



Juniper Tree Removal and Wildfire Resiliency

Change happens slowly in the arid sagebrush steppe. However, in areas where Juniper trees have been removed, more resilient, fire-resistant landscapes are beginning to take hold.

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Residents of Harney County and visitors alike have witnessed significant change in our sagebrush steppe landscape over the last century. What used to be a vast country filled with sagebrush, bunchgrass, and other native forbes, Junipers now can be seen from one horizon to another in some climates. Though the Western Juniper is a native species to the Harney Basin, both human and environmental factors have fostered its encroachment, and the impact has been real and realizable on our lands where people recreate, live, and make their living.

What Causes Western Juniper Encroachment?



Historically, Juniper has largely been confined to areas that are resistant to fire, like localized rocky outcroppings, scree slopes, and unproductive soils that don't foster a lot of annual understory growth (fine fuels for fire). However, since Europeans settled in the Harney Basin, the landscape has experienced much less fire than it did previously. The result has allowed Junipers to proliferate in areas where they previously haven't. It's now estimated that Junipers occupy some 3.7 million acres in Oregon, marking no less than a ten-fold increase from the time the first Europeans arrived.

Pictured: A Juniper stand on private property in Southeast Oregon being measured and marked for cutting.

This exponential encroachment can largely be traced to restrictive fire suppression practices, the introduction of livestock grazing, and Juniper seeds being ingested and spread by birds, as well as seeds that spread over land via natural phenomenon like wind, water, and soil erosion. "In looking at aerial photography over the years, juniper tree growth has increased exponentially. Lack of fire is largely to blame," says Sarah Mundy of the Harney Soil and Water Conservation District.

What Are the Effects of Juniper Encroachment?

"Juniper not only consumes large amounts of groundwater, but they also intercept precipitation, making it unavailable for beneficial plants. This lack of water affects vegetation composition, wildlife, livestock use, and certainly increases wildfire risk," Mundy continues. When Juniper encroaches on sagebrush steppe, it's in direct competition with other native species for space, water, sunlight, and nutrients from the soil. Long-term Juniper encroachment ultimately results in the die-off of

shrubs, forbes, and native grasses that wildlife and livestock need for habitat and nutrients. Mundy readily cites the fact that "Studies have shown that Sage grouse will start to avoid a particular area once Juniper reaches just three to four percent spatial occupancy." Not to be overlooked is the fact that Juniper isn't resistant to fire, and invasive annual grasses usually fill the niche beneath the trees. Where it encroaches, increased "flashy" fuels for wildfire becomes a daunting reality on what's already a dry landscape.

What is Being Done to Battle Juniper Tree Encroachment?

The Harney County Wildfire Collaborative partners are targeting strategic sites for Juniper removal for restoration work happening under The Southeast Oregon Wildfire Resiliency Project. These partners include the Bureau of Land Management, Burns Paiute Tribe, Harney County Soil and Water Conservation District, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and private landowners to name a few. The Southeast Oregon Wildfire Resiliency Project includes Stinkingwater Mountains, Beaver Tables and landscapes near Juntura and Jonesboro of Southeast Oregon in both Harney and Malheur Counties.

What Happens to Landscapes After Juniper Tree Removal?



Change happens slowly in the arid sagebrush steppe. However, in areas where Juniper trees have been removed, more resilient, fire-resistant landscapes are already beginning to take hold. Just as Juniper encroachment quickly pushes out native species, Juniper removal creates room for them to take hold once again. "In some cases, we've noticed an increased presence of groundwater in the form of springs and healthier riparian zones," Mundy stated.

Pictured above: The BLM's Alder Creek Restoration Project in the Stinkingwater Mountains won national

acclaim in April 2020 when the Western Division of the American Fisheries Society gave the project its Riparian Challenge Award. The project started in 2015. Phase one involved the reconstruction of the Alder Creek 35 acre wet meadow, while phase two repaired the riparian area above the meadow. Phase three was juniper control and about 75 acres of juniper trees cut in adjacent aspen and mountain mahogany stands. Then, 319 acres of junipers were cut on the ridge east of Alder Creek. This created a 5.5 mile fuel break.

Going Forward

The management practice of cutting juniper has been proven to increase native perennial plants and in the long term facilitated the return of sagebrush to many areas in eastern Oregon. "In the Stinkingwaters and Drewsey areas, thousands of acres of Junipers have been removed and we are doubling down on that effort due to this coordinated project," cites Mundy. "Thanks to the collaborative and inclusive efforts of Harney County Wildfire Collaborative, we're excited about the increased resiliency of the land going forward."

This article is provided by High Desert Partnership; a Harney County nonprofit convening and supporting six collaboratives including the Harney County Wildlife Collaborative.

