-program>.

¹⁰ See: Davis, E.J., Pomeroy, A., Moseley, C., and M.J. Enzer. 2011. *Economic development capacity in public lands communities*. Ecosystem Workforce Program Working Paper #28. http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_28.pdf.

¹¹ See: Moseley, C., and E.J. Davis. 2012. *Developing socioeconomic performance measures for the Watershed Condition Framework*. Ecosystem Workforce Program Working Paper #36.

