

SAGE GROUSE INITIATIVE

Wildlife Conservation Through Sustainable Ranching.



Sage Grouse Populations Grow Faster After Tree Removal



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In Oregon, a long-term study of sage grouse and conifer removal showed that grouse population growth rates increased 12% following conifer removal. This before and after photograph demonstrates just how much conifer encroachment existed on the site prior to removal. Credit: Todd Forbes, BLM, Lakeview District.

Restoring wide-open sagebrush habitat in southern Oregon benefits birds and ranchers

By Brianna Randall

In Oregon's Warner Mountains, sagebrush rolls across hillsides and valley bottoms, providing productive land for livestock and wildlife. Like many places in the West, these valuable rangelands are at risk from encroaching trees that displace wildlife, reduce livestock forage, and decrease available water. More than one million acres of sagebrush grazing lands in the Great Basin have turned into pinyon-juniper forests in the past two decades alone.

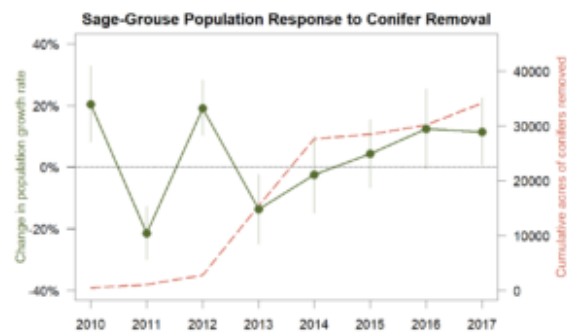


This photograph shows the “control area” in the Warner Mountains. This area did not have any tree removal and it demonstrates how conifer encroachment impacts sagebrush habitat. Photo: Andi Olsen.

Fortunately, [new research](#) from an eight-year study in the Warner Mountains shows that strategically removing encroaching trees spells good news for sage grouse, a declining upland bird that serves as a benchmark species for the overall health of the sagebrush biome. This adds to a [growing list of research](#) — much of it based on the long-term study in the Warners — that documents the myriad benefits of conifer removal for wildlife and grazing lands.

“In places where junipers were removed, the sage grouse population grew at a rate that was 12 percent greater than in an area where no trees were cut,” explained Andrew Olsen, who led the research for Oregon State University. “By targeting removal where sagebrush plants were still intact, we bought instant habitat for a declining bird species.”

Sage grouse suffer when trees take over. Birds [avoid mating or nesting](#) if there are more than a few trees on the landscape, likely because conifer woodlands are riskier habitats for grouse with more predators. Other sagebrush-reliant wildlife like mule deer and songbirds are also negatively impacted when conifers crowd out the perennial plants they need for food and cover.



This graph shows how sage grouse population growth rates increased as conifer trees were removed from the landscape. Credit: Andrew Olsen.

Unfortunately, trees are taking over America’s grazing lands at an alarming rate. Conifers like Western Juniper have expanded by as much as 600% over the last 150 years — and 90 percent of that expansion has occurred in sagebrush country.

Olsen’s research demonstrates how removing expanding conifers before they get too dense can bring back the birds. A previous study from the Warner Mountains

found that 29% of marked hens moved back to nest in restored habitat just three years after conifers were cut. Additional research in the Warners also revealed the abundance of sagebrush-loving songbirds doubled following juniper removal.

“While conifer removal in the Warners has been shown to help sage grouse, many different wildlife and plant species are also benefiting from the restoration of these open sagebrush habitats,” said Todd Forbes, district manager of the Bureau of Land Management’s Lakeview District in Oregon.



*This map shows the GPS locations of marked grouse using the landscape following tree removal.
Credit: SGI.*

Beginning in 2011, the USDA’s Natural Resources Conservation Service worked with private landowners (through its [Working Lands for Wildlife](#) initiative), the Bureau of Land Management, and other local partners on a collaborative, large-scale conifer removal effort. The groups also teamed up with university scientists to monitor the outcomes of their work over time.

Ranchers who participated in the project are seeing the positive results from restoring sagebrush rangelands.



Oregon rancher, John O'Keeffe, walks through parts of his ranch where conifer removal opened up sagebrush habitat. Photo: Jeremy Roberts, Conservation Media.

"The big value is that removing conifers gives you a reset," said John O'Keeffe, who ranches near Adel, Oregon, and partnered with Oregon NRCS to remove junipers on his property. "As the trees get thicker and thicker, you lose your understory vegetation and that puts your topsoil at risk. Conifer removal keeps the land in a state where we have native bunchgrass that allow for cattle, grouse, deer, and antelope. Once the conifers get too dense, you lose all of that."

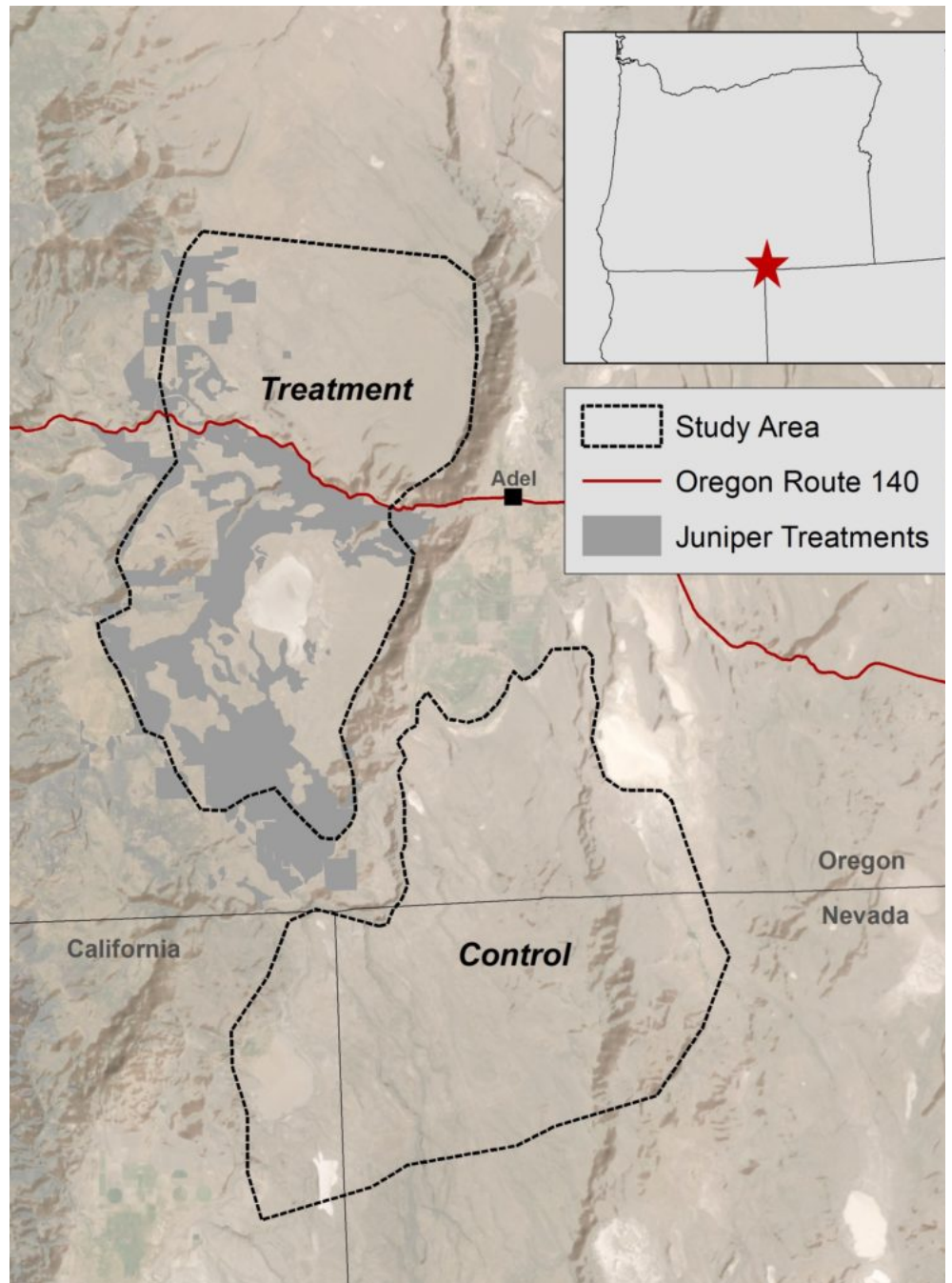


Removing conifers by hand, as shown in this photo, provides "instant" sagebrush habitat for sage grouse and other sagebrush-dependent wildlife. Photo: Jeremy Roberts, Conservation Media.

While conifer removal was underway, researchers monitored the outcomes by tracking 417 sage grouse hens with transmitters. The latest Oregon State University

study quantified how the bird's population growth rate has changed over time. Olsen and other researchers marked hens in a 109,000-acre treatment site where trees were removed, as well as in a nearby control site, an 82,000-acre landscape where no conifer removal occurred. They compiled different vital rates of these hens with lek count data from the region.

Five years after conifer removal, the growth rate of the sage grouse population was about [12% higher at the treatment site than at the control site](#). Plus, the survival rates increased for most stages of the bird's life cycle where junipers were cut. This is encouraging news for conservationists who have been collaborating on similar conifer removal projects across the West to restore open sagebrush habitat.



Map of study area in the Warner Mountains of Oregon, California, and Nevada. Credit: Andrew Olsen.

Over the next five years, the NRCS will continue to help ranchers across the West remove conifers to boost agricultural productivity and benefit wildlife. NRCS'

Working Lands for Wildlife recently released a [Framework for Conservation Action in the Sagebrush Biome](#), which details how local, state, and federal partners plan to work together on voluntary, incentive-based strategies to address the main threats facing sagebrush rangelands. In addition, the BLM and NRCS developed the [Rangeland Analysis Platform](#), a free online mapping tool that helps landowners plan conifer removal projects by showing how and where tree cover has changed over time.

[>>Read an Ask an Expert interview with Andrew Olsen, the study's lead author<<](#)

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The Sage Grouse Initiative is a partnership-based, science-driven effort that uses voluntary incentives to proactively conserve America's western rangelands, wildlife, and rural way of life. This initiative is part of Working Lands For Wildlife, which is led by USDA's Natural Resources Conservation Service.

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