

Ecological, social, and economic benefits

Ecological benefits

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

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

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

Ridgetop-to-ridgetop ecosystem restoration

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

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

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

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

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

Kasey Johnson, ODF Stewardship Forester

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

Social benefits

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



Recreation use

Photo: U.S. Forest Service

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

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

Economic benefits

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



Photo: Harold Weaver



Photo: Faith Brown

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



Collins Pine Company Mill in Lakeview, OR

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

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

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

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

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

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

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



Untreated stand on private land in North Warner Project

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

Photo: Craig Bienz



Logging on private land in Klamath County

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

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

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

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

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