

The Stream Team

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Photographs by BRUCE KLUCKHOHN

Team principals Larry Gates (left) and Ralph Lentz discuss Sugarloaf Creek.



In an unlikely duo teams up
t's the kind to disprove a widely held
of brilliant belief about cattle
fall day when even a lowly and waterways.
farm stream takes on the look of a
sun-soaked gem. But as Larry
Gates and Ralph Lentz
tramp along a short section
of Sugarloaf Creek in southeast-
ern Minnesota, the two men can see
that this waterway's glowing complexion is
due to more than seasonal luster. Its grass-covered
banks have a gentle slope. The channel is deep.
Overhangs at the water's edge offer perfect habitat for fish and
other creek residents.

Gates squats next to the fast-running water and scoops up a handful of the creek bed. He cracks a smile as the water drains through his fingers, leaving a mound of clean gravel. The relatively silt-free material is a sign that little erosion is coming off the pastures adjacent to the creek. It also indicates the current is running fast enough to cleanse itself of excess silt.

Lentz steps into the channel, and cold water slurps around his rubber chore boots. The stream is making the babbling-brook sounds associated

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with fast, narrow waterways.

"I like the sound," Lentz says.

Gates agrees. "It's turning into a gurgler."

Sugarloaf Creek is a far cry from the waterways normally found in farm country: slow, wide creeks filled to the brim with chocolate braids of silt-carrying water. Sugarloaf's good health is due in large part to a strategy that uses cattle—long considered the enemies of healthy watersheds—to improve the stability of the streambank. But just as important, this stream is the product of an alliance between two people who, by occupation, often don't see eye-to-eye on land use.

Gates is a watershed coordinator for the Department of Natural Resources. Lentz is a farmer. This stretch of the Sugarloaf winds through Lentz's 160 acres, then flows three more miles to the Mississippi River.

That a farmer and a natural resources professional would join forces to improve a waterway might seem unusual in this age of debates over property rights and agriculture's role in degradation of water quality. In fact, when Gates and Lentz began discussing the relationship between farms and streams more than 20 years ago, they weren't always on the same page.

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"It ended in a shouting match," recalls Gates of one of those first conversations.

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The shouting was about whether cattle and creeks mix. These days Lentz and Gates most often speak with a united voice. This has made them respected and effective promoters of a way of managing streambanks that could prove nothing short of revolutionary.

Cussing Over Creeks and Cattle.

To appreciate the environmental-political chasm Lentz and Gates have bridged, one must consider the entire debate about having cattle in streams. Over time several large cattle, each with four sharp hooves, can denude a streambank of the plants needed to bind soil together, creating a wide, shallow waterway that erodes easily. The tendency of cattle to cause erosion and contribute

manure to small rural streams is one reason why agriculture is the nation's single biggest source of nonpoint-source water pollution.

Resource professionals aren't the only ones who get heartburn over agriculture's relationship with water. When an ecologist shows up to look at land-use practices, farmers sometimes see that person as the enemy, who is trying to punish them for not treating the land the way "experts" say they should. "Sometimes we get in a situation where you're either a cop, or the one being copped," says Gates.

Gates and Lentz interact more like

two neighbors wrestling with a local problem in which they have equal stake. The seed of this stream team was an informal experiment set in motion by Lentz three decades ago. That's when he approached technicians in the local Soil Conservation Service (now the Natural Resources Conservation Service) about creating a conservation plan for his portion of Sugarloaf Creek. They gave the standard recommendation: Fence off the stream, plant trees, and, most of all, keep the cattle out.

So in 1967 Lentz fenced off about 1,500 feet along a half-mile stretch of the stream and planted a few acres

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alph Lentz shows visiting vocational agriculture teachers the results his grazing techniques have had on the banks of Sugarloaf Creek. Short periods of intensive grazing appear to have stabilized riparian areas.



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of spruce, pine, cedar, and ash. Convinced he had done the right thing, he sat back to watch what would happen.

Unplanned Laboratory. Lentz's initial plan was to fence off the entire creek on his property, creating a permanent riparian strip. But things got busy on the farm, and Lentz never got around to building

more fence. By leaving a section unfenced, Lentz had inadvertently created a laboratory for comparing land uses.

Within two decades his makeshift demonstration plot began telling an interesting tale. The fenced-off area, now heavily forested, became host to a wide, shallow stream with erosion-prone banks. The trees had grown so well that they had shaded

Overgrazing is often blamed for streambank erosion. Recent work, including observations on the Lentz farm, suggests properly timed grazing can help strengthen vegetation and build soil along streams.



out grasses and other undergrowth that hold soil together.

The section upstream of the fenced-off area, where Lentz had allowed cattle to periodically graze, was far more stable. The grass-covered banks were rounded and gradual instead of sharp. The streambed itself was narrow and deeper. In short, the grazed area looked better than the fenced section.

"I was very surprised to see the fenced-off area deteriorating," recalls Lentz. "What I had been taught was not what I was seeing." Lentz began to believe that, in some cases, allowing cattle to graze along a stream on a limited basis could improve the waterway.

At first Gates was skeptical. But he was pleased that Lentz was willing to consult him. "It was real heartening to get a call from Ralph and to realize this landowner was noticing things in a very sophisticated way," Gates says.

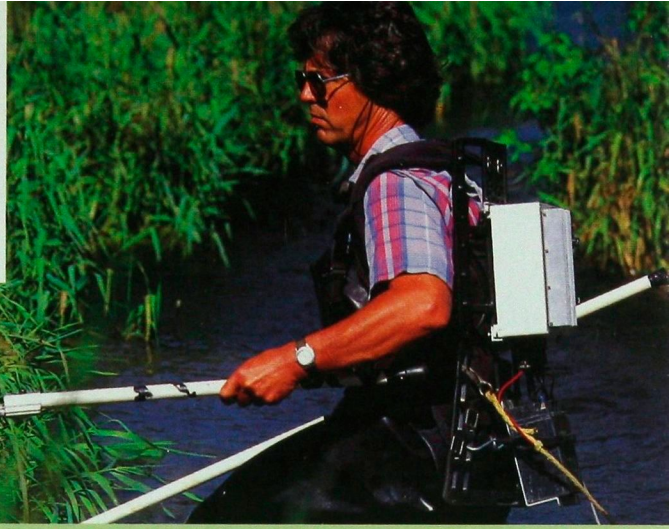
When Gates went to the farm and saw what Lentz was so excited about, he realized something

Within two decades, his make-shift demonstration plot began telling an interesting tale.

important was taking place. What he saw fit with observations he was beginning to make in other parts of southeastern Minnesota at that time: Sometimes controlled grazing helped, not hindered, a streambank's stability. Though the ground might look as though it had been hit by a mud-filled bomb immediately after cattle leave, it is a nutrient-rich environment for new growth. The intense impact breaks down the edges of a sharp streambank, creating a gentler slope for plants to establish themselves.

Using short-term livestock disturbance to rehabilitate an area dovetails nicely with a livestock production method called management intensive rotational grazing. Lentz has been using this technique—he calls it rational grazing—since the late 1980s for beef cattle. Also called timed grazing or controlled grazing, this system rotates cattle among small paddocks using movable electric fencing. The cattle stay in one paddock for several hours to a few days—a schedule that allows the





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lectrofishing (above) confirms that better streambank management has produced deeper, cooler stream channels and, as a result, more abundant populations of trout (inset).

plants and soil time to recover.

A three-year study of Lentz's farm and five others found that controlled streambank grazing can reduce the amount of sediment flowing into a waterway. The study, conducted by the Minnesota Cooperative Fish and Wildlife Research Unit, also found that a stream degraded by overgrazing starts to recover as it flows through a rotational grazing area.

The effects of rotational grazing differ greatly from those of continuous grazing systems, where cattle are turned out into one or two large pastures for the entire season. Because the cattle roam at will, continuous grazing often results in overgrazing, heavy manure concentrations, and ruined waterways.

Aware of damage caused by continuous grazing, the environmental community has had trouble believing that cattle and creeks can be a good mix.

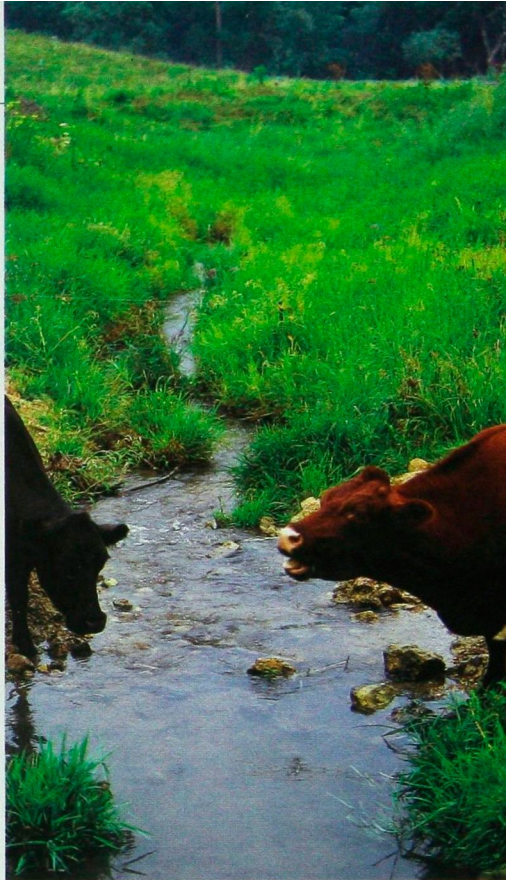
Todd Lein, a Minnesota-based staff member with the conservation organization American Rivers, has seen Lentz's streambank experiment firsthand and is a believer, even going so far as to try a version of it on his own farm near Northfield. But when Lein brought up the concept of controlled streambank grazing at a recent meeting of environmental professionals, the reception was less than enthusiastic.

"An Environmental Protection Agency analyst said, 'So all these years we've tried to get cattle off the

streambanks and now you're telling us to put them back,'" says Lein. "I can understand their confusion."

Not a Cure-All. Neither Gates nor Lentz claims that grazing is the cure-all for what ails a waterway. What works on this farm could have a negative impact on another. In fact, they point out examples of streambanks in southeastern Minnesota that have been improved by planting trees and excluding livestock. Indeed, Gates says the portion of the Sugarloaf on the Lentz farm that's the ecologically healthiest has a 50-50 mix of grass and trees.

Lentz and Gates were key in making stream monitoring a part of the Monitoring Team, a joint effort of the Land Stewardship Project and the Minnesota Institute



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for Sustainable Agriculture. The guiding principle of this team is that scientists have just as much to learn from farmers as the producers do from the scientists.

Gates says Lentz, like any farmer who is willing to experiment, possesses the power to find solutions to problems on his own land and in his community.

"The important thing here is Ralph observes," says Gates. "Ralph could identify 50 plants on his own farm. He also understands you don't just look at something for one



Section A

Section A, a 50-50 mix of grass and trees with partial controlled grazing, is the healthiest stretch of stream on Lentz's property. Next healthiest is Section B—grass only with controlled grazing. Surprisingly, the most eroded and degraded stretch is section C, with trees only and no grazing.

year and draw your conclusions. He does things in little bits and pieces and takes the time to observe the results, and adjust for them."

Dream Stream. In recent years Lentz has divided his half-mile

stretch of stream into section A (50-50 mix of grass and trees, partial controlled grazing), section B (grass only, controlled grazing), and section C (trees only, no grazing). He is still experimenting with different grazing periods and fenc-



Section C

ing techniques. Early in 1997 he made section B into a paddock smaller than two acres. He turned 80 cows and calves into the paddock for two days of grazing and trampling. Gates and Lentz examined the impacted area one day that fall.

"It was pounded. It was really

such a short distance on the same stream is astounding.

As they head back, the farmer and the ecologist get into a good-natured argument over the length of time a streambank should be rested between grazings. This isn't the first time they've debated the issue, and it won't be the last.



walloped," says Gates. But he is also impressed by the positive impact such a controlled intrusion can leave behind.

Dozens of species of plants, including sedges and bluegrass, blanket the area. The two men wrestle their way through heavy brush into section C, where a dense stand of box elders and other trees casts deep shade. Muck makes the walking difficult and steep; eroding banks offer no footing for plants. The contrast within

"We didn't even get in a fight today," Lentz says, smiling. "That's no fun." □

For more information call the Land Stewardship Project, 651-653-0618. The project has also helped create the Chippewa River Whole Farm Planning and Monitoring Team, a group of farmers and others in western Minnesota. For information on that group, call 320-269-2105. To learn about rotational grazing on DNR lands, call agricultural policy director Wayne Edgerton, 651-297-8341.