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Value of Iowa's wetlands

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Abstract
When discussing Iowa's water quality issues, the conversation often turns to the subject of wetlands. What are wetlands and why are they important to water quality? Wetlands are characterized by many attributes, including hydrology, water chemistry, soils, and surrounding topography. So the term "wetland" is flexible, and you may have referred to wetlands as a swamp, marsh, bog, pothole, bottomland, slough, fen, seep, wet meadow, or oxbow.

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In Iowa, wetlands are most often referred to as areas that are periodically or regularly inundated with water. Soils in wetlands are normally saturated with water and the vegetation in and around them is specifically adapted to the wetland environment.

Wetland environments exist as a result of glacial activity in north central Iowa, migration of rivers and streams across their floodplains, and the natural erosion and filling of drainage ways in the uplands. The evolution of these natural landscape processes resulted in pockets and depressions that were filled with water, creating shallow ponds and lakes. Centuries of natural erosion and deposition of sediment and plant material partially filled these shallow ponds and lakes, creating wetlands.

Early homesteaders in Iowa took advantage of the rich soil in prairies to grow their crops, plowing the tall grass and straightening and dredging creeks and rivers. Thus, many of Iowa's estimated 6 million acres of prairie wetlands was drained. The discovery of the nutrient-rich soil in the wetland basins only increased the pace of drainage activity.

Drainage districts and a network of tile lines have impacted large areas of wetlands. Currently, 89 percent of Iowa's original wetlands have vanished (taken from Wetlands Losses in the United States 1780s to 1980s). This high level of modification in what was once a natural hydrologic system has resulted in several unintended consequences, and the loss of many wetlands benefits.

Benefits of wetlands

Wetlands are nature's natural water filter. They maintain and improve water quality by intercepting runoff as it moves through the wetland system. The organisms in wetlands can use or retain agricultural nutrients and process chemical and organic wastes. The fractive surfaces of wetland plants and slow-moving or still waters also settle out sediments eroded from uplands. Research indicates that a wetland environment increases the quality of water before discharging it into streams and creeks or before it percolates through the soil.

Lush vegetation and abundant microbial life are characteristic of healthy wetlands. Research has shown successful filtration of runoff from an approximate ratio of wetland-to-crop field acreage of 1:100. This means that 1 acre of Iowa wetland removes excess amounts of nitrogen in runoff from 100 acres of corn ground.

Wetlands are important in recharging groundwater supplies. Such recharging is important because groundwater is used extensively in Iowa for drinking water and agriculture. Wetlands help maintain water tables and stream-base flows, keeping groundwater levels sufficiently recharged.

Wetlands also can be managed to store storm runoff and floodwater, thereby protecting adjacent and downstream property from flood damage. Draining wetlands eliminated much of Iowa's water storage capacity. Wetlands could instead be used as a collection point for tile drainage systems.

With some creative thinking, you could make wetlands an important part of your operation, with benefits to yourself and your neighbors. Reestablishing a wetland could remove marginal land from production, lowering overall costs, and provide water quality and associated environmental benefits that go beyond simple economics.

Wetlands policies and programs for cost-share

Although wetlands can be beneficial, what about cost? Altering the land or reestablishing wetlands can be a financial burden, especially in challenging economic times. Most producers and the organizations that represent them agree that there is a need for shared private and public responsibility for voluntarily reestablishing wetlands.

The U.S. Fish and Wildlife Service estimates that California (91 percent), Ohio (90 percent), and Iowa (89 percent) have suffered the highest percentage of wetland losses (taken from Wetlands Losses in the United States 1780s to 1980s). But public interest and support for wetlands protection, as well as research-based information, has translated into opportunities for wetlands restoration programs from public and private sources.

Whether through innovative solutions such as wetland mitigation banking (getting paid to maintain or establish a wetland in exchange for one that is drained elsewhere), or through programs such as the Wetlands Reserve Program (helps landowners with financial incentives for enhancing wetlands in exchange for retiring marginal agricultural land), there are many resources available for cost-share to producers who are interested in restoring wetlands in their operations. Contact your local soil and water conservation district office to learn about wetland programs in your county. Remember, establishing and maintaining wetlands can be an important contribution to improving water quality in Iowa.

For more information on wetlands, see Wetlands Losses in the United States 1780s to 1980s by T. E. Dahl (1990) U.S. Department of the Interior, Fish and Wildlife Service, or visit http://www.iawetlands.iastate.edu/ or http://www.epa.gov/OW/resources/9698/chap5.html or http://www.ag.iastate.edu/centers/iawetlands/Bearcrk.html (information used to develop this article).

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