

High-density, short-duration grazing good for trout as well as cattle

It turns out the increased stream-side vegetation that results from rotating a herd of cattle through small pastures for periods of 10 to 21 days may be as important for trout as it is for cattle.

A first-of-its-kind study by Colorado State University (CSU) shows rangeland riparian sites with intensive prescribed grazing management had more riparian vegetation, higher input of terrestrial (land-based) insect and other invertebrate prey, higher use of these prey by trout, and higher trout biomass compared to sites with season-long grazing.

The study also suggests that insects and other terrestrial invertebrates that come from riparian vegetation and fall, crawl, or blow into streams may play a key role in supporting trout.

“During the summers of 2004 and 2005, we compared riparian areas in five streams in Wyoming using season-long continuous grazing with five paired streams using prescribed grazing, where riparian areas were grazed heavily, but for only a short time,” says Ph.D. student Carl Saunders of the Department of Fish, Wildlife, and Conservation Biology at CSU. For example, one 110-acre prescribed grazing site was grazed by 400 cow-calf pairs for only 10 days after 310 days of rest as part of a larger rotational system.

“Trout biomass was more than twice as high in streams under high-density, short-duration grazing compared to those under season-long grazing. Fish densities were similar, but fish on prescribed grazing sites averaged 1.3 inches longer and about twice the weight,” Saunders explains.

Those trout consumed about twice as much terrestrial invertebrate biomass throughout the summer as trout in streams within pastures with continuous, season-long grazing. In August,

when trout fed most on terrestrial invertebrates, trout in streams with riparian zones under prescribed grazing had three to five times more terrestrial invertebrate biomass in their afternoon diets than did those under season-long grazing.

“We know terrestrial invertebrates are important to trout because they made up 57 percent of their diet, on average, during the summer,” Saunders says. “We also found that trout in riparian sites of prescribed grazing systems consumed nearly five times as much aquatic invertebrates as those in season-long grazing pastures. The aquatic invertebrates feed mostly on dead leaves that fall into the stream.”

While riparian zones under both grazing systems had similar plant species numbers, vegetative biomass above ground was three times greater, and overhead cover was two times greater at sites managed under high density short-duration grazing.

Most efforts to sustain trout in rangeland streams have focused on instream habitat, but this study indicates potential to improve both land-based and aquatic prey for trout by using sound grazing systems, according to Kathryn Boyer, a fisheries biologist with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Portland, Oregon. Boyer and Wendell Gilgert facilitated the study for the NRCS.

Funding for the 3-year study was provided by the NRCS Agricultural Wildlife Conservation Center (AWCC).

The AWCC, located in Madison, Mississippi, is a fish and wildlife technology development center.



Photo by Carl Saunders, CSU

High density, short duration grazing

Summary of:

Agricultural Wildlife Conservation Center
Project # 68-7482-3-131

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