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## PULSE OF THE PLANET



### To Save Sagebrush, Researchers Unleash the Power of Sheep

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for [National Geographic News](#)  
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Researchers in Idaho have found a way to use sheep to rid vast swathes of public grazing sagebrush lands of invasive weeds.

The weeds, spotted knapweed (*Centaurea maculosa*) and leafy spurge (*Euphorbia esula*), are native to Europe. They were introduced to the United States in the 1800s and now infest much of the northern U.S.

"Those plants come from where the sheep come from, if you want to think about it that way," said Steven Seefeldt, a researcher with the U.S. Department of Agriculture's Agricultural Research Service in Fairbanks, Alaska.

Seefeldt recently conducted research at the service's Sheep Experiment Station in Dubois, Idaho. Most cattle, the dominant livestock grazed on public lands, prefer not to eat spotted knapweed or leafy spurge, the rangeland scientist said.

Research at the experiment station shows that some sheep, however, love the stuff. If they are put in a pasture at the appropriate time—when the weeds are growing and native grasses are still dormant, for example—the sheep can impede the alien invasion.

"At the sheep station our goal has been, OK we have this bio-control agent we know eats these plants. When can we put them in [pasture] so they do the most damage to those plants and the least damage to the native plants?" Seefeldt said.

#### Endangered Sagebrush

Native grasses support cattle grazing and provide forage and shelter for native wild animals, such as elk, bighorn sheep, and sage grouse.

But invasive weeds outcompete these grasses, thanks in part to their fire resistance. Spotted knapweed is not killed by fire, but sagebrush is.

After a fire, Seefeldt explained, the surviving knapweed taps into moisture deep in the soil. With much of the sagebrush having been killed by fire, the exotic species is free to absorb the available water.

"It takes off like gangbusters and makes it harder for sagebrush to re-establish," Seefeldt said. "And that's a real concern."

Environmental groups have long cited livestock grazing and related development, such as roads, fences, and waterways, as major contributors to the degradation of sagebrush ecosystems.

Sheep and cattle in particular eat most of the native grasses, creating perfect conditions for invasive species such as leafy spurge to move in, explained Mark Salvo, director of the Chandler, Arizona-based Sagebrush Sea Campaign.

The campaign works to restore and preserve the 150 million acres (61 million hectares) of sagebrush steppe that covers the U.S. West.

### **Strategic Grazing**

Seefeldt acknowledges that some public lands are overgrazed. But he says research is showing how domesticated sheep can be used to benefit the sagebrush ecosystem by ridding it of invasive weeds.

He and his colleagues have hand-picked a flock at the Sheep Experiment Station that shows a high preference for leafy spurge. The researchers use the flock in tests to determine the best time of year to set them loose on leafy spurge-infested rangelands, stopping the spread.

Salvo said such initiatives work in theory but they make little economic sense to livestock ranchers who rely on public lands to graze their sheep and cattle.

While sheep strategically graze leafy spurge on one section of land, ranchers would continue to graze the rest of the land as they have in the past, creating the conditions ripe for leafy spurge's spread, he said.

"So while we're in agreement with the suggestion that precision grazing in limited areas may help to check the spread, it's not doing anything long term if we don't remove the grazing pressure," Salvo said.

As an alternative, a coalition of environmental groups proposes that the federal government pay livestock ranchers to retire their allotments of public grazing land.

Private ranchers could then be paid to strategically graze their sheep on degraded land as part of the restoration process.

According to Seefeldt, putting strategic grazing programs to work effectively will require changes in how public lands are managed for grazing.

However, he said, some shepherds are already reaping the rewards of their sheep's rediscovered appetite for weeds.

"There are some people now who have flocks of sheep and all they do is graze weeds," he said. "They take them from one place to another, and they are actually paid to control weeds."



Scientists at Idaho's Sheep Experiment Station have found that some sheep have a taste for the invasive weeds that threaten U.S. sagebrush lands. Researchers hope to develop ways to deploy the sheep to impede the alien invasion.

*Photograph courtesy U.S. Agricultural Research Service*