

## Got Weeds? These Sheep Will Make House Calls



Janie Osborne for The New York Times

In Missoula, Mont., Enrique Marquez was in charge of a flock of sheep let loose on public lands to eat unwanted weeds.

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**MISSOULA, Mont.** — Chilled by an autumn wind, Enrique Marquez watched from horseback as the sheep gamboled down the mountain. A border collie nipped the heels of wayward ewes.

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The owner of the sheep, John Stahl, helped lead them back to his ranch.

All summer and into the fall, the flock grazed on noxious weeds infesting about 1,000 acres of public lands above the Missoula Valley as part of this city's effort to restore its native prairie grasses.

Nationwide, sheep grazing is gaining popularity as a low-cost, nontoxic tool in the battle to control leafy spurge, knapweed, dalmatian toadflax and other invasive weed species. The approach is catching on in places like Nantucket, Civil War battlefields in Virginia, ski slopes in Vermont and vineyards in California.

Tom McDonnell, a staff consultant with the American Sheep Industry Institute, called this kind of grazing a "growth industry." Mr. McDonnell cited a study by the College of Agriculture and Life Sciences at [Cornell University](#) that indicated nonnative weeds had invaded 40 percent to 50 percent of America's croplands, pasture and public lands and were spreading at a rate of 1.75 million acres per year.

Sheep grazing is a long-term solution best used in conjunction with other methods, like beneficial insects, controlled burns, herbicides and hand pulling, officials said.

Jeff Mosley, an extension range management specialist at Montana State University, said sheep were a natural "low fossil fuel" way of controlling invasive plants, with the added benefit of providing meat and wool.

"It's environmentally friendly," Mr. Mosley said. "Grazing has an aesthetic appeal and a bucolic aspect. It's a natural form, and people appreciate that as well."

In the mountains ringing the Missoula Valley, about 600 acres of city lands are 75 percent to 100 percent invaded by noxious weeds, said Missoula's conservation lands manager, Morgan Valliant.

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"We're using the sheep to slowly turn back the clock and decrease the density of the weeds and get some seeds" of native grasses and wildflowers sown, Mr. Valliant said, adding, "Each year, we're learning more and more."

Still, some local residents are skeptical.

Giles Thelen, a plant ecologist at the University of Montana in Missoula, said that results of the sheep grazing program were anecdotal and that plots should be used to measure how effective the sheep were. Mr. Thelen also worries about the sheep worsening the problem by picking up invasive seeds in their wool and dropping them in new areas, as well as causing erosion with their hooves.

"There's no data to show if the sheep are making the situation worse or better," he said. Some herbicides may be more effective, he said, "but people don't like poison on their public lands."

Each year, the city contracts with John Stahl, a fourth-generation rancher who drives his flock to the infested hills from his Missoula County ranch nine miles away.

The city pays Mr. Stahl about \$1,300 a month, including a modest stipend for Mr. Marquez. The rancher provides Mr. Marquez's food, equipment, camp wagon and bus fare from his home in Chihuahua, Mexico.

Mr. Stahl said access to the forage on public lands allowed him to continue raising sheep and other livestock instead of selling the ranch to developers.

"I couldn't make a living on the sheep without access to the city land," Mr. Stahl said. "And Enrique really knows the sheep and all the places they can hide. He has an instinct for animals."

Before coming to Montana, Mr. Marquez, 57, a soft-spoken man with hazel eyes, worked with cattle in New Mexico for a decade, but he had never handled sheep. He said the money he earned each season helped him fix up his small cattle ranch in Mexico.

Mr. Marquez pointed out the telltale orange patches of leafy spurge in the dun-colored hills where his flock had not grazed. He said the sheep were effective and better than spraying.

"The chemicals kill the bad plants as well as the good ones," he said in Spanish. "In Mexico, we have a little spurge, but nothing like this. I've learned a lot about bad plants and sheep here."

On a recent Sunday morning, the flock departed the mountains before the first snowfall. The sheep moved through Missoula's streets, their bells clanging and hooves clattering on the pavement as they headed back to the ranch.

The herders included Mr. Stahl on an all-terrain vehicle, volunteers on bicycles and Mr. Marquez on horseback. The woolly procession rolled past subdivisions and apartments, where children ran alongside it.

A tractor-trailer slowed to a halt as it was engulfed by the flock. The sheep ran through an Interstate underpass, then across railroad tracks and a busy four-lane state highway.

When the sheep arrived at the ranch after an hour and a half trip down from the mountains, they fanned out in the waist-high grasses. Mr. Stahl said the roundup went faster each year.

**"They make their way home from memory," he said.**

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