



Building Wildfire Resilience by Treating Invasive Annual Grasses

By treating the invasive annual grasses, and cutting Juniper trees, landscape fuels for wildfires are being reduced making the landscape more wildfire resilient.

By Scott Barton
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To the naked eye, the sagebrush seas of Harney County can look like wide open, empty spaces that span from one horizon to the other. Though beautiful, on the surface there can be a perception that there is not much life in this type of ecosystem. Actually, sagebrush seas are resilient and teeming with life and provide critical habitat for a variety of species including big game, songbirds, sage-grouse and other sagebrush dependent species. But invasive annual grasses and western juniper present challenges to the health of this landscape.

Pictured: Sunrise over some of the sagebrush sea of Southeast Oregon. Photo by Brandon McMullen.

As has been experienced all over the Great Basin, and certainly has been witnessed in Harney County, wildfire poses a great threat to these landscapes and creates a sense of urgency as these lands provide the foundation of rural communities that support ranching, recreation, and critical habitat for a variety of species including big game, songbirds, sage-grouse and other sagebrush dependent species. The good news is there's work being done to make these lands more resistant to wildfire, and more resilient in its aftermath.

High Desert Partnership and its Harney County Wildfire Collaborative, in addition to other work on the ground, are implementing the Southeast Oregon Wildfire Resiliency Project. After receiving more than \$5 million in funding from Oregon Senate Bill 762 through the Oregon Department of Forestry, implementation of the Southeast Oregon Wildfire Resiliency Project in Harney and Malheur Counties is using critical fuel treatments to enhance wildfire resilience across sagebrush steppe landscapes with one of those treatments being applications of pre-emergent herbicide to control invasive annual grass invasion by inhibiting germination and decreasing seed bank.



What Are Invasive Annual Grasses and What Threat Do They Pose to the Environment?

Pictured: Medusahead

As their name suggests, invasive annual grasses aren't native to North America. According to Tom Segal of the Oregon Department of Fish and Wildlife, "Invasive annual grasses are grasses typically from Eurasia. They've become established in western North America, and are extremely well adapted to the climate and soils here. Cheatgrass,

Medusahead Rye, and Ventenata are the main invasive annual grasses we have here.”

While most people that spend time in the dry, arid places where these invasives thrive might not think much of their presence, the truth is that they’re highly detrimental to the landscape and the native species that call it home. “Invasive annual grasses are able to intercept soil moisture before it can reach deeper-rooted native perennials. Additionally, they create a thatch layer that smothers native perennial plants. Grasses like Medusahead are able to germinate in their own thatch, whereas native plants need soil contact to germinate,” Segal Continues.

Rangeland Ecologist for the Burns Paiute Tribe, John McNelly agrees. “These grasses outcompete native vegetation and fill the natural sagebrush interspaces across the Great Basin and compete in riparian areas. Their presence is a compounding one due to the ability to establish, stifle native species, and convert the landscape through altered fire regimes.”

Invasive Annual Grass Treatment



The term herbicide is often met with some speculation about its potential harmful impact on the environment and the threat it poses to wildlife and livestock. It’s an understandable concern as many industrial herbicides (mostly used in agricultural applications) come with some amount of downside.

Pictured: Aerial invasive annual grass spraying in southeast Oregon. Photo by Brandon McMullen.

But the two most common herbicides used to treat invasive annual grasses, Imazipic or Indaziflam, don’t pose any threat to wildlife or livestock. As Segal points out, “It’s important to note that all herbicides applied in Oregon are vetted by the EPA and Oregon Department of Agriculture for environmental safety. Land managers and landowners are also experimenting with winter cattle grazing to target invasive annual grasses when they can be more palatable.”

The application process is strategic as well. According to McNelly, “The traditional technique is to regain bare ground by applying herbicide followed by seeding native and competitive species the following year. Pre-emergent herbicides are sprayed late fall because they need moisture to bind in the soil to prevent seed germination.”

Southwest Oregon Wildfire Resiliency Project

The project comprises land in the Stinkingwater Mountains and surrounding areas in both Harney and Malheur Counties. The Southeast Oregon Wildfire Resiliency Project encompasses more than 312,000 acres of private, tribal, state, and federal lands. It’s here that invasive annual grass treatments are well underway, and results are beginning to show.

As an example, Segal is currently working with a landowner to aeri ally spray Indaziflam to treat cheatgrass and Medusahead on their ranch. He’s quick to point out the landowner is very passionate about controlling invasive annual grasses and clearly understands their detriment to the landscape, wildlife, and livestock.

McNelly is equally hard at work and recognizes the importance of restoring native species to areas where invasive annual grasses have been treated. “My attention is on rehabilitation and the health of our greenhouse plants daily. We are growing

over 1,000 sagebrush, squirrel tail, and bluebunch seedlings in our greenhouse to be outplanted to our properties. Next year we will be planting 10 acres within the invasive annual grass treatment area as well as within the MM206 fire, [a wildfire that burned about 700 acres southwest of Harper] in 2021.”

In addition to the Oregon Department of Fish & Wildfire and the Burns Paiute Tribe multiple organizations are doing the work on the ground including Bureau of Land Management, Harney County Soil and Water Conservation District and Cooperative Weed Management Area. The Bureau of Land Management has been able to treat an additional 20,000 acres in the Southeast Oregon Wildfire Resiliency Project area, increasing the total number of invasive annual grass treatment acres in the Burns District to 60,000 in 2022. The Southeast Oregon Wildfire Resiliency project has helped increase the capacity of the BLM and others to treat invasive annual grasses at a scale that is making a difference on the landscape.

What Happens After Invasive Annual Grass Treatment?

Once invasive annual grasses are treated, there’s still plenty of work to be done. That includes continuous monitoring of both treated and untreated sites for the purpose of long-term comparison. Segal says, “Indaziflam should provide four to five years of cheatgrass and Medusahead control, which is also about the longevity of invasive annual grass seed viability. The hope is that with one treatment of Indaziflam, invasive annual grasses are removed from the seed bank on that site, allowing the existing perennial plant community to really flourish.”

Concerning tribal lands, the future looks equally as bright. “A 1000-acre herbicide treatment will be followed by a 500-acre seeding. We then plan to organize another 500-acre seeding to cover the other half of the treatment area,” says McNelly.

He plans on monitoring the treatment areas with randomly dispersed photo points. For the seedlings planted within the treatment area, monitoring will be conducted using photos and pin flags to mark 50 recently planted seedlings. A yearly planting will consist of three or more monitoring sites. The sites will be visited the following spring and pin flags will be used to identify seedlings. This way initial survival can be assessed.

Final Thoughts

The work being done spells good news for the sagebrush steppe that comprises so much of Harney County and 23 million acres across Oregon. Not only does the treatment of invasive annual grasses make the landscape more resistant to wildfire and resilient in its aftermath, it paints a bright future for wildlife like Sage Grouse and Mule Deer, livestock, and native grasses that provide food and shelter for these species at all times of the year.

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

