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The Wetlands and Drainage Controversy—Revisited

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IN THIS ISSUE

The March issue of Minnesota Agricultural Economist considers the wetlands controversy both from the farm and public policy viewpoints. This article adds to information on the subject which appeared in this publication nearly 6 years ago.

In the years since *Minnesota Agricultural Economist* readers were introduced to the wetlands controversy[1] little progress has been made toward resolving it despite many institutional changes. Government programs offering drainage incentives have disappeared, large-scale crop subsidies are vanishing, and additional preservation programs have been enacted. Yet, the drainage of wetlands in the name of increased crop production and improved field management continues: the controversy between proponents of drainage and preservation is as heated as it ever was.

Most of the natural products and services of undrained wetlands don't translate to market dollars, while market prices for private agricultural production have been long established. This difference in marketability is the root of the controversy and is unlikely to change soon. However, the attitudes of the parties in the controversy can be improved through a better understanding of the problem from both perspectives.

Agricultural economists are concerned with wetlands issues from two perspectives: decisionmaking at the farm level and public policy, since water and natural environment are important resources to society.

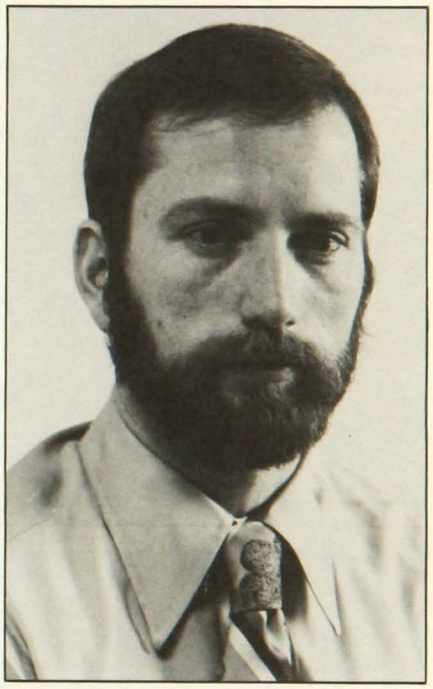
WETLANDS

Drainage of wet lands to improve field operations or crop yields is generally not controversial. This drainage removes excess soil moisture from land already farmed. It may cause flooding or water quality problems downstream but generally does not involve wetlands drainage. Wetlands preservationists have no quarrel with this form of on-farm drainage, unless it incidentally drains wetlands habitats.

The U.S. Fish and Wildlife Service (FWS) has classified prairie wetlands as Types 1, 3, 4, and 5 and their drainage is what fuels the conflict.[2]

TYPE 1—Seasonally flooded basins or flats. The soil is covered with water, or is waterlogged, during variable seasonal periods but usually is dry during much of the growing season. They may be filled with water during periods of heavy rain or melting snow.

TYPE 3—Inland shallow fresh marshes. The soil is usually waterlogged during the growing season; it is often covered with 7 inches or more of water.



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TYPE 4—Inland deep fresh marshes. The soil is covered with 6 inches to 2 feet or more of water during the growing season.

TYPE 5—Inland open fresh water. Water is usually less than 10 feet deep and is fringed by a border of emergent vegetation.

Generically referred to as potholes, sloughs, swamps, or marshes, a high density of these wetlands is found in a 300,000 square mile region of the Upper Midwest and the Canadian provinces of Manitoba, Saskatchewan, and Alberta (figure 1). This is North America's waterfowl factory. Known as the "prairie pothole" region, it produces one-half, in some years more, of the continent's waterfowl. Although hard to measure, it is estimated that 40 to 50 percent of the acreage in original prairie potholes remains untouched today.

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[1]John J. Waelti, "The Wetlands and Drainage Controversy," *Minnesota Agricultural Economist,* June 1975.

[2]U.S. Fish and Wildlife Service Circular 39, "Wetlands of the United States, their extent and their value to waterfowl and other wildlife." S. P. Shaw and C. G. Fredine, 1971 (edition).

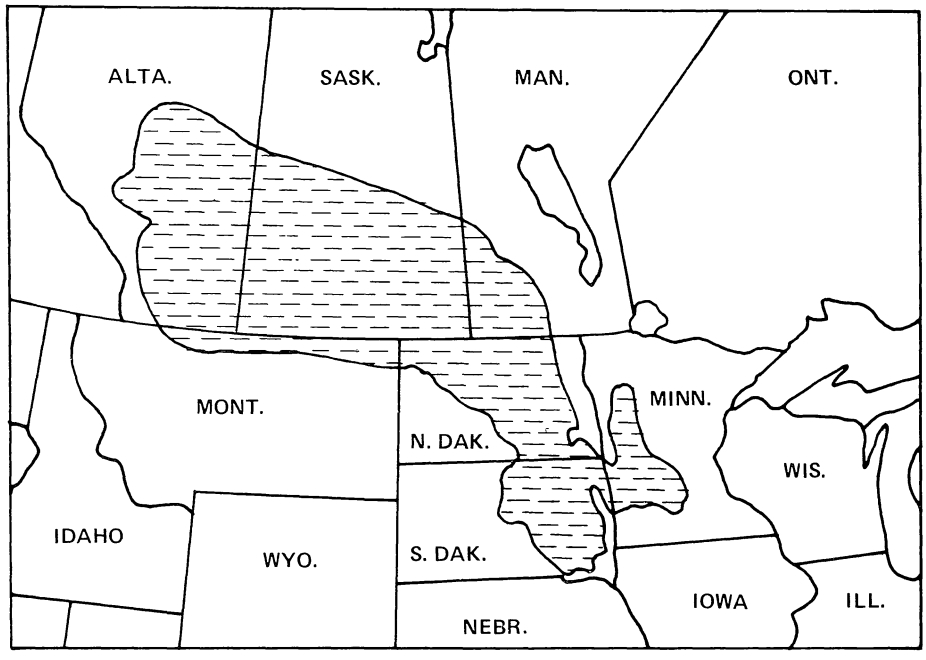

Figure 1. Prairie pothole region

The Minnesota pothole country has shrunk in 100 years of drainage—such as ditching in the north and subsurface tiling in the south. Those remaining wetlands are valued both for natural attributes and potential as cropland.

WETLAND PROGRAMS

Government policy concerning preservation and drainage of wetlands now favors preservation as long as the social benefits outweigh those of development or drainage. Earlier government encouraged farmers to drain wetlands for productive activities. All subsidies for draining of wetlands types 3, 4, and 5 were officially discontinued in 1962 due to pressures from environmental groups and government agencies charged with wildlife protection. However, up through 1977 the U.S. Department of Agriculture (USDA), through the Agricultural Stabilization and Conservation Service (ASCS), administered programs to subsidize other on-farm wetlands drainage.

A number of programs offering incentives to landowners to preserve wetlands are in operation. Despite the availability of these preservation incentives, wetlands are being drained faster than some groups would like. The important preservation programs in Minnesota are the U.S. FWS easement and purchase programs, ASCS Water Bank, Minnesota Water Bank, Minnesota Wetlands Tax Credit program, and state and federal regulatory restrictions on drainage. The incentive programs offer payments to maintain wetlands, while the regulatory programs forbid draining certain wetlands.

Incentive Programs

The current *FWS Easements program* began in 1962. The landowner is paid a one-time lump sum for agreeing not to burn, fill, level, or drain land under easement. The landowner retains ownership and pays the real estate taxes. Usual life of the contract is 99 years, while some early contracts were from 30-50 year periods. The easement stays with the land when ownership changes. There are currently over 300,000 acres of land in Minnesota's pothole region under FWS easement.

Under the *FWS Purchase program* the landowner sells land to the FWS. This is an outright purchase which usually includes an area of adjacent upland at least equal to the wetlands area. These areas are generally classified as Waterfowl Production Areas. About 124,000 acres of wetlands and adjacent upland have been bought by the FWS in Minnesota (this does not include the large wildlife refuges in the state).

The *ASCS Water Bank program* began in 1970. In return for annual payments the landowner agrees not to drain, fill, level, or burn wetlands and to maintain grassy cover on adjacent upland. Contracts are for 10 years and may be cancelled at any time by returning all previous payments. Payments are based on land productivity. There are about 65,000 acres of wetlands and adjacent upland currently in the ASCS Water Bank program in Minnesota.

The *Minnesota Water Bank* has been developed by the Minnesota Department of Natural Resources (DNR) and is very similar to the ASCS program. However, participation in this DNR program has been extremely limited since it began in 1976 offering an annual payment of 5 percent of the fair market value of the wetlands basin.

The 1978 State Legislature authorized the *Minnesota Wetlands Tax Credit*. This program waives taxes on qualifying wetlands and provides a credit against other real estate taxes due for each acre of wetlands maintained. Wetlands are commonly taxed at about 50¢ to 75¢ per acre, while the upland taxes offset may run from $5 to $8 depending on land values. This program has brought mixed reactions. Some landowners accepted the tax credit, while others attempted to upgrade the tax classification of wetlands areas to avoid the suspected government controls coincident with the credit.

Regulatory Programs

Regulatory provisions for protecting wetlands in Minnesota stem from either the state *Public Waters Law* or the U.S. Army Corps of Engineers' authority over waters provided by Section 404 of the *Federal Water Pollution Control Amendments of 1972*.

The state's jurisdiction extends to types 3, 4, and 5 wetlands that are 10 acres or more in rural areas, or 2½ acres or more in incorporated areas. The Corps of Engineers can conceivably regulate drainage of any wetlands regardless of size or location depending on how the regulations are interpreted and whether wetlands are drained or filled. This legislation is often ambiguous and subject to interpretations, so no summary will be attempted here.[3]

[3]Refer to: K. Elton King, *A History of Drainage Law in Minnesota With Special Emphasis on the Legal Status of Wet Lands,* Minneapolis: University of Minnesota Water Resources Research Center, Bulletin 106, November 1980; or Jay A. Leitch and David M. Saxowsky, *A Primer on Prairie Wetland Drainage Regulation,* Fargo: North Dakota State University, Agricultural Experiment Station, 1980.

THE LANDOWNER'S PERSPECTIVE

The majority of landowners, including those who appreciate the natural values of wetlands, see wetlands as nuisances and wasted crop production areas. Drainage is often a rational way to eliminate the extra production costs of farming around wetlands. Wetlands or wetlands complexes may also delay spring planting, potentially reducing yield. Scenes of overflowing potholes (figure 2), are unwelcome signs of spring to farmers anxious to plant.

Many farmers must look to their own lands for increases in production when competition for additional cropland bids prices beyond reach. Oftentimes wetlands drainage is the only possible expansion.

The plant and animal life of undrained wetlands can be a nuisance to landowners. Blackbirds or waterfowl may plunder field crops. Noxious weeds, hard to control in wetlands vegetation, may be spread by birds, and result in reduced crop yields or quality. Waterfowl attracted by wetlands, in turn attract the hunter, who the farmer may perceive as a nuisance and a potential danger to crops and livestock. Hunters can also be a source of income for wetlands owners, especially those adjacent to large wildlife refuges such as Lac Qui Parle or Agassiz where "goose pits" command premium prices.

Farmers who depend on crop production for a living have a different perspective of wetlands from those who use wetlands as a recreation base. Yet, two-thirds of the prairie wetlands remaining in Minnesota have been maintained on private land. The rest have been preserved by some form of government incentive offered to landowners willing to participate in wetlands preservation programs.

SOCIETY'S PERSPECTIVE

While the wetlands owner is a known party to the controversy, society — whose values the drainer is ignoring— is the aggregate of individuals who desire clean air and water, national defense, and low levels of inflation and unemployment. Society represents everyone, in this instance other than the wetlands owner, benefited or harmed by the wetlands, directly or indirectly. Ironically, society includes birdwatchers, drainage contractors, waterfowl hunters, farm implement dealers, naturalists, and developers, all with conflicting views of wetlands. It's little wonder the individual landowner's decision to drain can't include all these interests.

Social Benefits of Wetlands

Environmental interests during the past two decades have stimulated nationwide interest in protection of nat-

Figure 2. Aerial photograph of the prairie pothole region

ural environments. Wetlands have received increasing attention as claims of their beneficial functions became widespread. Much protective legislation has resulted from pressures by environmental groups to save wetlands for what they consider beneficial functions. Legislation commonly mandates that the benefits of preservation must outweigh the anticipated benefits of development for the wetlands to be legally protected. The benefits of drainage are primarily to the wetlands owner. Estimating the value of social benefits of preservation is much more difficult. Many of the benefits are highly speculative.

There are two types of social wetlands benefits. First, there are direct benefits, with dollar market value such as furbearer pelts, bait sales, native hay harvest, and the meat of wildlife harvested. Second, there are indirect benefits to society which include the many functions of wetlands such as production of recreational experiences, protection of the environment, or provision of amenities. The following list of wetlands benefits has been identified in the literature and in testimony for wetlands preservation. Some of these social benefits may seem absurd to landowners, but annual benefits as high as $2,500 for waste assimilation and $2,800 for water supply, per acre, have been estimated. Although many economists do not put much faith in these figures, these dollar values have been entered in testimony supporting federal preservation legislation.

SOCIAL BENEFITS OF WETLANDS

Flood Control
Erosion Control
Waste Assimilation
Nutrient Recycling
Water Supply
Groundwater Recharge
Wildlife Habitat
Endangered Species Habitat
Firebreaks
Historical Value
Forestry
Primary Productivity
Education
Scientific
Shoreline Protection
Recreation
Aesthetics
Global Nitrogen and Sulfur Cycle
Ecological Diversity

Estimating the returns from growing spring wheat or soybeans is relatively easy compared to estimating the dollar value of the social benefits just listed. The controversy has continued because most of the benefits of preservation are outside the wetlands owner's decision-making process. The beneficiaries of these preservation benefits have no incentive to pay wetlands owners, if benefits can be reaped without payment. Waterfowl hunters are unique in that the proceeds of the duck stamp they must purchase go to preserve wetlands.

Regional Concerns

Local decisionmakers believe there are several problems that arise from wetlands preservation (meaning acquisition by government, but to a lesser degree any preservation) in their jurisdictions. Problems include economic effects, land management (such as weed control, wildlife depredation), and threats to the authority of local public officials and citizens.

Potential economic issues associated with acquisition of wetlands for preservation arise from the change in land use from cropland, grassland, or woodland, to wildlife habitat. These include changes in income flows within the local economy, reductions in tax revenue, and loss of potential employment. When land that could be producing crops is maintained as wetlands habitat, the purchase of such things as machinery, seed, fertilizer, having to do with crop production, is depressed especially where it involves irrigated cropland.

Reductions in property tax revenue for local units of government resulting from wetlands acquisition impose significant burdens on the fiscal capability of these small taxing units if not adequately compensated for by in-lieu (of tax) payments. A recent study of this effect in west central Minnesota[4] showed that counties usually did not lose any revenue, although some individual taxing districts did lose. The problem was that in-lieu payments did not filter back to the township and other taxing districts where acquisition took place.

A second significant economic issue at the regional level is lost income due to depression of agriculturally related business activity (such as farm implement, seed, fertilizer, irrigation equipment dealers) as a result of wetlands preservation. Employment and population issues can be particularly sensitive in rural areas where employment and population have been declining and further out-migration is viewed as detrimental to local economies. It takes a certain level of population or business activity to maintain viable businesses in local communities and when this level drops below the minimum, local businesses can no longer afford to operate.

The impact of shifts in land-uses from crops to wetlands depends significantly on the types of money flows affected and the structure of the local economy. If the local economy is based entirely on agriculture, then a shift to wetlands habitat will normally reduce local money flows. However, if the local economy is also geared to tourism or recreation and wetlands habitat increases those activities, money flows could increase.

A preliminary investigation of the effects of wetlands acquisition on local economies was made in west central Minnesota.[5] This study revealed that the local economy was slightly better off with a mixture of agricultural and wetlands-related recreational activity. The addition of a small amount of wetlands habitat would increase total personal income of local residents and local employment. The redistribution of income among individuals was not addressed but is an important issue. The results from this single study are not conclusive but indicate that the regional economic implications of wetlands preservation are not as bleak as local decisionmakers might paint.

[4]In-lieu of tax payments refers to the legal requirement some state and federal agencies have to pay for services of local government when land (such as wetlands) is removed from the property tax rolls. When these payments are less or more than the local government's needs, this is made up in tax bills to local taxpayers. Ronald J. Dorf, Thomas P. Jorgens, and Gordon D. Rose, *The Fiscal Impact of Federal and State Waterfowl Production Areas on Local Units of Governments in West Central Minnesota,* St. Paul: University of Minnesota Agricultural Extension Service, Special Report 73, 1979.

[5]Jay A. Leitch, *Economic Effects of Wetland Acquisition on Rural Economies,* St. Paul: University of Minnesota, Department of Agricultural and Applied Economics, Staff Paper P80-18, August, 1980.

ECONOMICS OF ON-FARM DRAINAGE

The wetlands owner, legal issues aside, has two options: drain or maintain. If the decision is to drain, the area can be expected to be as productive or more productive than upland cropland. Most drained wetlands are used for crop production, while a few are pastureland. There are no longer any government subsidies for drainage, so the landowner must compare drainage costs with the expected revenue from the drained area. As long as the investment in drainage is less than the expected return, the decision to drain is feasible.

The drainage costs facing the landowner include actual construction expenses, annual maintenance costs, and the value of any foregone benefits of the natural wetlands (such as sales of hunting leases or native hay). The expected benefits include net returns from crops, elimination of extra production expenses due to farming around the wetlands, and elimination of any nuisance factors such as blackbirds or noxious weeds. Comparison of the costs and benefits (most of it in terms of dollars) from the farmer's perspective is fairly straightforward.

What the landowner fails to consider in decisionmaking is the social cost of drainage. These external costs (external to the individual's decisionmaking) are overlooked as neither a benefit nor a detriment to the wetlands owner. This is the heart of the wetlands drainage controversy—individuals who control wetlands drainage have little incentive to consider the external public, social effects of drainage.

THE FUTURE FOR PRAIRIE WETLANDS

Pressure to drain prairie wetlands will continue as long as crop and land prices remain high and drainage is a rational business investment. Increasing world populations will demand more food from a cropland base diminished by natural forces, urban and suburban sprawl, and competition. As more wetlands are drained or filled, the social value of those remaining will increase. Scarcity will make the products and services of natural wetlands—things that cannot be manufactured—more valuable. At the same time the population of environmentally concerned individuals who value natural habitat will be increasing.

Wetlands drainage will continue unless a marketprice mechanism can be developed so that the beneficiaries of the natural values of wetlands pay wetlands owners enough to induce preservation, or unless adequate protective legislation is created. User fees for unpriced or underpriced wetlands products and services would be administratively and politically difficult to implement, however. Individuals interested in wetlands preservation have a long and difficult job facing them. They must not only develop reliable dollar estimates of the social values of wetlands, but also must have them understood and accepted by wetlands owners and local decisionmakers.

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