

# Restoring a Lost Landscape

BY MIKE BRINKLEY AND TIM BAILEY

**T**he Rigdon Collaborative Landscape Restoration project covers 105,000 acres in the upper Willamette River watershed. The Willamette National Forest, Middle Fork Ranger District (MFRD), and the Southern Willamette Forest Collaborative (SWFC) have worked side by side for two years to develop a “restoration blueprint” called the Rigdon Landscape Analysis. By working together, the Forest Service and partners are hoping to implement up to three NEPA projects that improve forest resilience to disturbance, restore unique habitats, and protect private inholdings while providing socioeconomic benefits.



**Mike Brinkley**



**Tim Bailey**

## A land of meadows and savannah

The Rigdon area is located at the headwaters of the Willamette River on the west slope of Oregon’s Cascade mountains. It is named for Stephen and Zilphia Rigdon who ran a wagon road stage stop and way station in the 19th century. The landscape includes 26,000 acres of dry, mixed conifer habitat, a vegetation type that is currently at the northern edge of its natural range. Climate and fire, along with

prescribed fire maintained by Native Americans, resulted in open, mixed conifer forests of Douglas-fir, ponderosa pine, incense cedar, sugar pine, and Oregon white oak. Trees were widely spaced and the ground vegetation was composed of grasses, wildflowers, and scattered shrubs.

Cold, clear, springs fed tributaries and historically provided spawning habitat for Chinook salmon and bull trout. Wide floodplains of multiple channels were once common, especially near confluences, and braided streams provided for high-quality spawning and rearing habitat.

## A history of fire suppression and logging

The Rigdon landscape has been dramatically altered by fire suppression and logging. One-hundred years of fire suppression resulted in the development of a dense secondary canopy of primarily Douglas-fir in the mixed conifer forests. Pine and oak savannahs have become closed-canopy forests with sparse understory vegetation, resulting in the loss of species diversity such as elk and deer populations that have little forage vegetation as open forests close.

The construction of Hills Creek dam extirpated the salmon, and bull trout were removed in favor of other

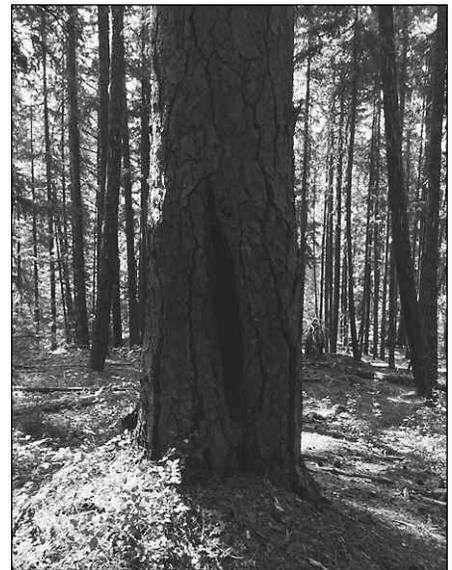


PHOTO COURTESY OF SARAH ALTEMUS-POPE

**A culturally modified ponderosa pine tree in the mixed conifer forest type that has experienced profound changes over the last 100 years due to fire suppression and ongoing forest succession. One hundred years ago it could have been typified as an open grassy savanna containing scattered older Douglas-fir, ponderosa pine, and Oregon white oak.**

fish species. Vegetation and riparian forest harvesting changed stream channels and increased the temperature of streams. Road construction and misguided attempts to promote fish passage by removing natural debris jams resulted in additional loss of

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spawning and rearing habitat. Overall, the landscape has lost diversity and resiliency that is important in the face of wildfire and climate change.

### Restoring the land

Numerous agency directives exist for conserving and restoring prairie, oak, dry mixed conifer, and Douglas-fir habitats that have been altered by fire suppression and other management activities. Restoration of the Rigdon landscape provides an important opportunity to fulfill these goals, and to make these overly dense forests more resilient in the face of wildfire, insect outbreaks, and future climate change.

Several significant restoration projects have already been completed. In 2010, the Jims Creek Savanna Restoration Stewardship project restored 450 acres of oak savanna and pine forest in the heart of the Rigdon area. This collaborative stewardship pilot project removed Douglas-fir trees less than 24 inches, leaving mature mixed pine and Oregon white oak. Post-harvest, the project area went from 160 trees per acre to 20 trees per acre with a lush and varied understory of native forbs and grasses that are attractive to many wildlife species, including big game. Ground fuels were reduced by prescribed burning. Oregon white oaks have sprouted and are now present throughout the project. Overall, the project preserved cul-



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**The South slope of Warner Mountain in the Rigdon project area includes a large portion of mixed conifer forest. The Jim's creek pilot project is the more open timbered area located in the lower left. Upslope is the Moon point special interest area that contains many small meadows and sensitive habitats.**

tural resources, restored sensitive habitats, provided economic benefits to the surrounding community, and is a successful template for future projects.

In 2017, the Middle Fork Willamette Watershed Council oversaw a mile-long floodplain restoration project that removed road berms from previous logging that had channelized Staley Creek. Root wads and large tree stems were deposited in the new channels to provide complex aquatic habitat. After just one year, native riparian vegetation has returned and recent aquatic surveys have found repopulation of native fish, including bull trout.

### Rigdon Landscape Analysis

In 2017, the Forest Service formed the Rigdon interdisciplinary team comprised of multiple resource specialists to undergo a Facilitated Landscape Analysis Design process to understand the ecological systems and identify target landscape objectives. The final Rigdon Landscape Analysis (RLA) report identified landscape elements, ecosystem flows, and desired

target landscape objectives.

About half of the dry mixed conifer forest in the Rigdon area is now composed of plantations and natural stands of 150 to 300 stems per acre, which is significantly denser compared to the historic average of five to 25 large trees per acre. Most stands now consist primarily of 100- to 150-year-old Douglas-fir, although about half of the savanna legacy trees still exist. Target vegetation landscape patterns for mixed conifer forests call for open late seral forest with scattered patches of other seral stages. Mechanical treatments such as density reduction in mature stands and plantations, revegetation of native grasses, forbs, and oaks, and prescribed burning can restore much of the mixed conifer forest, promote resiliency and increase biodiversity. Post treatment, this landscape would be maintained in open condition with a frequent fire interval.

As part of the RLA process, the Forest Service welcomed input from the public. Over two years, the SWFC Rigdon Collaboration Committee

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(RCC) facilitated seven learning sessions, eight field trips, and multiple roundtable discussions between interdisciplinary team and RCC members. The RCC developed landscape-level zones of agreement to share with the interdisciplinary team to consider in drafting the Rigdon Landscape Analysis and to develop future proposed management actions.

The RCC recognizes that the “past, more open and grassy forest conditions that were maintained by the historic frequent fire regime will be more resilient to the effects of wildfire and insect outbreaks in the face of a projected warming climate.” The RCC worked in subcommittees to draft specific restoration goals to share with the Forest Service:

- Landscape conditions should be restored in order to provide for diverse habitats, structure of streams and vegetation, wildlife, and landscape resilience in the face of wildfire and a warming climate.

- Vegetation and wildlife habitat should be restored to previous, more open conditions in the dry mixed conifer where the vegetation structure, species abundance, forest density, and/or the fire regime have been altered.

- Streams and waterways should be maintained or restored to a condition where natural processes and function provide the habitat and water quality conditions necessary for all native species and life stages.

- Landscape management should take into consideration economic opportunities and social and cultural values, such as recreation access, scenic views, healthy, abundant wildlife, community safety, and overall quality of life.

### Implementing restoration projects

The Rigdon interdisciplinary team is proceeding through NEPA requirements with the goal to begin implementation in 2021 and the years afterward. The SWFC plans to stay engaged to provide specific project level zones of agreement if needed. As projects move into the implementation phase, the SWFC will stay engaged through a variety of stewardship authority tools to help fund future restoration work.



PHOTO COURTESY OF SARAH ALTEMUS-POPE

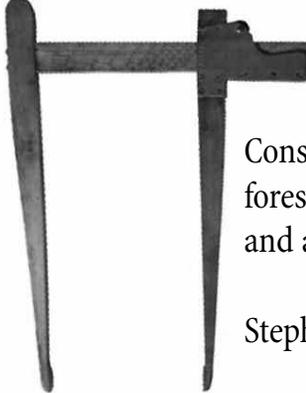
**Restored Staley Creek Floodplain at old bridge site after contractors remove the berms, filled in the scoured-out channels, and placed hundreds of pieces of large wood in the stream and on the floodplain. The new, dynamic landscape will dampen flood events, raise the water table, and increase flood water storage.**

More about the Rigdon Collaborative Landscape Project and updates are available at the SWFC website [southwillamette.wixsite.com/swfc/rigdon](http://southwillamette.wixsite.com/swfc/rigdon). ♦

*Mike Brinkley is a retired scientist with a focus on healthy forests and watersheds. He is an active member of the Southern Willamette Forest Collaborative, representing the Many Rivers chapter of the Sierra Club, interested in planning restoration in the Rigdon*

*landscape. Tim Bailey received his B.S. in Forestry from Southern Illinois University in 1974. From 1980 to 2014 he served as a forester, project planner, and silviculturist on the Middle Fork Ranger District of the Willamette National Forest. He was working on the restoration of the Rigdon landscape when he retired and continues to do so with the Southern Willamette Forest Collaborative.*

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