

NATIONAL WETLANDS INVENTORY

NOTES TO USERS

1:100,000 SCALE MAP

Roseau SE

Minnesota

NATIONAL WETLANDS INVENTORY MAP

A. INTRODUCTION

The U.S. Fish & 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. (1979) 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 study area covered by the Roseau SE base map is located in the north central part of Minnesota (figure 1). Bailey (1980) classifies this area as being in the Spruce-fir Forest Section of the Laurentian Mixed Forest Province of the Warm Continental Division of the Humid Temperate Domain.

The topography of the area is flat with large bogs occurring on the majority of the quad. Elevations range from approximately 1150 feet to about 1380 feet. The major drainages present on this map include the Tamarac River, Black River, Rapid River, Sturgeon River, Dinner Creek, Shotley Brook, and Lost River. Much of the area has, at one time, been influenced by the waters of Agassiz Lake. As the water level of this lake receded, a succession of beach ridges formed along with the formation of small basins.

Climate: Climate is characterized by very cold winters and mild summers. Average winter and summer temperatures are 6°F. and 78°F., respectively. Extremes range from -44°F to 100°F. Total annual precipitation is approximately 23.5" for this area.

Vegetation: The principle crops are small grain (wheat, oats, and barley) along with some farming of winter rye, flax, and buckwheat. Sunflowers have become a more important cash crop in the past few years. Some peat acres have been cleared, drained, and burned in order to provide tillable soils. Native vegetation is in transition between the

boreal forest to the north, the deciduous forest to the south and the prairie to the west (Bailey 1980). A mixture of aspen, birch, poplar, and jack pine are common on sandier soils whereas spruce and tamarack are common on the more poorly drained peatlands. Many of the treeless peat bogs are covered with grasses, sedges and shrubs.

Soils: Soils on the Roseau SE were formed on a glacial lake plain in mineral and organic material. The soils are mainly dark and range from sand to clay. According to the District Conservationist for the Lake of the Woods County SCS Office, only about a half dozen well drained soils are present and hydrophytic vegetation could easily be found anywhere.

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS for the Roseau SE

TABLE - Cowardin Classification Codes and Descriptions

NWI CODE (Water Regime)	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
L1UB (H)	Lacustrine, limnetic, unconsolidated bottom	Lake	Unconsolidated bottom
L2UB (G,H)	Lacustrine, littoral unconsolidated bottom	Lake, open water, marsh	Unconsolidated bottom
L2AB (G)	Lacustrine, littoral Aquatic bed	Lake, marsh	<u>Lemna</u> sp. (duckweed) green algae <u>Potamogeton</u> spp. (Pondweed) <u>Ceratophyllum</u> <u>demersum</u> (coontail)
L2EM2 (G,H)	Lacustrine, littoral emergent, nonpersistent	Lake, marsh	<u>Scirpus</u> spp. (bulrushes) <u>Zizania aquatica</u> (wild rice)
L2US (A,C)	Lacustrine, littoral unconsolidated shore	Beach, sandbar	Unconsolidated shore
R2UB (G,H)	Riverine, lower perennial, unconsolidated bottom	River	Unconsolidated bottom
R2US (A,C)	Riverine, lower perennial, unconsolidated shore	Beach, sandbar, mudflat	Unconsolidated shore

R2EM2 (G,H)	Riverine, lower perennial, emergent, nonpersistent	River	<u>Scirpus</u> spp. (bulrushes) <u>Zizania aquatica</u> (wild rice)
R3RB (G,H)	Riverine, upper perennial, rock bottom	River	Rock bottom
R4SB (A,C,F)	Riverine, intermittent streambed	Stream	Streambed
PUB (F,G,H)	Palustrine unconsolidated bottom	Pond, reservoir, borrow pit, marsh	Unconsolidated bottom
PAB (F,G)	Palustrine, aquatic bed	Pond, reservoir, marsh	<u>Lemna</u> spp. (duckweed) green algae <u>Potamogeton</u> spp. (Pondweed) <u>Ceratophyllum</u> <u>demersum</u> (coontail)
PEM (A)	Palustrine, emergent	Depression, drainage	<u>Eleocharis</u> spp. (spike rushes) <u>Ambrosia</u> spp. (ragweed) <u>Carex</u> spp. (sedges) <u>Rumex</u> spp. (dock) <u>Juncus</u> spp. (rushes) <u>Equisetum</u> spp. (horsetail) <u>Urtica dioica</u> (stinging nettle)
PEM (B)	Palustrine, emergent saturated	Seep, fen, bog, peatland	<u>Phragmites</u> spp. (reeds) <u>Carex</u> spp. (sedges) <u>Typha</u> spp. (cattail) <u>Scirpus</u> spp. (bulrushes) <u>Sphagnum</u> <u>magellanicum</u> (sphagnum moss)

PEM (C)	Palustrine, emergent seasonal	Depression, drainage	<u>Polygonum</u> spp. (smartweed) <u>Carex</u> spp. (sedges) <u>Phalaris</u> <u>arundinacea</u> (reed canary grass) <u>Juncus</u> spp. (rushes) <u>Typha</u> spp. (cattail) <u>Scirpus</u> spp. (bulrushes)
PEM (F,G)	Palustrine, emergent	Marsh, farm pond, backwater, oxbow	<u>Typha</u> spp. (cattail) <u>Scirpus</u> spp. (bulrushes)
PSS1 (A,C)	Palustrine, scrub-shrub, broad-leaved deciduous	Marsh, floodplain, depression	<u>Salix</u> spp. (willow) <u>Populus deltoides</u> (cottonwood)
(B)	Palustrine, scrub-shrub, broad-leaved deciduous	Bog, peatland	<u>Populus</u> <u>tremuloides</u> (quaking aspen) <u>Alnus</u> spp. (alder)
PSS2 (B)	Palustrine, scrub-shrub needle-leaved deciduous	Bog, peatland	<u>Larix laricina</u> (tamarack)
PSS3 (B)	Palustrine, scrub-shrub broad-leaved evergreen	Bog, peatland	<u>Ardromeda</u> <u>glaucophylla</u> (bog rosemary) <u>Ledum</u> <u>groenlandicum</u> (labrador tea) <u>Chamaedaphne</u> <u>calycultra</u> (leatherleaf)
PSS4 (B)	Palustrine, scrub-shrub needle-leaved evergreen	Bog, peatland	<u>Thuja</u> <u>occidentalis</u> (northern white cedar) <u>Picea mariana</u> (black spruce)

PSS5 (G,H)	Palustrine, scrub-shrub dead	Impounded, beaver dam	Dead shrubs
PF01 (A,C,F)	Palustrine, forested, broad-leaved deciduous	Floodplain, depression	<u>Salix</u> spp. (willow) <u>Ulmus americana</u> (american elm) <u>Acer</u> <u>saccharinum</u> (silver maple) <u>Acer negundo</u> (box elder) <u>Fraxinus</u> <u>pennsylvanica</u> (green ash) <u>Populus</u> <u>deltoides</u> (cottonwood)
(B)	Palustrine, forested, broad-leaved deciduous	Bog, peatland	<u>Populus</u> <u>tremuloides</u> (quaking aspen)
PF02 (B)	Palustrine, forested, needle-leaved deciduous	Bog, peatland	<u>Larix</u> <u>laricina</u> (tamarack)
PF04 (B)	Palustrine, forested, needle-leaved evergreen	Bog, peatland	<u>Thuja</u> <u>occidentalis</u> (northern white cedar) <u>Picea</u> <u>mariana</u> (black spruce)
PF05 (C,F,G,H)	Palustrine, forested, dead	Impounded, beaver dam	Dead trees
PUS (A,C)	Palustrine, unconsolidated shore	Depression, shallow gravel pit	Unconsolidated shore
h	Diked, impounded	Dam or levee, reservoir	
x	Excavated	Dugout, farm pond, borrow pit, ditched, or channelized	

d	Partially drained	Tiled, ditched
b	Diked, impounded	Beaver dam
g	Peatlands > 20 acres	Bogs, peatlands

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.
- (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.

E. MAP PREPARATION

The wetland classifications that appear on the Roseau SE National Wetlands Inventory (NWI) Base Map are in accordance with Cowardin et al. (1979). The delineations were produced through stereoscopic interpretation of 1:58,000 scale color infrared photography. The photography was taken on 5, 6, and 20 May 1981 and 1 November 1981.

Field checks of areas found within the Roseau SE photography were made prior to the actual delineation of wetlands. Field check sites were selected to clarify varying signatures found on the photography. These photographic signatures were then identified in the field using vegetation types and soil types (where available), as well as additional input from field personnel.

Collateral data included USGS 7.5' orthophotomaps (topographic), SCS preliminary data of soil surveys, USGS Water Resources Data for Minnesota Water Year 1983, Volume 1, vegetation and ecoregional information.

The user of the map is cautioned that, due to the limitation of mapping primarily through aerial photointerpretation, a small percentage of wetlands may have gone unidentified. Since the photography was taken during a particular time and season, there may be discrepancies between the map and current field conditions. Changes in landscape which occurred after the photography was taken would result in such discrepancies.

Aerial photointerpretation was completed by the South Dakota Cooperative Fish and Wildlife Research Unit, SDSU, Brookings, SD.

F. SPECIAL MAPPING PROBLEMS AND SITUATIONS

Upland vs. wetland boundaries in saturated situations were very difficult to distinguish both in the field and during photointerpretation. Photointerpreters looked mostly for defined photosignature breaks to delineate between upland and wetland boundaries. There was a marked difference between the spring and fall photography, particularly in forested bog situations. These areas proved to be very nondistinct in wetland-upland boundaries. As a result small upland forested islands may have been included with larger forested saturated wetlands.

In many cases, because of the complex species diversity present in peatlands and bogs (i.e. various trees, shrubs, and emergents), areas less than five acres were not always delineated within a large extensive bog or peatland. The exception would be to delineate small areas of different subclasses within a large, expansive bog (i.e. small leatherleaf areas, PSS3B, within a large bog dominated by spruce, PFO4B).

Because of the extensive drainage attempts made several years ago on the larger bogs and peatlands, old ditches are still present in many of these bogs. Only the longer ditches showing a strong water signature on the photography were classified. Also, because most of these ditches are ineffective, the partially drained modifier (d) was left off the classification label of these wetlands. The partially drained modifier was used to classify areas which appeared to be affected by the ditching.

The organic modifier (g) was added to the alpha numeric label of saturated wetlands estimated to be larger than 20 acres.

The late May color infra-red photography produced difficult photosignatures in regard with distinguishing various subclasses of forested and scrub-shrub saturated wetlands. Adjacent photography, which show these various subclasses more accurately, were used with the late May photography where possible. However, not all areas could be seen with the adjacent photography. Thus, some subclasses may have been misclassified because of the difficult photosignatures. Careful viewing of field verification sites and areas which could be seen with the adjacent photography helped maximize accuracy of photointerpreting subclasses.

G. MAP ACQUISITION

To discuss any questions concerning these maps or to place a map order, please contact:

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To order maps only, contact:

National Cartographic Information Center
U.S. Geological Survey
507 National Center
Reston, VA 22092
1-800-USA-MAPS

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.

H. LITERATURE CITED

Bailey, Robert G., 1980. Description of the Ecoregions of the United States. U.S. Department of Agriculture Forest Service. miscellaneous Publication No. 1391.

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, U.S. Fish and Wildlife Service. Biological Services Program, Washington, D.C. 103 p.

Soil Survey of Pennington County, Minnesota. U.S. Department of Agriculture, Soil Conservation Service.*

* Pennington County Soil Survey was used for climatic and agricultural information. There are no county soil surveys completed within this mapping area. Pennington County was chosen because it is closest in location and situation.

Location of Roseau SE

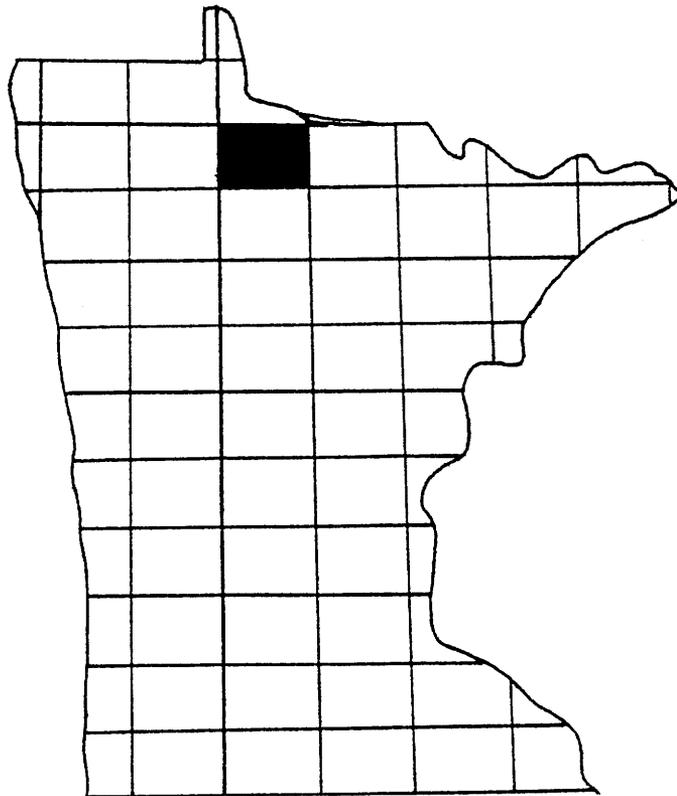


Figure 1.