

# NATURAL COMMUNITIES AND RARE SPECIES

## WASHINGTON COUNTY, MINNESOTA 1987 - 1989

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Natural Communities of Washington County as interpreted from air photographs<sup>1</sup> and field inventory.<sup>2</sup> Natural Community classification is an ongoing effort of the Natural Heritage Program to classify and describe functional units of Minnesota's natural landscape by jointly considering vegetation, hydrology, landform, soil, and natural disturbance cycles.<sup>3</sup> The Natural Community Types and Subtypes given below are described primarily by vegetation and major habitat features in Washington County. Not mapped are areas where human activity (agriculture, logging, draining, development, etc.) has obviously altered the natural vegetation.

### DESCRIPTION OF MAP UNITS

#### SOUTHERN FORESTS<sup>4</sup>

- SOUTHERN MIXED CONIFER FOREST**
  - Mesic Pine-Hardwood Forest - forests of mesic (moist) and wet-mesic habitats; canopy includes white pine mixed with any combination of sugar maple, basswood, or northern red oak; occasional canopy trees: red pine, green ash, yellow birch, American elm, slippery elm.
  - Dry Pine-Hardwood Forest - forests of dry to dry-mesic habitats; canopy includes any combination of white pine, red pine, or jack pine; often mixed with oak, aspen, or both.
- SOUTHERN DECIDUOUS FOREST**
  - Aspen Forest - forests of dry to dry-mesic habitats; canopy dominated by quaking aspen or large-toothed aspen, or both; often mixed with paper birch and oak.
  - Maple-Basswood Forest - forests of mesic to wet-mesic habitats; canopy dominated by a combination of sugar maple and basswood; northern red oak is a canopy associate on drier sites, ash and elm are associates on wetter sites.
  - Oak Forest - forests of dry to mesic habitats; canopy includes any combination of northern red oak, northern pin oak, white oak, or bur oak; occasional canopy trees: wild black cherry, basswood, green ash, paper birch, aspen.

#### SOUTHERN PRAIRIE OPENINGS/SAVANNA<sup>4</sup>

- SOUTHERN CONIFER OPENINGS**
  - Red Cedar Glades - prairie openings of dry habitats; woody cover mostly red cedar, often with some oak brush.
- SOUTHERN SAVANNA**
  - Oak Savanna - dry prairies with scattered individuals or small groves of bur oak, northern pin oak, or both; small patches of young aspen and hazelnut brush often present.

#### PRAIRIE

- UPLAND PRAIRIE**
  - Dry Bedrock-Bluff Prairie - prairies on dry, shallow soils over bedrock; cover grasses are mostly little bluestem (*Setochloa scariosa*), side-oats grama (*Bouteloua curtipendula*), and satin grass (*Muhlenbergia cuspidata*).
  - Dry Gravel Prairie - prairies on dry, gravelly, glacial deposits or on gravelly river terraces; cover grasses are mostly little bluestem, side-oats grama, porcupine grass (*Stipa spartea*), and Indian grass (*Sorghastrum nutans*).
  - Dry Sand-Dune Prairie - prairies on dry, sand dunes; cover grasses are mostly little bluestem, sand-drop-seed (*Sporobolus cryptandrus*), fall witch-grass (*Leptoloma cognatum*), and sand reed-grass (*Calamagrostis longifolia*).

#### FORESTED WETLANDS<sup>4</sup>

- FLOODPLAIN FOREST**
  - Silver Maple Floodplain Forest - lowland forests of seasonally flooded river bottoms; canopy dominated by silver maple; occasional canopy trees: green ash, black ash, American elm, slippery elm, hackberry.
  - Black Willow-Cottonwood Floodplain Forest - lowland forest of seasonally flooded river bottoms; canopy dominated by black willow, usually with some cottonwood; occasional canopy trees: river birch, American elm, slippery elm, silver maple.
- CONIFER SWAMP FOREST**
  - Tamarack Swamp - lowland forests on wet, organic soils; canopy dominated by tamarack or tamarack mixed with paper birch, black ash, or both.
  - Tamarack Swamp Sphagnum Subtype - lowland forests on wet Sphagnum moss peat; canopy strongly dominated by tamarack.
  - Tamarack Swamp Circumneutral-Seepage Subtype - lowland forests on wet, organic soils that have developed around springs or broad zones of circumneutral (pH near neutral) groundwater discharge; canopy dominated by tamarack or tamarack mixed with any combination of paper birch, black ash, yellow birch, or basswood.
- HARDWOOD SWAMP FOREST**
  - Mixed Hardwood Swamp - lowland forests on wet, organic soils; canopy any combination of black ash, paper birch, yellow birch, or red maple.
  - Mixed Hardwood Swamp Circumneutral-Seepage Subtype - lowland forests on wet, organic soils that have developed around springs or broad zones of circumneutral groundwater discharge; canopy any combination of black ash, green ash, paper birch, yellow birch, or red maple.

#### RARE SPECIES SITES

Rare Species Sites as determined from ground inventory and historical records.<sup>5</sup> Rare species comprise plants and animals that are listed or are candidates for listing under the provisions of the Federal or Minnesota Endangered Species Acts.<sup>6</sup>

- Vascular Plants
- Birds
- Colonial Waterbirds
- Amphibians and Reptiles
- Mammals
- Bat Caves
- Butterflies
- Mussels<sup>7</sup>

#### FOOTNOTES

1. Natural Communities photointerpreted from 1:24,000 color infrared air photographs taken in October, 1985.
2. Data available from the Minnesota Natural Heritage Program, Natural Heritage Information System, Department of Natural Resources, St. Paul, Minnesota.
3. Almendinger, J. C., K. M. Wendt, N. E. Aaseng, R. P. Dana, and K. A. Rusterholz. 1991. A preliminary key to natural communities in Minnesota. Biological Report No. 20. Minnesota Natural Heritage Program, Department of Natural Resources, St. Paul, Minnesota.
4. Common names of trees and shrubs from Rosendahl, C. O. 1955. Trees and shrubs of the Upper Midwest. University of Minnesota Press, Minneapolis, Minnesota.
5. Federal and state legislation concerning endangered species is covered in Coffin, B. and L. Flannmuller. 1988. Minnesota's endangered flora and fauna. University of Minnesota Press, Minneapolis, Minnesota.
6. Mussel occurrences in the St. Croix River provided by the Wisconsin Heritage Inventory, Department of Natural Resources, Madison, Wisconsin.
7. Miscellaneous features other than managed areas were digitized from 1:24,000 U.S. Geological Survey topographic base maps. Managed-area boundaries were obtained from the managing agency or were generalized from the Washington County plat book (1986, Rockford Map Publications, Inc.).

#### SHRUB WETLANDS<sup>4</sup>

- SHRUB WETLANDS**
  - Alder Swamp - shrub wetlands on wet, organic soils; canopy strongly dominated by speckled alder.
  - Shrub Carr - sedge wetlands on wet, organic soils; patchy canopy of speckled alder, willow, and dogwood shrubs.

#### OPEN WETLANDS

- OPEN BOG**
  - Sphagnum Bog - open wetlands on wet, Sphagnum moss peat; wetlands domed or otherwise raised above the acidic groundwater; groundlayer a continuous Sphagnum mat with hummock and hollow microtopography; heath plants, e.g., small cranberry (*Vaccinium oxycoccos*), bog rosemary (*Andromeda glaucophylla*) and insectivorous plants, e.g., pitcher plant (*Sarracenia purpurata*), sundew (*Drosera rotundifolia*) are typically present.
- FEN**
  - Poor Fen - open wetlands on wet, mostly Sphagnum moss peat; groundlayer a continuous or interrupted Sphagnum mat; heath plants and insectivorous plants typically present along with some plants that indicate the presence of acidic groundwater near the surface, e.g., bog birch (*Betula glandulifera*), marsh cinquefoil (*Potentilla palustris*).
  - Rich Fen - open wetlands on wet, organic soils; cover mostly sedges, e.g., lake sedge (*Carex lasiocarpa*), tussock sedge (*Carex stricta*); groundlayer includes plants that indicate the presence of nutrient-rich groundwater, e.g., marsh fern (*Thelypteris palustris*), spotted joe-pye-weed (*Eupatorium maculatum*).
  - Seepage Fen Circumneutral Subtype - open wetlands on wet, organic soils that have developed around springs or broad zones of circumneutral groundwater discharge; cover mostly sedges; groundlayer includes plants that indicate groundwater discharge, e.g., skunk cabbage (*Symplocarpus foetidus*), angelica (*Angelica atropurpurea*).
- WET MEADOW**
  - Sedge Meadow - open wetlands on wet, mineral soil; cover mostly graminoids, e.g., wool grass (*Scirpus cyperinus*), blue-joint grass (*Calamagrostis canadensis*).
- EMERGENT MARSH**
  - Cattail Marsh - open wetlands with floating vegetation or vegetation emergent from muddy lake sediments; cover strongly dominated by cattails (*Typha latifolia*, *T. angustifolia*).
  - Bulrush Marsh Riverine Subtype - open wetlands on shallow, sand-bottomed backwaters of rivers; cover dominated by river bulrush (*Scirpus fluviatilis*), often mixed with prairie cordgrass (*Spartina pectinata*).

#### AQUATIC COMMUNITIES

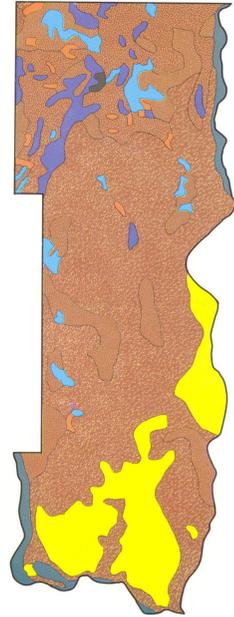
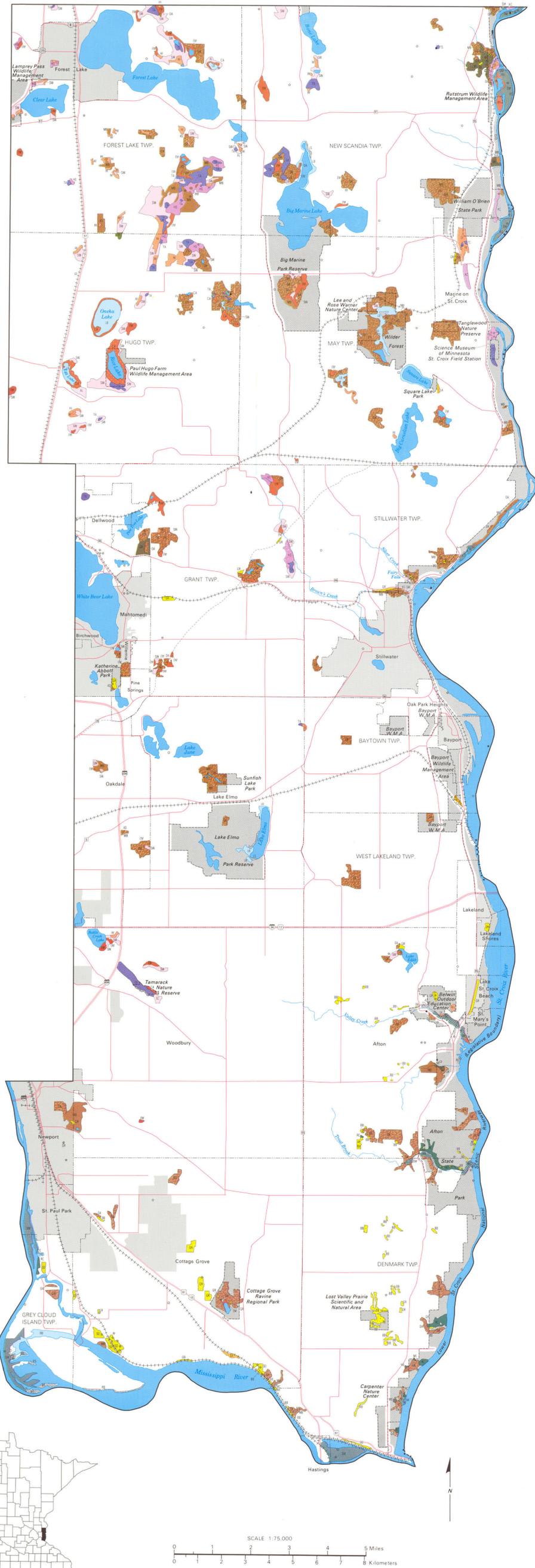
- LAKE COMMUNITIES**
  - Lake Bed - shallow-water communities of lakes; cover of floating-leaved plants, e.g., waterlily (*Nymphaea*, *Najas*), submerged plants, e.g., pondweed (*Potamogeton*), and free-floating plants, e.g., duckweed (*Lemna*).
- RIVER COMMUNITIES**
  - River Bed - shallow-water communities of river backwaters; cover of rooted, submergent macrophytes, e.g., pondweed, horned pondweed (*Zannichia palustris*).

#### PRIMARY COMMUNITIES

- Dry Cliff** - communities of plants growing from small rock fissures or on dry ledges of cliffs; typical plants: smooth cliffbrake fern (*Pellaea glabella*), rock cress (*Arabis lynta*).
- Moist Cliff** - communities of plants growing from moist, moss-covered rock walls; typical plants: walking fern (*Camptosia rhizophylla*), polypody fern (*Polypodium virginianum*), fragile fern (*Cystopteris fragile*).
- Lake Beach Sand Subtype** - lakeshore communities with little persistent vegetation, often dominated by annual plants, e.g., umbrella sedges (*Cyperus*), golden dock (*Rumex maritimus*), marsh cress (*Rorippa islandica*) or perennial plants adapted to erosion by waves and ice, e.g., knotted rush (*Juncus nodosus*), monkey flower (*Mimulus ringens*).
- River Beach Sand Subtype** - communities of river spits and sand bars with little persistent vegetation, often dominated by annual plants, e.g., umbrella sedges, teal lovegrass (*Eragrostis hypnoides*), water hemp (*Amaranthus tataricus*) or perennial plants adapted to erosion by current and ice flow, e.g., river bulrush, ditch stonecrop (*Penthorum sedoides*), rice-cutgrass (*Leersia oryzoides*).

#### MISCELLANEOUS FEATURES<sup>7</sup>

- Managed Areas
- Lakes and Rivers
- Urban Areas
- Streams
- Minor Civil Divisions
- Primary Roads
- Other Roads
- Railroads
- Trails



### THE ORIGINAL VEGETATION OF WASHINGTON COUNTY

Original Vegetation of Washington County from Public Land Survey Records as interpreted by Francis J. Manschner.<sup>1</sup> Equivalent Natural Communities are given in parentheses except for types with no modern, Natural Community remnants in Washington County. Several Natural Communities of specialized nature or small extent mapped during 1987-1988 were not described by the early land surveyors.

#### DESCRIPTION OF MAP UNITS

- PINERIES**
  - Mixed Hardwood and Pine - maple, white pine, basswood, oaks, hornbeam, ash, elm, aspen, and birch. (Mesic Pine-Hardwood Forest, pine dominated; Dry Pine-Hardwood Forest)
- HARDWOOD FORESTS**
  - Big Woods - Bur oak, white oak, red oak, northern pin oak, elm, basswood, ash, maple, hornbeam, aspen, birch, black cherry, hickory, butternut, etc., with some white pine. (Mesic Pine-Hardwood Forest, hardwood dominated; Maple-Basswood Forest; Oak Forest, red oak dominated)
  - River Bottom Forest - Elm, ash, cottonwood, boxelder, silver maple, willow, aspen, hackberry, etc. (Silver Maple Floodplain Forest, Black Willow-Cottonwood Forest)
- BRUSHLAND**
  - Oak Openings and Barrens - Scattered trees and groves of oaks of scrubby form with some brush and thickets. (Oak Savanna; Oak Forest, early successional stage)
  - Aspen-Oak Land - Aspen, generally dense, but small in most places, with scattered oaks and few elms, ash, and basswood. (Oak forest, early successional stage; Aspen Forest, early successional stage)
- GRASSLAND**
  - Prairie - (Dry Bedrock-Bluff Prairie; Dry Gravel Prairie; Dry Sand-Dune Prairie)
  - Wet Prairies, Marshes, and Sloughs - Marsh grasses, flags, reeds, rushes, wild rice, with willow and alder brush in places. (Alder Swamp; Shrub Carr; Rich Fen; Sedge Meadow; Cattail Marsh)
- BOGS AND SWAMPS**
  - Conifer Bogs and Swamps - Tamarack (Tamarack Swamp, Tamarack Swamp Sphagnum Subtype; Tamarack Swamp Circumneutral-Seepage Subtype; Sphagnum Bog; Poor Fen)

#### FOOTNOTE

1. Manschner, F.J. 1974. The original vegetation of Minnesota (map scale 1:500,000). USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota. (redraft of the original 1930 edition)