

## For the Long Run: Cooperation and Trust Conquer Weeds in Sweet Grass County

Knapweed and leafy spurge, two of Montana's most aggressive and persistent noxious weeds, first arrived in Sweet Grass County in the 1940s. A half-century later, across the broken foothills of the Absaroka Mountains south and east of Big Timber, both species were well-established. Ranchers Leo and Lois Cremer grew up in the area and were certainly acquainted with knapweed and leafy spurge. But it wasn't until they acquired a tract of neighboring rangeland in (need year) that they had to confront the full scope of the problem.

"It was overwhelming," Leo says. "There hadn't been any weed management. In some areas leafy spurge and knapweed were the dominant species. We stood there staring at it wondering what the heck we were going to do."

Stacey Barta in 2004 was the Sweet Grass County Noxious Weed Coordinator. She wanted to take on the area's weed problem, too. But in order to do it right, she knew the fight would have to continue for a long time – at least long enough to outlast the 8- to 10-year seed supply of knapweed. Nor would it succeed without broad participation from area landowners. A single mature knapweed plant will produce 18,000 to 24,000 seeds per year. If two neighboring landowners are actively controlling weeds and two others nearby are not, a lot of time, effort and money can be wasted.

Barta saw an opportunity in 2004 when she learned the Natural Resource Conservation Service (NRCS) had a special initiative to fund long-term weed management on a watershed scale. She sat down with Chuck Roloff, District Resource Conservationist for NRCS in Big Timber, and Joe Fidel, then the NRCS Bozeman-area Resource Conservationist, to learn what she would need to submit in a grant application.

The first requirement may have been the most challenging. It was Barta's job to contact every landowner in the watershed, explain the opportunity at hand, and the potential costs and benefits.

"I spent a lot of time going to houses, having coffee, and teasing out what each landowner might be willing to do," says Barta. "I stressed the negative environmental impacts of invasive species on their operation and the environment. With proper weed control they would end up with more forage on the ground for their cows and better habitat for wildlife."

Leo and Lois Cremer wanted nothing more than to conquer their weed problem. They were happy to sit down and listen to Stacey. But the project was a huge commitment of time and money. What if it didn't pan out?

"Everybody was a little leery of working with the government," Leo says. "You're signing your name to a contract, committing to do a huge amount of work for ten years. That's a long time. There was a lot of money involved. It was scary, it really was."

So what made the difference?

“We knew Stacey, and we knew Chuck, and they were convinced it would be a good deal for us,” Leo says. “Lois and I decided to trust what they said.”

Stacey Barta put together the grant proposal, which NRCS approved. The Yellowstone South Cooperative Noxious Weed Project had commitments from 17 private landowners, with properties ranging in size from 7,000 to 100 acres. The 30,000-acre project area encompassed four watersheds, all of which drain to the Yellowstone River. Along with private lands were scattered parcels managed by the Montana Department of Natural Resources and Conservation and the federal Bureau of Land Management. Montana Rail Link, which owned approximately 300 acres in right-of-way along its tracks, also participated.

Though he may have some misgivings about the government, Leo Cremer has always been willing to explore new ideas for improving his operation. “If you want to survive, you’ve got to progress,” he says. As the weed-control project was taking shape, Chuck Roloff approached Leo with an idea to further enhance the benefits from eliminating weeds: a new grazing plan.

The plan called for dividing Leo’s largest pastures into smaller units. In several of those new pastures, Leo had a well put in; a solar-powered pump delivered water to a stock tank for the cows. The reconfigured pastures and new water sources would enable the Cremers to better distribute and manage the number of cows grazing in a given area, and the amount of time they spent grazing each area; it would also move them away from creek bottoms and riparian areas.

“We went to a deferred rotation,” Leo says. “With the new plan, we wouldn’t put cows on the same pasture in the same season two years in a row. It gives your grasses a chance to grow back.”

The ultimate goal, Roloff says, was to boost the overall vitality of the Cremer’s shortgrass prairie rangeland. “It doesn’t take long if you’re improving your grazing management,” Roloff says, “you’re leaving more mulch; you’re conserving more precipitation, decreasing evaporation, and your plants get happier. They’re building stronger root systems, expanding to cover bare ground, getting more resilient, and much more competitive against noxious weeds and other invasive plants.”

In 2006, the Cremer family launched an all-out assault on their weed problem. The plan called for a combination of herbicide spraying and biological controls (releasing insect species that feed upon leafy spurge and knapweed). The project was a cost-share agreement: the Cremers would pay for the upfront costs, then submit invoices at the end of each year for reimbursement. Early on they realized that aerial spraying from a helicopter was the most effective way to apply herbicide on the hilly, broken terrain. In order to offset that cost, the entire family – Leo, Lois, and their two children – did the ground spraying themselves.

“It was a hell of an undertaking,” Leo says. “In the first year our costs were more than \$60,000. Without the grant money there’s no way we could have done it.”

Under the summer sun they worked in Tyvek suits and rubber gloves, one person driving a four-wheeler while the other walked behind with the sprayer. At other times, each family member carried a backpack

sprayer. On level ground they could treat 20 acres in a day. In rough terrain they covered three or four acres. They logged hundreds of hours, and when the spraying was done each day, they still had all the usual ranch work left to do.

But it didn't take long to see results. "The change after the first year was dramatic," Leo says. "You couldn't believe the difference." By the third year, the combined effects of the weed-control effort and Leo's revamped grazing plan were evident. "There was an unbelievable amount of new grass coming into areas where the weeds were eliminated," he says.

The battle went on. The massive root system of a single leafy spurge plant reaches 20 to 30 feet deep. In addition to producing seeds, leafy spurge spreads through nodules on its lateral roots. "A spurge plant that's been in place for three or four years is established, and you've got a serious fight on your hands," says Chuck Roloff. "Going after the new starts is actually more important. With the older plants, the goal is to suppress seed production and spread."

As the project continued, Leo worked with Chuck to set up a monitoring program. They established sites in pastures and took photographs each year. "If you keep looking at the same piece of ground over time, you should see some improvements," says Chuck. "This was really helpful for Leo – he could see the physical differences, the positive changes to his rangeland."

In some areas of the Cremer ranch, the ratio of weeds to grass was 80-20 when the project started. In many of those sites, that ratio has been reversed. With more forage, the Cremer's cows are doing better, and there's more for the deer, elk, and other wildlife. "Without this project we would still have weeds everywhere," Leo says. "It has surely put more feed on the ground. We still work on it every year and I think we will forever. It's an ongoing battle. You've got to stick with it."

It's estimated that noxious weeds today infest 8.2 million acres in Montana, and spread at a rate of 10 percent every year; the minimum management cost for dealing with weeds is projected at \$47.00 per acre. "Invasive species have great potential to harm our state's rangeland resource," says Stacey Barta. "Weeds impact wildlife habitat – they displace forage and cover. They impact a rancher's bottom line. They decrease natural diversity. And you can see other problems like increased soil erosion."

The Yellowstone South Cooperative Noxious Weed Project succeeded on the basis of personal relationships, commitment, and a massive amount of hard labor. "Everybody held up their end of the deal," says Leo. "It takes good people for something like this to work. We had a good county weed coordinator in Stacey and a good person at NRCS in Chuck."

"This project had 20 different landowners," Barta says. "That's a lot of trust. If we couldn't have gotten that participation, the project never would have succeeded."