

**DRAFT**

**USER REPORT: MINOT NE, NORTH DAKOTA  
NATIONAL WETLANDS INVENTORY MAPS**

**A. INTRODUCTION**

The U.S. Fish and Wildlife Service's National Wetlands Inventory is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. The Classification of Wetlands and Deepwater Habitats of the United States by Cowardin, et al. is the classification system used to define and classify wetlands. Photo interpretation conventions, hydric soils lists and wetland plant lists are also available to enhance the use and application of the classification system.

**B. PURPOSE**

The purpose of the notes to users is threefold: (1) to provide localized information regarding the production of NWI maps, including specific imagery and interpretation discussion; (2) to provide a descriptive crosswalk from wetland codes on the map to common names and representative plant species; and (3) to explain local geography, climate, and wetland communities.

**C. STUDY AREA**

**Geography:**

Minot NE is located in central North Dakota, just below the Canadian border. The map is bounded on the west by the 101<sup>o</sup> meridian and on the east by the 100<sup>o</sup> meridian. It is bounded on the south by the 48<sup>o</sup> 30' parallel and on the north by the 49<sup>o</sup> parallel (Figure 1).

According to Bailey, Description of the Ecoregions of the United States (1980), the study area lies in the Wheatgrass-Bluestem-Needlegrass section of the Tall-Grass Prairie Province. This area is characterized by flat and rolling plains with relief of less than 300 feet. The majority of land is young glacial drifts and dissected till plains. Water covers much of the surface. The flat to rolling hill features have well developed drainage systems. All creeks and tributaries drain into the Souris River, which flows in a northerly direction through the western end of the study area. Seventy-five miles of this river have been dammed (a series of five low dikes) to form pools and nesting habitat for water fowl migrating through the central flyway. This seventy five miles (a total of 58,700 acres) comprises the J. Clark Salyer National Wildlife Refuge.

The northeastern corner of Minot NE contains the Turtle Mountains. These mountains consist of undulating to hilly knolls and ridges rising to a maximum elevation of 2,451 feet. These mountains contain a large quantity of lakes and ponds, most of which are more or less fairly permanent.

## Climate:

In North Dakota the annual precipitation in the Tall-Grass Prairie is approximately 20 inches. Droughts are less frequent and less severe near the forest than in the westerly areas. Average annual temperatures range from 40<sup>o</sup> F (4<sup>o</sup> C) in the north to 55<sup>o</sup> F (13<sup>o</sup> C) in the east, 60<sup>o</sup> F (15<sup>o</sup> C) in the west, and 65<sup>o</sup> F (18<sup>o</sup> C) in the south.

The Turtle Mountains receive a significantly larger amount of precipitation than the rest of Minot NE. Records for 1967-1970 show an average annual rainfall of 28 inches, approximately 10 inches more than the surrounding area.

## Vegetation:

The Tall-Grass Prairie includes the tall-grasses and mixed grasslands. Bunch grasses and the sod-forming species are the dominant cover types.. Woody vegetation is rare, except on the cottonwood flood plains. Dominant plants are prairie dropseed, little bluestem, and side-oates grama. Only small amounts of native prairie remain, as much of the area is under cultivation.

The Turtle Mountains contain the largest acreage of woodland in Minot NE. Quaking Aspen (Populus tremuloides) is the dominant species at higher elevations, while Bur Oak (Quercus macrocarpa) is dominant in the foothills. Several species of willow (Salix sp.) grow around potholes and small lakes, while silver buffaloberry and common snowberry are the dominant shrubs in open areas on the south slopes.

## Soils:

Tall-Grass Prairie soils are generally Mollisols, with smaller areas of Entisols and Vertisols. Most Tall-Grass Prairie soils have dark upper horizons, are level, and poorly drained. These soils are covered by water much of the year, and support many different hydrophytes.

According to the Soil Survey of Bottineau County, North Dakota, the vast majority of the soil series in the Turtle Mountains consist of deep, well-drained, and moderately slow permeable soils with fairly level to moderate slopes (3-25%). The Bottineau soil series, found in the foothills, was formed in till. The Rolla soil series formed in clay and silty clay lacustrine sediment. The Metigoshe soil series formed in loamy alluvium underlain by sand and gravel and the Kelvin soil series formed in calcareous till.

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (1 of 2)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
L1UB (H)	Lacustrine limnetic unconsolidated bottom	Open water, Lake	Unvegetated mud, sand or gravel
L2UB (F,G)	Lacustrine littoral unconsolidated bottom	Open water, Lake	Unvegetated mud, sand or gravel
L2US (A,C)	Lacustrine littoral unconsolidated shore	Lake Shore	Unvegetated mud, sand or gravel
L2AB (F,G)	Lacustrine littoral aquatic bed	Floating or rooted water plants	Coontail ( <u>Ceratophyllum demersum</u> ) Water milfoil ( <u>Myriophyllum heterophyllum</u> )
R2UB (G,H)	Riverine lower perennial unconsolidated bottom	Open water, River	Unvegetated mud, sand or gravel
R2US (A,C)	Riverine lower perennial unconsolidated shore	River flat or bar	Unvegetated mud, sand or gravel
R4SB (A,C,F)	Riverine Intermittent streambed	Intermittent stream or creek	Unvegetated mud, sand or gravel
PUB	Palustrine unconsolidated bottom	Open water pond unvegetated	Unvegetated mud, sand or gravel
PUS (A,C)	Palustrine unconsolidated shore	Pond shore	Unvegetated mud, sand or gravel
PAB (F,G)	Palustrine aquatic bed	Floating or rooted water plants	Pond weed ( <u>Potamogeton</u> spp.) Yellow crowfoot ( <u>Ranunculus purshii</u> ) Duckweed ( <u>Lemna minor</u> ) Coontail (Hornwort) ( <u>Ceratophyllum demersum</u> ) Water milfoil ( <u>Myriophyllum heterophyllum</u> ) Bladderwort ( <u>Utricularia</u> spp.)
PEM (A,C,F)	Palustrine emergent	Marsh or wet meadow	Hardstem bullrush ( <u>Scirpus acutis</u> ) Cattail ( <u>Typha latifolia</u> ) White top ( <u>Scolochloa festucacea</u> ) Spikerush ( <u>Eleocharis</u> spp.)

Table - Cowardin Classification Codes and Descriptions (2 of 2)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PEM (cont.)			Prairie cordgrass ( <u>Spartina pectinata</u> ) Smartweed ( <u>Polygonum</u> spp.) Slough sedge ( <u>Carex trichocarpa</u> ) Rush ( <u>Juncus</u> spp.) Fowl bluegrass ( <u>Poa palustris</u> ) Foxtail barley ( <u>Hordeum jubatum</u> ) Reed canary grass ( <u>Phalaris arundinacea</u> )
PSS (A,C)	Palustrine scrub-shrub	Shrub wetland	Black willow ( <u>Salix nigra</u> )
PFO (A,C)	Palustrine Forest	Forest wetland	Black willow > 6m ( <u>Salix nigra</u> ) Cottonwood ( <u>Populus deltoides</u> ) American elm ( <u>Ulmus americanus</u> ) Box elder ( <u>Acer negundo</u> )

### Water Regime Description

- (A) Temporarily Flooded -- Surface water present for brief periods during growing season, but water table usually lies well below soil surface. Plants that grow both in uplands and wetlands are characteristic of this water regime.
- (C) Seasonally Flooded -- Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is extremely variable, extending from saturated to a water table well below the ground surface.
- (F) Semipermanently Flooded -- Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.
- (G) Intermittently Exposed -- Surface water is present throughout the year except in years of extreme drought.

### F. MAP PREPARATION

The wetland classifications that appear on the Minot NE National Wetlands Inventory (NWI) Base Maps are in accordance with Cowardin et al (1979). The delineations were produced through stereoscopic interpretation of 1:65,000 scale color infrared photographs that were taken on 04-05-81, 05-27-83, 05-26-83 and 04-28-86. Initial ground truthing of the photography occurred during the period of July 7 to July 18, 1987. Photointerpreters used collateral information from soil surveys, and USGS 1:24,000 scale topographic maps to assist in wetland recognition.

The user of the map is cautioned that, due to the limitations of mapping primarily through aerial photointerpretation, a small percentage of wetlands may be unidentified. Changes in landscape, or habitat, could have occurred since the time of photography, therefore some discrepancies between the maps and current field conditions may exist. Any questions regarding omissions, inclusions or errors should be brought to the attention of Regional Wetlands Coordinator, U.S. Fish and Wildlife Service, Region 6, Habitat Resources, Lake Plaza North Building, 134 Union Boulevard, Lakewood, Colorado, 80228.

### G. SPECIAL MAPPING PROBLEMS

None

H. MAP ACQUISITION

To place an order for a National Wetland Inventory map product, please contact:

Regional Wetland Coordinator  
U.S. Fish and Wildlife Service  
Region 6 - Habitat Resources  
Lake Plaza North Boulevard  
134 Union Boulevard  
Lakewood, Colorado 80228

-or-

Rocky Mountain Mapping Center  
National Cartographic Information Center  
U.S. Geological Survey  
Box 25046, Stop 504, Federal Center  
Denver, Colorado 80225

Maps are identified by the name of the corresponding USGS 1:24,000 scale topographic quadrangle name. Topographic map indices are available from the U.S. Geological Survey.

## LITERATURE CITED

Bailey, R.G., 1980. Description of the Ecoregions of the United States. U.S. Department of Agriculture, Miscellaneous Publication No. 1391, 77 pp.

Soil Survey of Bottineau County, North Dakota; 1982. United States Department of Agriculture, Soil Conservation Service.

# NORTH DAKOTA

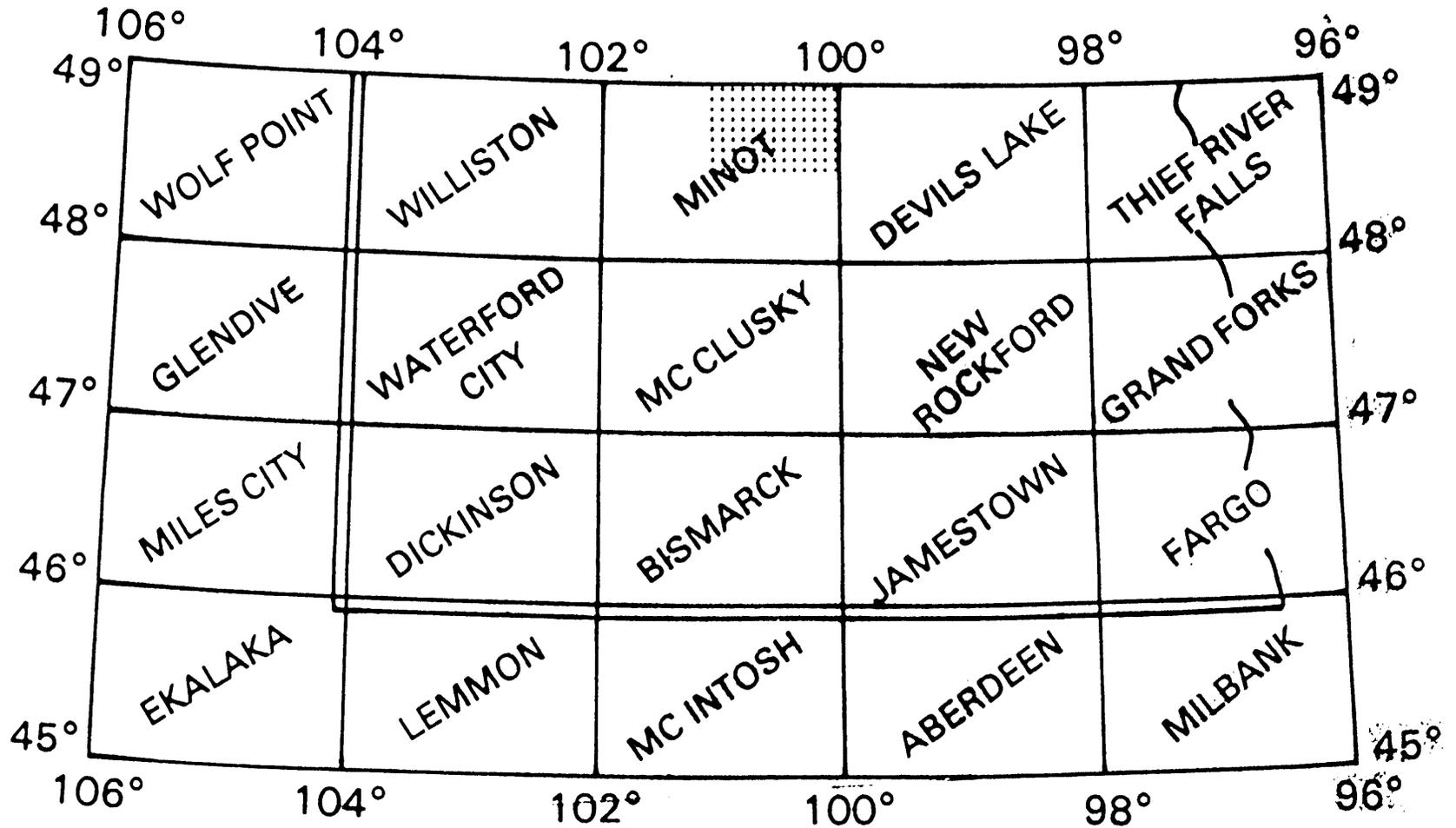


FIGURE 1