

## **Should I Fence the Streams, Ponds, and Wetlands in My Pastures?**

Author: Giuliano, William M.

Source: Rangelands, 28(1) : 29-31

Published By: Society for Range Management

URL: [https://doi.org/10.2111/1551-501X\(2006\)28.1\[29:SIFTSP\]2.0.CO;2](https://doi.org/10.2111/1551-501X(2006)28.1[29:SIFTSP]2.0.CO;2)

---

BioOne Complete ([complete.BioOne.org](https://complete.BioOne.org)) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](https://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

# Should I Fence the Streams, Ponds, and Wetlands in My Pastures?

Fencing pasture streams, ponds, and wetlands can improve fish and wildlife habitat and benefit agricultural landowners.

By William M. Giuliano

## The Past

Historically, throughout much of North America, many streams, ponds, and wetlands were in or surrounded by forest or at least trees and other taller vegetation. These areas had a profound affect on the condition of these lands as well as on the fish and wildlife that inhabited them. Trees and other vegetation provided shade, keeping the water cooler in summer, and their root systems kept the banks in place. This provided food and cover for fish and wildlife, while keeping egg- and gill-suffocating silt out of the water.

## Livestock Grazing vs Fish and Wildlife

Many fish and wildlife species that require these aquatic habitats and adjacent areas—called riparian zones—have been declining throughout much of North America over the last several decades. These declines appear to be linked to habitat loss and destruction associated with logging, intensified agriculture, and development. In these riparian areas, habitat losses due to agriculture appear to be particularly important, with as much as 250,000 acres lost annually in the United States. Uncontrolled grazing in and around streams, ponds, and wetlands appears to be especially important, leading to excessive disturbance, loss of food and cover, fecal contamination of water supplies, and stream-bank erosion (Fig. 1).



**Figure 1.** Grazing livestock in and around pasture streams, ponds, and wetlands reduces the value of these natural resources to fish and wildlife, livestock, and landowners.

### **Fencing Programs and Their Benefits to Landowners**

Many popular game species and as many as half of the wildlife species considered “at-risk” are associated with streams, ponds, and wetlands. To address the problem of habitat loss and degradation in these areas, many federal, state, and private organizations have been working with agricultural landowners to implement fencing and restoration programs to protect and enhance these sites. Programs consist of fencing these important areas to exclude grazing livestock, and in some cases, replanting native vegetation and restoring topography and natural water flow (Fig. 2). Livestock access water at small, fenced stream crossings and access ramps, and troughs to which water has been diverted (Fig. 3). It was hoped, and has been confirmed, that such programs reduce disturbance to fish and wildlife; improve food, cover, and water quality and quantity; and reduce erosion. Additionally, the programs benefit farmers and ranchers through improved livestock health and production from enhanced water quality; fewer injuries associated with livestock use of degraded streams, ponds, and wetlands (including getting stuck in the mud or falling down an eroded stream bank); more water during summer and drought; the ability to rotationally graze pastures (because fences that protect riparian areas naturally divide pastures); and possible improvement of the performance of feeder calves by introducing them to man-made watering devices prior to arriving at feedlots and backgrounding pastures.

Fence construction and maintenance can be costly. However, program costs can be shared by landowners and cooperating agencies. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service and Farm Service Agency have been particularly important, providing reimbursement for much of the costs. Thus, landowners’ expenses to implement this program on their properties are greatly reduced and appear to be far outweighed by the benefits obtained. Currently, landowners in many areas who enroll in the USDA’s Wildlife Habitat Incentives Program, Wetlands Reserve Program, Conservation Reserve Program, Conservation Reserve Enhancement Program, and Environmental Quality Incentives Program can recoup much of the costs of program implementation, and may also be eligible to receive an annual rental payment to defray the cost of lost pasture acreage.

### **Fencing Programs Benefit Fish and Wildlife**

Over the past several years, several researchers have been intensively examining the importance of these fenced areas to fish and wildlife. Fenced areas were found to support 88% more species than do unfenced areas, with many declining species preferring fenced habitats. Fish and wildlife found more often in fenced areas included cottontail rabbits, opossums, meadow voles, meadow jumping mice, white-footed mice, short-tailed shrews, masked shrews, hairy-tailed moles, ring-necked pheasants, great blue herons, green-

backed herons, belted kingfishers, solitary sandpipers, song sparrows, yellow warblers, American goldfinches, eastern phoebes, willow flycatchers, grey catbirds, mallards, northern queen snakes, northern water snakes, eastern garter snakes, green frogs, northern dusky salamanders, creek chubs, emerald shiners, blacknosed dace, fantail darters, bluntnose minnows, and several types of invertebrates, to name a few. Fenced areas also appeared to improve wildlife reproductive success. Habitats that excluded grazing livestock had greater numbers of bird nests, fewer nests destroyed by livestock, and greater numbers of juvenile amphibians.

Wildlife preference for and success in fenced habitats appears to be because of the increased food and cover provided in these areas, reduced disturbance by livestock, and improved water quality and quantity. Fenced areas typically had thicker and taller cover than did grazed sites. This cover, while providing protection from predators and weather, also provides food for wildlife in the form of seeds, fruits, browse, and insects. Unfenced areas typically contained less food, allowed predators easy access to many species and their nests, and harbored increased numbers of livestock, which tram-



**Figure 2.** Fencing pasture streams, ponds, and wetlands to exclude livestock can benefit fish and wildlife, livestock, and landowners.





**Figure 3.** When pasture streams, ponds, and wetlands are fenced, livestock can obtain water from fenced stream crossings and access ramps (top photo), as well as from troughs to which water is diverted (bottom photo).

pled and disturbed fish and wildlife and their nests. Additionally, excluding livestock reduced fecal contamination of water, which enhanced conditions for many aquatic species that are often the “bread and butter” of the local food chain. The benefits obtained from fencing these habitats increased with the size of the area fenced. However, regardless of how small a fenced area was, it was better than a similarly sized unfenced site. Similarly, although not as beneficial as permanent exclusion, excluding livestock from these

areas for part of the year was better than allowing continuous access.

### So What!

Many landowners give their livestock free run of the land, often based on tradition rather than on a grazing management plan. This is unfortunate, as it can reduce the quality of the land for the owner, livestock, and fish and wildlife. To improve the quality of your land, improve conditions for livestock, and help many species of fish and wildlife on your property, the solution is simple: Fence Streams, Ponds, and Wetlands—It’s Win-Win Management!

### Additional Reading

- BELDING, R., W. M. GIULIANO, D. PUTNAM, AND J. TARACIDO. 1999. Integrating wildlife management and agriculture: conserving biodiversity through long-term partnerships. *In*: G. D. Therres [ed.]. Conservation of biological diversity: A key to the restoration of the Chesapeake Bay ecosystem and beyond. Annapolis, MD: Maryland Department of Natural Resources. p 48–51.
- GIULIANO, W. M., AND J. D. HOMYACK. 2004. Effects of short-term grazing exclusion on riparian small mammal communities. *Journal of Range Management* 57:346–350.
- HOMYACK, J. D., AND W. M. GIULIANO. 2002. Effect of stream-bank fencing on herpetofauna in pasture stream zones. *Wildlife Society Bulletin* 30:361–369.
- NATURAL RESOURCES CONSERVATION SERVICE. 2005. Farm bill programs. Available at: <http://www.nrcs.usda.gov/programs/farbill/2002/products.html>. Accessed 6 December 2005.
- POPOTNIK, G. J., AND W. M. GIULIANO. 2000. Response of birds to grazing of riparian zones. *Journal of Wildlife Management* 64:976–982.
- U.S. DEPARTMENT OF AGRICULTURE. 2005. Farm bill forums. Available at: [www.usda.gov/farbill](http://www.usda.gov/farbill). Accessed 6 December 2005.

---

*Author is Assistant Professor and Wildlife Extension Specialist, Department of Wildlife Ecology and Conservation, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611, giulianob@wec.ufl.edu. This work was supported by the Florida Agricultural Experiment Station, and approved for publication as Journal Series R-10973.*