DRAFT

USER REPORT: DEVILS LAKE SW

NATIONAL WETLANDS INVENTORY MAPS

A. The U.S. Fish and Wildlife Service's National Wetlands Inventory are 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. Photointerpretation 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

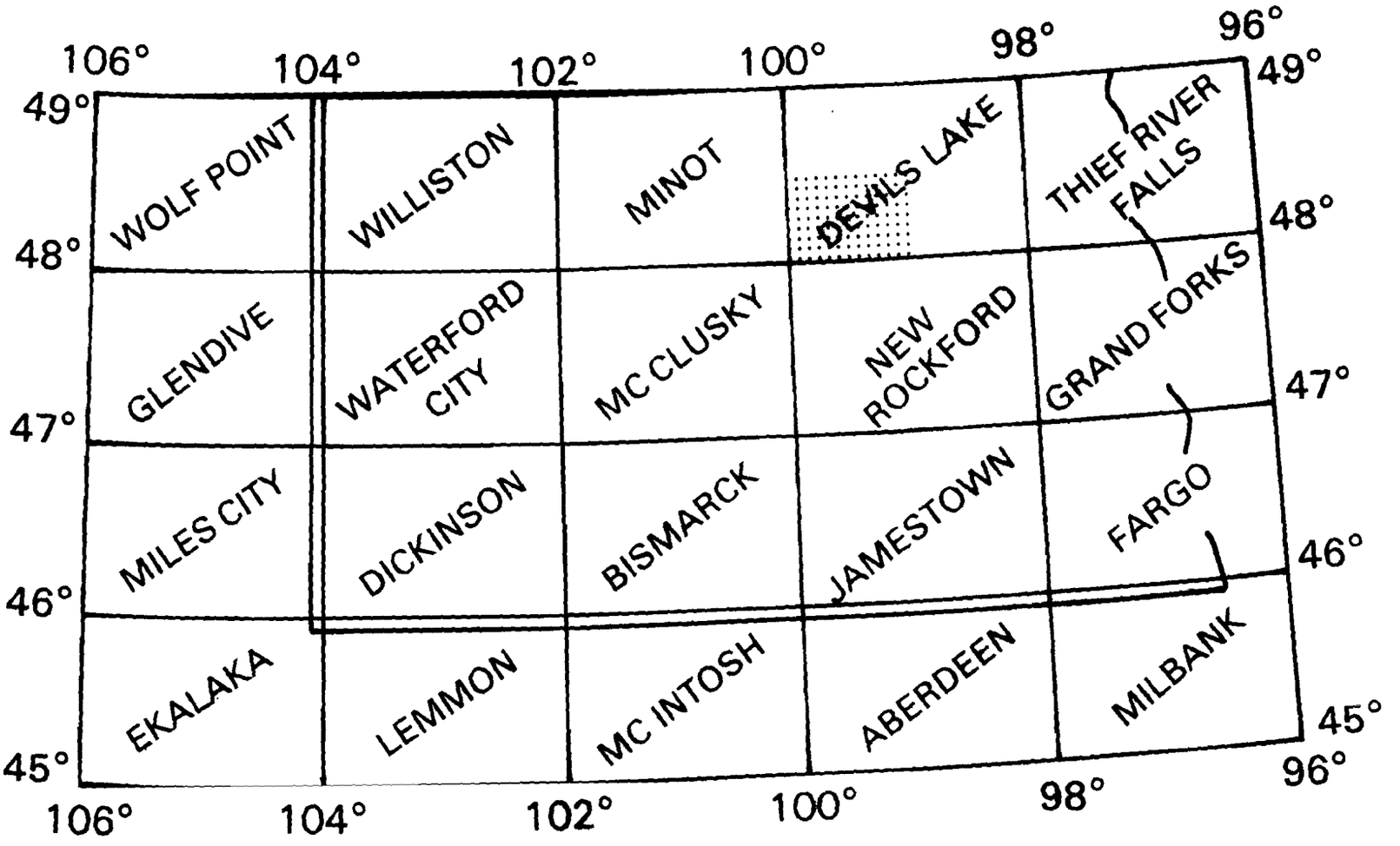
Geography:

The map, Devils Lake SW is located in central North Dakota. The map is bounded on the west by the 100° meridian, and on the east by the 99° meridian. On the north it is bounded by the 48° 30' parallel and on the south by the 48° parallel (see illustration).

According to Bailey, Description of the Ecoregion of the United States(1980), the study area lies in 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. Areas south of the Missouri River are loess and sand deposits. The flat to rolling hill features have well developed drainage sytems.

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 areas than in the westerly areas. Average annual temperatures range from 40°F (4°C) in the north to 55°F (13°C) in the east, 60°F (15°C) in the west, and 65°F (18°C) in the south.


106°
104°
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WOLF POINT
WILLISTON
MINOT
DEVILS LAKE
THIEF RIVER FALLS
GLENDIVE
WATERFORD CITY
MC CLUSKY
NEW ROCKFORD
GRAND FORKS
MILES CITY
DICKINSON
BISMARCK
JAMESTOWN
FARGO
EKALAKA
LEMMON
MC INTOSH
ABERDEEN
MILBANK

Vegetation:

The Tall Grass Prairie includes the fall-grasses and mixed grasslands. Brunch grasses and the sod-forming species are the dominant cover types. Woody vegetation is rate, 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.

Soils:

Tall-Grass Prairie soils are generally Mollisols, with smaller areas of Entisol 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.

WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table 1 - Cowardin Classification Codes and Description:

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
L1UB (H)	Lacustrine limnetic ucon-solidated bottom	Open water, Lake	Unvegetated mud, sand or gravel
L2UB (F,G)	Lacustrine littoral uncon-solidated bottom	Open water, Lake	Unvegetated mud, sand or gravel
L2US (A,C)	Lacustrine littoral uncon-solidated shore	Lake shore	Unvegetated mud, sand or gravel
L2AB (F,G)	Lacustrine littoral aquatic bed	Floating or rooted water plants	Coontail (Ceratophyllum demersum) Water milfoil (Myrio-phyllum heterophyllum)
R2UB (G,H)	Riverine lower perennial uncon-solidated bottom	Open water, river	Unvegetated mud, sand or gravel
R2US (A,C)	Riverine lower perennial uncon-solidated shore	River flat or bar	Unvegetated mud, sand or gravel
R4SB (A,C,F)	Riverine Inter-mittent streambed	Intermittent stream or creek	Unvegetated mud, sand or gravel
PUB	Palustrine uncon-solidated bottom	Open water pond unvegetated	Unvegetated mud, sand or gravel
PUS (A,C)	Palustrine uncon-solidated shore	Pond shore	Unvegetated mud, sand or gravel
PAB (F,G)	Palustrine aquatic bed	Floating or rooted water plants	Pond weed (Potamogeton spp.) Yellow crowfoot (Ranunculus purshii Duckweed (Lemna minor) Coontail (Hornwort) Ceratophyllum demersum) Water milfoil (Myrio-phyllum heterophyllum)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PAB (F,G) (cont'd)			Bladderwort (*Utricularia* spp.)
PEM (A,C,F)	Palustrine emergent	Marsh or wet meadow	Hardstem bullrush (*Scirpus acutis*) Cattail (*Typha latifolia*) White top (*Scolochloa festucacea*) Spikerush (*Eleocharis* spp.) Prarie cordgrass (*Spatina pectinata*) Smartweed (*Polygonum* spp.) Slough sedge (*Carex trichocarpa*) Rush (*Juncus* spp.) Fowl bluegrass (*Poa palustris*) Foxtail barley (*Hordeum jubatum*) Reed canary grass (*Phalaris arundinacea*)
PSS (A,C)	Palustrine scrub-shrub	Shrub wetland	Black willow (*Salix nigra*)
PFO (A,C,G)	Palustrine Forest	Forest wetland	Blackwillow (*Salix nigra*) Cottonwood (*Populus deltoides*) American elm (*Ulmus americanus*) Box elder (*Acer negundo*)

Water Regime Description

Tidal

Salt and Brackish Areas - Marine and Estuarine Systems

(L) Subtidal--The substrate is permanently flooded with tidal water.

(M) Irregularly Exposed--Land surface is exposed by tides less often than daily. This corresponds to the area on NOS charts from seaward edge of light green tone (mean low water) to depth contour approximating extreme low water. (N) Regularly Flooded--Tidal water alternately floods and exposes the land surface at least once daily. (P) Irregularly Flooded--Tidal water floods land surface less often than daily. The area must flood by tide at least once yearly as a result of extreme high spring tide.

Freshwater Tidal Areas--Lacustrine, Palustrine and Riverine Systems

(N) Regularly Flood--Fresh tidal water alternately floods and exposes the land surface at least once daily.

(R) Seasonally Flooded - Tidal
(S) Temporarily Flooded - Tidal
(T) Semipermanently Flooded - Tidal
(V) Permanently Flooded - Tidal
(U) Unknown--The water regime is not known

Non-Tidal

(J) Intermittently Flooded--Substrate is usually exposed, but surface water present for variable periods without detectable seasonal periodicity. Weeks or months or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change. Some areas exhibiting this regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes.

(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.

(B) Saturated--The substrate is saturated to surface for extended periods during the growing season, but surface water is seldom present.

(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 very 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.

(H) Permanently Flooded--Water covers land surface throughout the year in all years.

(K) Artificially Flooded--The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams.

(U) Unknown--The water regime is not known.
water.

(M) Irregularly Exposed--Land surface is exposed by tides less often than daily. This corresponds to the area on NOS charts from seaward edge of light green tone (mean low water) to depth contour approximating extreme low water. (N) Regularly Flooded--Tidal water alternately floods and exposes the land surface at least once daily. (P) Irregularly Flooded--Tidal water floods land surface less often than daily. The area must flood by tide at least once yearly as a result of extreme high spring tide.

Freshwater Tidal Areas--Lacustrine, Palustrine and Riverine Systems

(N) Regularly Flood--Fresh tidal water alternately floods and exposes the land surface at least once daily.

(R) Seasonally Flooded - Tidal

(S) Temporarily Flooded - Tidal

(T) Semipermanently Flooded - Tidal

(V) Permanently Flooded - Tidal

(U) Unknown--The water regime is not known

Non-Tidal

(J) Intermittently Flooded--Substrate is usually exposed, but surface water present for variable periods without detectable seasonal periodicity. Weeks or months or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change. Some areas exhibiting this regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes.

(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.

(B) Saturated--The substrate is saturated to surface for extended periods during the growing season, but surface water is seldom present.

(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 very 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.

WETLAND COMMUNITIES

Palustrine:

A majority of the acreage of palustrine vegetated wetlands is made up of basin oriented potholes. The remainder of vegetated palustrine wetlands are covered with forest or scrub-shrub. Gravel pits and unconsolidated shore areas are the only unvegetated palustrine wetlands.

Temporary emergent vegetation in basins includes rush (*Juncus* spp.) and foxtail barley (*Hordeum jubatum*). Non-basin temporary emergents occur in wet meadow or floodplain situations and include reed canary grass (*Phalaris arundinacea*), fowl bluegrass (*Poa Palustris*), and prairie cordgrass (*Spartina Pectinata*). Seasonal emergents for basins are dominated by white top (*Scolochloa festucacea*). The white top also occurs in meadows along with common spikerush (*Eleocharis* spp.), three square (*Scirpus americanus*), prairie cordgrass (*Spartina pectinata*) and slough sedge (*Carex Trichocarpa*). Smartweed (*Polygonum* spp.), three square and slough sedge occur regularly in roadside ditches. Semipermanent emergents include hardstem bulrush (*Scirpus acutus*) and cattails (*Typha Latifolia*). Both occur mostly in pothole basins, but may occasionally occur in non-basin situations such as meadows, river scars or overflow areas near rivers.

Aquatic bed vegetation is widespread later in the growing season. Both rooted and floating vascular types exist in basin situations and in "dug outs" which are used to retain water for cattle and the larger sewage settling tanks. Types of aquatics include pond weed (*Potamogeton* spp.), yellow crowfoot (*Ranunculus purshii*), duckweed (*Lemna minor*), coontail (*Hornwort*) (*Ceratophyllum demersum*), water milfoil (*Myriophyllum heterophylum*) and bladderwort (*Utriculria* spp.).

Forested wetlands are scarce and occur only in narrow bands or small pockets. They are temporary in nature and can be associated with wet basins or river floodplains. Species include black willow (*Salix nigra*), cottonwood (*Populus deltoides*), American elm (*Ulmus americanus*) and box elder (*Acer negundo*).

Scrub-shrub wetland assemblages occur in similar situations as forested wetlands, the dominant species being shrub willows (*Salix nigra*).

Unvegetated palustrine wetlands are fairly common in the form of gravel pits and unconsolidated shore. Dug out gravel pits are always typed as intermittently exposed due to their ability to hold water for long periods of time. The great majority of unconsolidated shore is seasonal. Most impounded unconsolidated shore areas have the ability to support wetland vegetation, but frequent trampling by live stock prevents establishment of wetland plants.

Lacustrine

Wetlands in this category are in excess of 20 acres. Only the largest and most permanent are considered limnetic; e.g. Lake Sakakawea. The lacustrine littoral zone occurs as unconsolidated shore; this being usually a fringe of sand or mud at lake's edge, or as aquatic beds. Aquatics found in this zone are: coontail (*Ceratophyllum demersum*) and water milfoil (*Myriophyllum heterophyllum*). These lakes can be intermittently exposed or semipermanent. Semipermanent lacustrine bodies are shallower and occasionally alkaline in nature.

Riverine

The only permanent river is the Missouri, which is typed as lower perennial. The Little Missouri and the Cheyenne are considered intermittent streams, semipermanent, with streambed bottom (no vegetation). Some similar but smaller rivers are seasonal. Both seasonal and semipermanent rivers may have storage pools in the stream which contain emergents and/or aquatic bed, either floating or rooted.

Map Preparation

The wetland classifications that appear on these National Wetland Inventory (NWI) maps are in accordance with Cowardin et al. Classification of Wetlands and Deepwater Habitats of the United States (1980). The delineations were produced by stereoscopic interpretation of 1:65,000 scale, color infrared photographs taken 4-26-82 and 5-26-83. Initial ground truthing of the photography occurred during the period of June 3, to June 9, 1985. 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 the Regional Wetlands Coordinator, U.S. Fish & Wildlife Service, Region 6, Habitat Recources, Lake Plaza North Building, 134 Union Boulevard, Lakewood, Colorado, 80228.

Special Mapping Problems:

None.

Map Acquisition:

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

Charles Elliott
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U.S. Fish and Wildlife Service
Region 6 - Habitat Resources
Lake Plaza North Bld.
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Rocky Mountain Mapping Center
National Cartographic Information Center
U.S. Geological Survey
Box 25046, Stop 504, Federal Center
Denver, Colorado 80225

Maps are identifided 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.