

On Arkansas Cattle Farms, A River Runs Through It



Even a small stream can cause big erosion in pastures.

U of Arkansas System Division of Agriculture photo by Dirk Philipp

FAYETTEVILLE, ARK.

It's not uncommon for Arkansas cattle farms to have streams and rivulets bisecting pastures. Unfortunately, so is streambank erosion, said Dirk Philipp, assistant professor-forages for the University of Arkansas System Division of Agriculture.

"Those streams can cause loss of fertile soil through bank erosion," he said. "That means a loss of nutrients through runoff from pastures and loss of nutrients in cattle." Cattle like to linger in streams, which can destabilize streambanks and pollute waters through urine and feces.

The University of Arkansas at Monticello formed an interdisciplinary team to address the issue.

A couple of years ago, the group began strategizing potential solutions and seeking expert advice from the National Resources Conservation Service and soil conservation districts, among others. The team, comprised of agriculture economists, foresters, water quality specialists, agronomists and soil scientists, developed a site as a model to educate landowners on solutions for keeping pastures intact while sacrificing little.

Ultimately, the best solution for preventing streambank erosion is to carefully manage how much of it is exposed to cattle. But farmers are wary of cutting off resources, said Philipp.

"Landowners are sensitive to fencing streams, so the team came up with different strategies, each featuring a unique setup and flexibility of what to implement," he said.

Each setup has its own requirements and benefits:

Fencing, one side of a stream

- Cattle have access to the stream, but can't climb through it
- Minimal land intrusion, but banks still heal because animals are on one side
- Rotate animals and move fences to the other

side of the stream occasionally

Fencing, both sides of a stream

- Cattle have access only a few times each year to graze
- Fencing would cover around 60 feet on each side of the stream
- Provides a buffer zone that filters pasture runoff, if runoff occurs
- Grazing is possible during times when soil impact is minimized. Animals can "flash-graze" buffer zones to take advantage of biomass in these areas
- Enhanced habitat for wildlife due to a high canopy nearly all year

Tree buffer zone

- Several trees planted in a completely fenced section of a stream to reestablish a riparian zone, which is ideal for maintaining water quality and wildlife habitat
- Showcased section is 925 feet long
- Trees include sycamore, green ash, water oak, mulberry and red bud, among others

One area was left untreated to compare the various options, and the site continues to be maintained by researchers and undergraduates. For 2011-2012, the team received a grant from the Arkansas Water Resources Center to monitor the effects of these treatments.

"It's already evident that streambanks can be protected with cost-effective measures such as one- and two-sided fencing," said Philipp. "Streambanks can re-establish vegetation all by themselves." Protecting streambanks can go a long way towards connecting regional habitats, establishing wildlife corridors along streams that benefit other people, including hunters.

The Monticello team anticipates developing the streambank protection project into a one-stop location in southeastern Arkansas, said Philipp. "There are multiple alternatives for streambank protection and riparian zone management while keeping cattle production feasible," he said. △