



Natural Resources Conservation Service

Conservation Effects Assessment Project (CEAP)
CEAP-Wildlife Conservation Insight

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Quantifying Outcomes of Working Lands for Wildlife (WLFW) for the Benefit of Landowners and At-Risk Wildlife

Summary

[Working Lands for Wildlife](#), USDA’s premier approach to benefitting producers and at-risk wildlife on America’s agricultural lands, relies on science to pinpoint where to invest limited resources, evaluate resulting outcomes, and improve conservation delivery.

On America’s vast western rangelands, WLFW has partnered with the Wildlife Component of the USDA [Conservation Effects Assessment Project](#) (CEAP) to co-produce 37 peer-reviewed research studies over the past decade that document outcomes from Farm Bill-funded conservation practices.

Once conservation outcomes are quantified, it is important to put the science into the hands of practitioners to help them maintain productive and profitable rangelands for people and wildlife.

Background

The agricultural rangelands that span the Western United States generate economic revenue for rural communities and produce food and fiber for the Nation. These rolling grasslands, silvery sagebrush flats, and green meadows are also home to world-class wildlife, including birds, fish, elk, and deer.

It can be challenging for ranchers to maintain these rangelands for future generations, especially when faced with drought, development, and commodity price swings. Conserving America’s vast working rangelands requires a proactive, collaborative, landscape-scale approach that keeps agricultural operations profitable and wildlife habitat productive.

In 2012, the USDA’s Natural Resources Conservation Service (NRCS) launched [Working Lands for Wildlife](#) to strategically target existing Farm Bill-funded conservation

programs in at-risk areas, such as on sagebrush rangelands and in the Great Plains. WLFW’s voluntary, incentives-based model has gained momentum and recognition. On western rangelands, NRCS and its partners have worked with 2,154 ranchers to conserve 7.5 million acres, an area three times the size of Yellowstone National Park.

Science has played a pivotal role in achieving this unprecedented scale of conservation. WLFW relies on science-based targeting tools to: (1) pinpoint where to invest limited resources, (2) evaluate outcomes to quantify the results, and (3) improve conservation delivery to benefit people and wildlife. The Wildlife Component of the NRCS [Conservation Effects Assessment Project](#) has been a key partner in assessing WLFW outcomes and in developing targeting tools that help landowners and practitioners make informed conservation choices.



USDA NRCS works with private landowners to improve and restore western rangelands for the benefit of landowners and at-risk wildlife. *Photo courtesy of Jeremy Roberts, Conservation Media.*

“Taking a team approach to quantify conservation outcomes brings accountability for taxpayers and also illustrates the important role of science in keeping our Nation’s working lands productive.”

—Charles Rewa, CEAP-Wildlife Component Leader

Key Conservation Outcomes

CEAP has partnered with WLFW to evaluate the impacts of Farm Bill practices on wildlife, water, soil, vegetation, and other natural resources on America's western rangelands. Over the past decade, CEAP and WLFW have co-produced 37 peer-reviewed research studies documenting outcomes from the following:

- Encroached woodland management
- Conservation easements
- Prescribed grazing
- Wet habitat restoration
- Fence collision solutions for wildlife
- Remote-sensed mapping of rangeland vegetation cover and productivity.

Removing Encroached Woody Species To Restore Rangelands. Woody species such as juniper, mesquite, and redcedar are taking over sagebrush shrublands and prairie grasslands. Encroached woodlands have increased by six-fold over the past century. These invading trees reduce water availability, diminish soil nutrients, and decrease forage for livestock and wildlife. Research shows that lesser prairie-chickens will not nest in grasslands with greater than 2% tree cover, and greater sage-grouse avoid nesting in areas with more than one tree per acre.

WLFW has helped landowners strategically remove encroaching woody



The practice of mechanical removal of encroached conifers is increasing in the West and helps restore sagebrush habitats and promote increased populations of at-risk birds like the greater sage-grouse and several songbirds, such as Brewer's sparrow, green-tailed towhee, and vesper sparrow.

species on 780,000 acres of prime rangelands in the Western United States. Resulting outcomes include:

- Greater sage-grouse populations are 12% higher on rangelands where advancing trees have been removed. Within 3 years of conifer treatments, 29% of marked females were nesting within and near restored rangelands.
- Songbird abundance doubled following tree removal in sagebrush landscapes for at-risk species such as Brewer's sparrow, green-tailed towhee, and vesper sparrow.

Stemming the Loss of Intact Rangelands. The greatest threat to ranchers and wildlife is the loss of productive rangelands as they become fragmented by development, crop

“Over the past decade, CEAP and WLFW have co-produced 37 peer-reviewed research studies that document outcomes.”

cultivation, or other uses. Since the majority of rangelands are privately owned, voluntary incentives-based conservation easements are an important tool for keeping working ranchlands intact for future generations. In Montana and the Dakotas, findings suggest that additional cultivation of intact sagebrush rangelands would decrease the region's sage-grouse populations by 5-7%. In Wyoming, estimates show that a \$250 million investment in targeted easements can slow sage-grouse

declines by nearly two-thirds within population strongholds.

WLFW has secured over 200 individual easements that conserve 567,100 acres of working ranchlands and has implemented better grazing strategies to improve 3.6 million acres of prime rangelands. Resulting outcomes include:

- Conservation easements in sagebrush country increased by more than 1,800% from 2010 to 2013.
- Easements put in place in Wyoming for sage-grouse also conserved 75% of priority habitats for two world-class populations of migratory mule deer.
- In Montana alone, partners have conserved 190,000 acres of at-risk rangelands since 2010, a six-fold increase in easements over all prior years combined.

Wet Habitat Restoration. On the dry rangelands west of the Mississippi River, conserving scarce water resources is essential for sustaining people, livestock, and wildlife. Restoring degraded creeks, springs, and wet meadows and protecting intact wet habitat adds immense value to rangelands. These emerald islands attract a host of wildlife and livestock seeking food, water, and shelter as uplands dry out late in the summer. During the summer, wet habitats cover less than 2% of the landscape, and greater than 80% of these vital resources are located on privately owned ranchlands.

WLFW and its partners have led 11 hands-on field workshops to train more than 400 resource managers and landowners in how to use simple, cost-effective methods to restore precious wet habitat. Resulting outcomes include:

- Sage-grouse cluster 85% of their breeding sites within 6 miles of wet habitats so hens and chicks can access “green groceries” near water in the late summer and fall.
- Low-tech riparian methods (such as grazing management or hand-built stone structures that mimic beaver dams) of restoring wet habitat increase vegetation productivity by up to 25% and keep riparian areas greener for a longer time.

Conclusions

Science does not influence on-the-ground conservation unless research findings are made available to land managers who prioritize and plan projects. CEAP and WLFW help bridge the gap between science and implementation by creating easy-to-use technology and tools that empower ranchers and resource managers to effectively conserve rangelands.

One example is the [Rangeland Analysis Platform](#) (RAP), a free online tool powered by Google Earth Engine. RAP merges decades of field data and remote satellite imagery to show how rangeland plant cover has changed at the watershed scale. Covering millions of acres of rangeland from the Great Plains to the Pacific Ocean, this innovative mapping technology can be used to visualize the impacts of drought on perennial forage, identify where to reduce woody encroachment, or evaluate the need for weed control treatments.

When the outcomes of conservation practices are known, that knowledge can be used to improve the efficiency and effectiveness of Farm Bill programs so they can achieve the most benefit for wildlife, rural communities, and agricultural operations. CEAP and WLFW provide that science base for conservation planners to help maintain healthy, productive, and profitable rangelands in the West.



Conservation easements help keep valuable sagebrush habitat intact, benefiting more than 350 species of wildlife. *Photo courtesy of Jeremy Roberts, Conservation Media.*

Conservation Effects Assessment Project: Translating Science Into Practice

The Conservation Effects Assessment Project (CEAP) is a multiagency effort to build the science base for conservation. Project findings help guide USDA conservation policy and program development and help farmers and ranchers make informed conservation choices.

One of CEAP's objectives is to quantify the environmental benefits of conservation practices for reporting at national and regional levels. Because wildlife is affected by conservation actions taken on a variety of landscapes, the CEAP-Wildlife National Component complements the CEAP National Assessments for cropland, wetlands, and grazing lands. The Wildlife National Assessment works through numerous partnerships to support relevant assessments and focuses on regional scientific priorities.

Source for this Conservation Insight: Naugle, David E., *et al.* 2019. CEAP quantifies conservation outcomes for wildlife and people on western grazing lands. *Rangelands*, online August 2019, doi.org/10.1016/j.rala.2019.07.004

For more information, visit www.nrcs.usda.gov/technical/NRI/ceap/ or contact Charlie Rewa at charles.rewa@usda.gov.

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