Land Stewardship Project Fact Sheet #23

Improving Riparian Areas with Livestock Grazing

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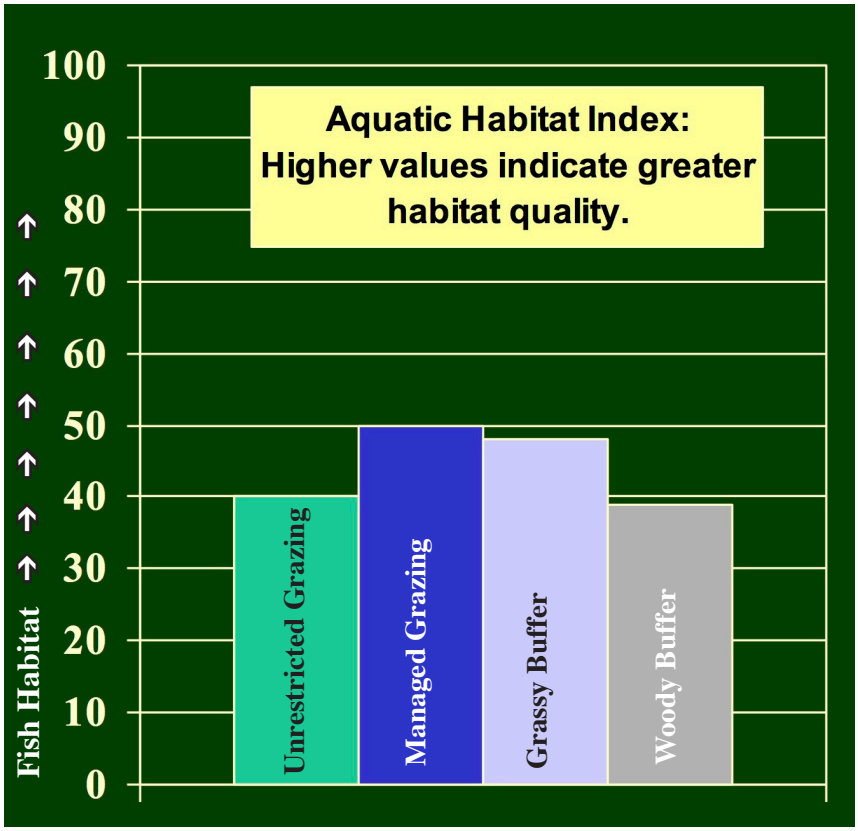
Cattle & Creeks

Allowing bovines unfettered access to rivers, streams and lakes can be a disaster when it comes to healthy watersheds. However, an increasing number of water quality experts are pointing to examples where cattle can actually have a positive influence on water quality.

The key is to not allow cattle uncontrolled access to riparian areas, which is often the case when cattle are turned out onto the same pasture for the entire growing season, and sometimes longer. Careful management of both herd and sward can yield rewards for fish, field and farmer alike. For example, stream banks exposed to short (a day or two at most) bursts of livestock activity stabilize the riparian area by getting rid of invasive species and making room for deep-rooted, soil-binding grasses. The collective hoof action creates micro-pockets of biological activity that feed grasses and other perennial plants. It's a cycle that filters streams, fattens cows, builds soil, and enriches habitat for fish and farmer alike.

Breaking up the soil surface periodically is important to the health of a riparian area—an absence of disturbance can lead to soil compaction, which reduces the amount of precipitation that percolates down into the soil profile. Compaction leads to rapid surface runoff during rainstorms, which carries soil and other contaminants into streams, rivers and lake systems.



What happens stream-side impacts aquatic habitat, as illustrated when University of Wisconsin and Wisconsin Department of Natural Resources researchers compared the effects of riparian rotational grazing, continuous grazing, grassy buffer strips, and woody buffer strips at 23 trout stream sites. Managed grazing and grassy buffer strips were comparably better management practices for improving fish habitat than woody buffers and unrestricted (continuous) grazing. A look at bank erosion produced the same pattern, with riparian managed grazing and grassy buffer strips holding on to more soil than continuous grazing and woody buffers.

SOURCE: Lyons, J. B., M. Weigel, L. K. Paine, and D. J. Undersander. 2000. Influence of intensive rotational grazing on bank erosion, fish habitat quality, and fish communities in southwestern Wisconsin trout streams. *Journal of Soil and Water Conservation*. V. 56, No. 3. p. 271-276.

Grazing

It turns out short-term "flash grazing" of a riparian area works well with managed rotational grazing, a system livestock producers are increasingly using to produce meat and milk. Instead of turning cattle out into one big pasture for months at a time, graziers rotate the animals through a series of smaller paddocks and provide the land plenty of rest between grazings. Such intentional rotations reduce overgrazing and allow grasses to develop deep root systems for maximum erosion control and soil protection. Managed grazing also spreads manure and urine more evenly across the landscape, reducing contaminant runoff. This creates a healthier water cycle overall, which results in a system that is more resilient when exposed to chemical and livestock-

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based pollutants, as well as severe weather.

Managed grazing also provides farmers with an economic incentive for protecting water quality. That's because it can lengthen the forage season and help increase animal numbers and stocking density significantly. Livestock that are rotationally grazed are also found to be healthier, reducing veterinary bills and increasing production.

An Established Practice

Making a stream bank one stop on a rotational grazing schedule is not a new idea. In the 1990s, the Land Stewardship Project-led Monitoring Team, a partnership of farmers, scientists and natural resource professionals, showed that managed grazing of riparian areas in southeastern Minnesota could significantly improve water quality.

A study published in the journal *Hydrobiologia* in 2011 found that in southeastern Minnesota, southwestern Wisconsin and northeastern Iowa, rotationally grazed sites were "associated with more stable stream banks, higher quality aquatic habitat, lower soil compaction, and larger particles in the streambed" when compared to conventionally grazed riparian areas.

Recent improvements in livestock management technology have made riparian grazing even more viable and environmentally sound. For example, strong, lightweight electric polywire and gravel pads that give cattle limited access to water without damaging the banks are now available.

The U.S. Environmental Protection Agency and the USDA's Natural Resources Conservation Service now recognize the role rotational grazing can play in reducing nonpoint source water pollution, a major problem in the Midwest.

In addition, rotational grazing is being used on wildlife refuges and other natural areas to control invasive plant species and create more open areas for certain species of wildlife. State natural resource departments, the U.S. Fish and Wildlife Service and private groups such as the Nature Conservancy are using "conservation grazing" to restore natural habitat, including riparian areas and wetlands.

A Great Relationship

Trout Unlimited has recently joined the ranks of enthusiasts who see managed grazing as a critical tool for its stream restoration programs. On a 3,000-foot stretch of Trout Run Creek in southeastern Minnesota, farmers Earl and Judy Prigge used flash grazing to preserve the results of a $133,000 fish habitat restoration effort led by Trout Unlimited.

"It's a great relationship—livestock and streams," says Jeff Hastings, a project manager for Trout Unlimited. "If we had our way, we would have grazing on every project we work on." But grazing requires livestock out on the land, an iconic farm feature that's disappearing as monocrops of corn and soybeans come to dominate many parts of the Midwest. The 2011 *Hydrobiologia* study came with an important caveat: while rotational grazing can improve water quality on a very local scale, land use in the wider watershed may be limiting the potential of this sustainable production system. A landscape dominated by a few annual crops can wipe out the benefits of a perennial plant-based farming system practiced on just a handful of farms in a watershed.

LSP, Livestock & Water Quality

The Land Stewardship Project (LSP) is working in southeastern and western Minnesota to help farmers adopt profitable production systems that improve water quality. For more information, contact Caroline van Schaik (southeastern Minn.) at 507-523-3366, caroline@landstewardshipproject.org; or Robin Moore (western Minn.) at 320-269-2105, rmoore@landstewardshipproject.org. More information is also available at www.landstewardshipproject.org.

Sources & More Information

◆ The *Hydrobiologia* paper can be found by Googling the title "Relationships among rotational and conventional grazing systems, stream channels, and macroinvertebrates."

◆ "Trout-fishing with Livestock" is an illustrated summary of how the Prigge farm in southeastern Minnesota's Root River watershed is showing that managed rotational grazing of cattle can improve habitat for trout (and other species) while providing the livestock producer economic benefits. It's available at www.landstewardshipproject.org/repository/1/1430/trout_livestock.pdf

◆ *Managed Grazing in Stream Corridors* is a how-to manual for farmers. It's at www.mda.state.mn.us/news/publications/animals/livestockproduction/grazing.pdf, or available by calling 800-967-2474.

◆ *Water, Grass, and Livestock: An Annotated Bibliography of Riparian Grazing Publications* is an LSP publication. Copies are available by contacting Caroline van Schaik at 507-523-3366 or caroline@landstewardshipproject.org.

◆ A *Land Stewardship Letter* article on Trout Run Creek and the use of grazing to preserve the effects of a fish habitat restoration project is in the No. 3, 2013, edition at www.landstewardshipproject.org.

◆ Episode 135 of the Land Stewardship Project's *Ear to the Ground* podcast features a discussion about managed grazing in riparian corridors: www.landstewardshipproject.org/posts/podcast/477.

◆ The No. 1, 2014, *Land Stewardship Letter* describes how conservation grazing is being used to restore and improve habitat on wildlife refuges and other natural areas: www.landstewardshipproject.org.

This fact sheet is brought to you by the members and staff of the Land Stewardship Project, a nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 612-722-6377 or visit www.landstewardshipproject.org.