Fencing Pasture Streams, Ponds, and Wetlands¹

William M. Giuliano²

Historically, many streams, ponds, and wetlands were in or surrounded by forest or at least trees and other taller vegetation throughout much of North America. These forested areas had a profound affect on the condition of these lands as well as 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 Versus 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 excess disturbance, loss of food and cover, fecal contamination of water supplies, and streambank erosion (Figure 1).

Fencing Programs and Their Benefits to Landowners

Many popular game species and as many as one 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 (Figure 2). Livestock access water at small, fenced stream crossings and access ramps, and troughs to which water has been diverted (Figure 3). It was hoped, and confirmed, that such programs would 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

-
1. This document is WEC 210 and one of a series of the Department of Wildlife Ecology and Conservation, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences (IFAS), University of Florida. First published: May 2006. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu> for more publications. This article was adapted from Giuliano, W.M. 2006. Should I fence the streams, ponds, and wetlands in my pastures. *Rangelands* 28(1):29-31, and reprinted with the permission of the Journal.
 2. William M. Giuliano is an Assistant Professor and Wildlife Extension Specialist; Department of Wildlife Ecology and Conservation, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Larry Arrington, Dean

Figure 1. Grazing livestock in and around pasture streams, ponds, and wetlands reduces their value to fish and wildlife, livestock, and landowners. Credits: W.M. Giuliano. (2005).

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 streambank); more water during summer and drought; the ability to rotationally graze pastures (as fences that protect riparian areas naturally divide pastures); and improvements in 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 USDA Natural Resources Conservation Service and Farm Service Agency have been particularly important, providing reimbursement for much of the costs. Thus, landowner expenses to implement this program

Figure 2. Fencing pasture streams, ponds, and wetlands to exclude livestock can benefit fish and wildlife, livestock, and landowners. Credits: W.M. Giuliano. (2005)

on his/her property 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 (WHIP), Wetlands Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Environmental Quality Incentives Program (EQIP) 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 unfenced areas, with many declining species

Figure 3. Once pasture streams, ponds, and wetlands are fenced, livestock can obtain water from fenced stream crossings and access ramps (top photo), and troughs to which water is diverted (bottom photo). Credits: W.M. Giuliano. (2000).

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 due to 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 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 trampled 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 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!