

CIRCULAR A-540

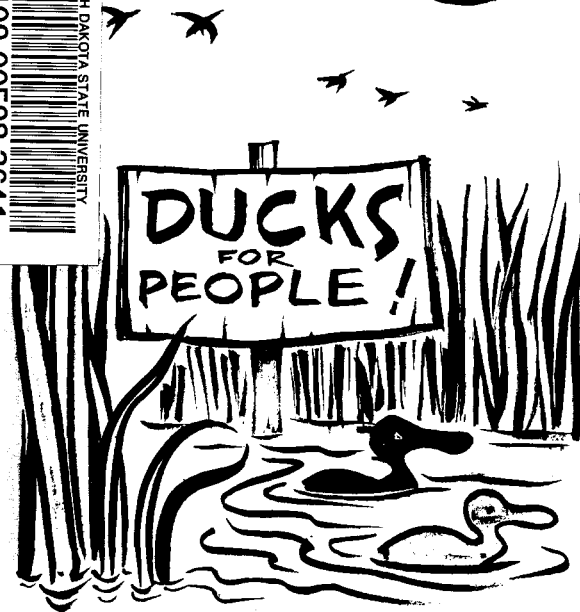
NORTH DAKOTA STATE UNIVERSITY APRIL 1970

MAR 6 1974  
SERIALS DEPT.  
LIBRARY

# WETLANDS

## WHO NEEDS THEM?

3 0109 00598 3641  
NORTH DAKOTA STATE UNIVERSITY



S  
544-3  
N9  
A8  
no. 540

Cooperative Extension Service  
North Dakota State University  
Fargo, North Dakota 58102

S  
544.3  
.N9  
A8  
no. 540

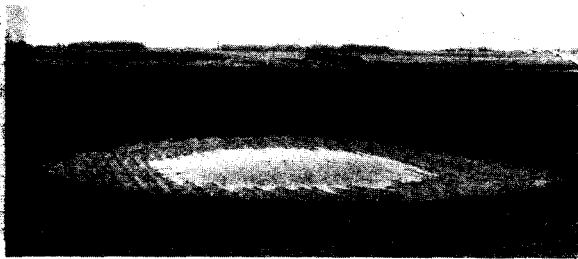
## NORTH DAKOTA WETLANDS

North Dakota lies in the heart of the "prairie pothole region," a distinct area that includes the south central Canadian Prairie Provinces and the North Central United States.

Retreating Ice Age glaciers carved out millions of shallow depressions. North Dakota alone has about 1.5 million acres of wetlands.

Wetlands also come in many different types, each playing a role.

### Type I Wetlands



Type I's are temporarily flooded by snow melting or heavy rains. Usually dry during the growing season, they normally are farmed.

### Type III Wetlands



Type III's are shallow and semi-permanent. The water is six inches or more in depth. Soil is water-logged most of the growing season.

Vegetation includes grasses, rushes, cattail, arrowhead, pickerel-weed, and smart-weed. Undisturbed, vegetation covers the wetland basin.

Type III wetlands often are dry by late summer. They are then plowed or burned, anticipating a crop the following year.

In the drift prairie, Type III's are plowed about six out of 10 years. On the average, a crop is produced three years out of 10.

In the Missouri Coteau, Type III wetlands are plowed about nine years out of 10, but harvested only one year out of 10.

Farming costs are high for these areas. Six or nine years of plowing must be deducted from the few years that a crop may be harvested.

### Type IV Wetland



Type IV's are deep, permanent marshes. Water depths are usually three feet or more.

Vegetation is not as dense as in Type III's. Emergent vegetation includes cattail, reeds, and rushes. In open water, pondweeds, coontail, and water milfoils grow under the surface.

### Type V Wetland



Type V's are permanent open water marshes. Water depth usually is less than 10 feet.

A fringe of cattail, reeds, and rushes may be found along the shoreline. Submerged vegetation includes pondweeds, wildcelery, coontail, and water milfoils.

Type V's, along with the Type IV's, are seldom farmed except in the driest years.

## WETLAND VALUES

North Dakota wetlands have many values. Wildlife, groundwater recharge, and reduction of flooding are but a few.

### Wildlife

Wetlands produce ducks - millions of ducks. This is important because ducks are important to PEOPLE! About two million PEOPLE hunt ducks. Even more PEOPLE watch ducks.

The pothole country makes up about 10 per cent of the duck breeding grounds in North America; but produces more than 50 per cent of the ducks - glowing testimony to the importance of "pothole country".

Type I wetlands. - Breeding ducks do not tolerate others of their kind. By providing isolated areas for breeding pairs, Type I wetlands stimulate high duck production.

Annual drying out and reflooding in the spring causes an aquatic insect population explosion in Type I wetlands. These insects keep the female duck in top egg laying condition.

Type III wetlands. - These semi-permanent marshes are used extensively by nesting ducks and broods. Periodic drying releases nutrients for insect and plant life. Prolonged wet periods "tie-up" nutrients and plant and animal life decreases. Dry in fall means more ducks - not fewer ducks!

Insects such as larval forms of mosquitoes, mayflies, midges, dragonflies, damselflies, and

caddisflies provide protein for young ducks. Snails, tadpoles, leeches, and freshwater shrimp are important in the summer diet of both young and adult ducks.

Type IV wetlands. - In combination with Type III wetlands these wetlands are the principle waterfowl production areas in the prairies.

More permanent, they provide late summer brood water and resting sites for migrating ducks. They are excellent for hunting during waterfowl seasons.

Type V wetlands. - These wetlands also provide water for broods in late summer when the less permanent, but highly productive, marshes begin to dry up.

Standing vegetation along shorelines is used by Canvasbacks and Redheads for nesting.

These marshes also are important migration areas and provide excellent hunting.

Nowhere in North Dakota is a greater variety of wildlife found than in wetlands. Shorebirds such as avocets, sandpipers and snipe abound. Mink, muskrats, and other furbearers are abundant.

Wetlands with dense growths of cattail and rushes provide some of the best winter protection to be found for pheasants and deer. Long after the ducks move south, nonmigratory wildlife face the prairie blizzards. High death rates occur where wetlands have been drained or burned.

### Groundwater Recharge

The U.S. Geological Survey studied wetland-groundwater relationships in North Dakota's Coteau area. The findings were:

Water seeped through the bottom of the wetland basin into the groundwater. Seepage rates seldom exceeded 0.01 foot of water per square foot of water surface per day. In some cases

A.3

this was 20 to 30 per cent of the water lost from the wetland in a year.

Similar work in Minnesota also showed seepage from wetlands into the groundwater. When spring water levels are above normal, seepage rates are high. Rapid seepage occurred through upland soils around the shoreline. This study also showed wetland seepage rates of 0.9 foot per year after high water levels returned to normal.

### Reduction of Flooding

There are about 1.5 million acres of wetlands in North Dakota. Water depths range from six inches to 10 feet. Average annual evaporation rate for North Dakota is 28 inches. No significant moisture is added to wetlands after September.

Seepage, evaporation, and other water losses reduce water levels in wetlands by at least two feet. This provides 3.0 million acre-feet of flood storage. (2 ft x 1.5 million acres = 3.0 million acre feet).

The U.S. Army Corps of Engineers in their report of the Sheyenne River in North Dakota states:

"... numerous small lakes and depressions exist in the upper part of the basin. Some of these lakes and shallow hollows receive the runoff from the surrounding areas and have no outlets. Thus, these natural storage areas are excluded from the effective surface runoff area."

The lakes and shallow depressions referred to are wetlands!

### DRAINAGE LAWS

Laws regulating drainage vary depending on whether or not cost-sharing is to be received from the U.S. Department of Agriculture.

### Public Law 87-732 (Federal)

If a landowner requests federal cost-shared drainage, the request is forwarded to the Bureau of Sport Fisheries and Wildlife. If an inspection shows that drainage will harm wildlife, the federal government will not provide cost-sharing.

The Bureau of Sport Fisheries and Wildlife makes an offer to the landowner for an easement if cost-sharing is denied. If the landowner signs the easement, agreeing to not drain, fill, or burn, he receives a cash payment. The program is voluntary.

### Reuss Amendment (Federal)

This amendment to the federal agriculture program states that there will be no technical or financial assistance for draining Type III, IV, or V wetlands. Mowing, burning, or plowing does not change the wetland type.

### State Law

Section 61-01-22 states (in part): "Any person, public or private corporation proposing to drain waters from a pond, slough, or lake, which impounds waters gathered therein and drained from an area comprising eighty (80) acres or more into a natural watercourse . . . shall submit to the state water conservation commission an application for a permit to do so."

The 80 acres mentioned in this law refers to watershed area - not the size of the marsh. For example, a one acre marsh which collects water runoff from 80 acres of cropland requires a state permit before drainage is legal.

