

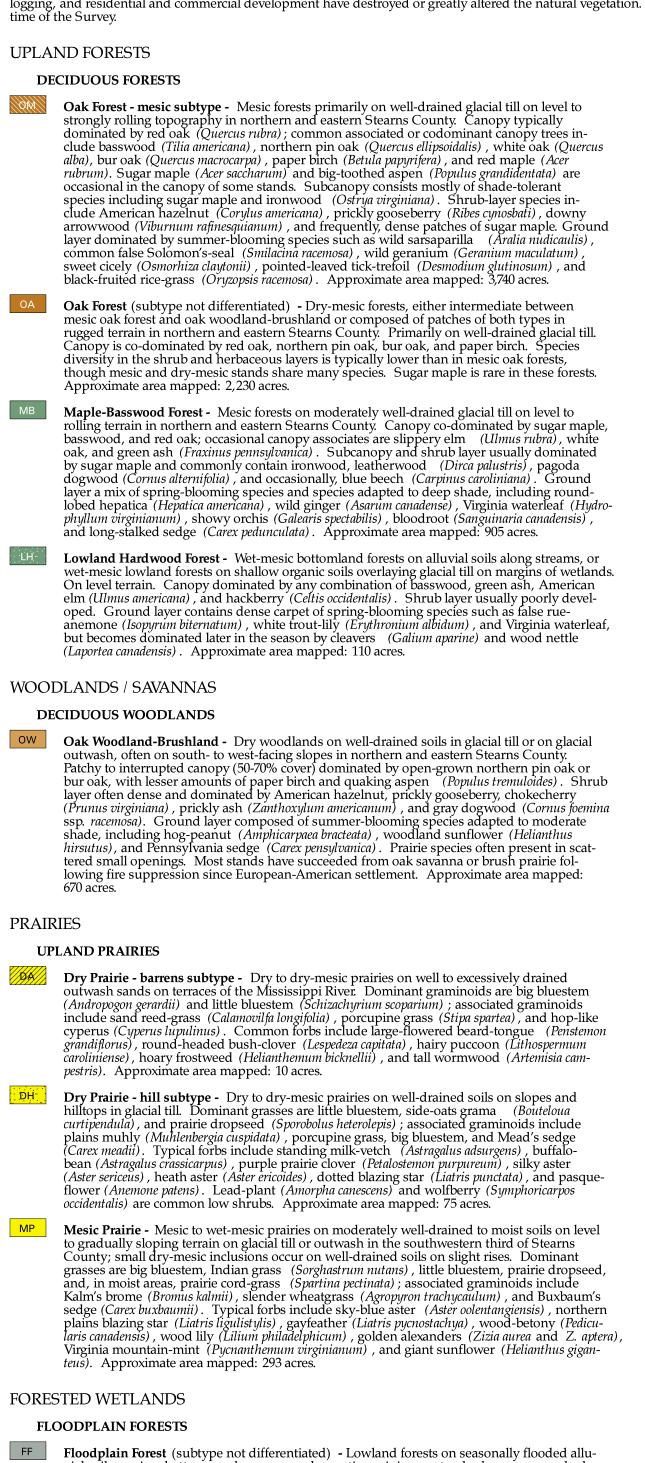
# NATIVE PLANT COMMUNITIES AND RARE SPECIES OF STEARNS COUNTY, MINNESOTA

by the

(Botruchium mormo *(Cypripedium arietinum)* (Cypripedium candidum) (Panax quinquefolius) (Platanthera flava var. herbiola) (Rhynchospora capillacea) (Ruppia maritima) (Sanicula trifoliata) (Scirpus clintonii)

vegetation. These aggregations may include rare and common species The following species have been recorded from active colonial waterbird nesting sites in Stearns County: Western grebe (Aechmophorus occidentalis) Great egret (Ardea albus), Great blue heron (Ardea herodias), Black-crowned night-heron (Nycticorax nycticorax), Red-necked grebe (Podiceps grisegena),

## NATIVE PLANT COMMUNITIES



vial soils on river bottoms; only one example meeting minimum standards was mapped, along the Mississippi River in the northeastern part of the county. Canopy dominated by silver maple (*Acer saccharinum*) on lowest-lying terrain; on slightly higher terrain community resembles lowland hardwood forest with a combination of basswood, hackberry, American elm, green ash, and butternut (Juglans cinerea). Subcanopy and tall shrub layer dominated by green ash. Common ground-layer species include ostrich-fern (Matteuccia struthiopteris) . (Virginia waterleaf, honewort (Cryptotaenia canadensis) , and goldenglow (Rudbeckia laciniata) MH Mixed Hardwood Swamp (subtype not differentiated) - Forested swamps on saturated mineral or thin organic soils in shallow basins on glacial till in the northeastern third of Stearns County. Canopy dominated by a mix of green ash, black ash (*Fraxinus nigra*), paper birch, tamarack (*Larix laricina*), red maple, elms (*Ulmus spp.*), and rarely, vellow birch (Betula allegheniensis) . In some small basins, canopy dominated almost exclusively by black ash or green ash. Shrub layer variable in cover, commonly including red-osier dogwood (Cornus stolonifera), speckled alder (Alnus incana), nannyberry (Viburnum lentago), and alder-leaved buckthorn (Rhamnus alnifolia). Ground layer contains minerotrophic wetland species including cinnamon fern (Osinunda cinnomomea), dwarf raspberry (Rubus pubescens), lake sedge (*Carex lacustris*), and common marsh-marigold (*Caltha palustris*). Approximate Mixed Hardwood Swamp - seepage subtype - Forested swamps on soils saturated by groundwater seepage on glacial till; often with deep deposits of soft, saturated muck. Most occurrences are at bases of steep slopes in rolling terrain in eastern Stearns County. Canopy dominated by a mix of black ash, yellow birch, paper birch, tamarack, and red maple. Shrub and herbaceous layers similar to mixed hardwood swamp, but with spotted touch-me-not (Impatiens capensis) and fowl manna-grass (Glyceria striata) often abundant in seeps. Approx-**Tamarack Swamp - minerotrophic subtype -** Forested swamps on saturated peat or muck in shallow, often large basins on glacial till or outwash in northern and eastern Stearns County, with a noteworthy outlier at Tamarack Lake WMA in the southwestern corner of the county. Surface water circumneutral to mildly acidic. Canopy dominated by moderate to fairly dense stands of tamarack; paper birch is a common canopy associate. Subcanopy patchy, composed of paper birch, red maple, and elms. Diverse, sparse to moderately dense shrub layer includes high-bush cranberry (*Viburnum trilobum*), alder-leaved buckthorn, swamp red currant (*Ribes triste*), swamp gooseberry (*Ribes hirtellum*), mountain fly-honeysuckle (Lonicera caerulea var. villosa), and occasionally, speckled alder and bog birch (Betula glandulifera) Diverse ground layer includes showy lady's-slipper (*Cypripedium reginae*), early coral-root (Corallorhiza trifida), tall northern bog-orchid (Platanthera hyperborea), Loesel's twayblade (Liparis loeselii), soft-leaved sedge (Carex disperma), bristle-stalked sedge (Carex leptalea), dwarf raspberry, and bunchberry (*Cornus canadensis*); ground layer in some (often young) stands dominated by prairie sedge (*Carex prairea*). Sphagnum mosses (*Sphagnum* spp.) are uncommon to rare, and restricted to small patches in microhabitats such as on decayed wood. Approximate Tamarack Swamp - seepage subtype - Forested swamps on organic soils saturated by cold, mineral-rich groundwater seepage on glacial till or outwash; often with deep deposits of soft, saturated muck around seeps and along their small outlet channels. Two intact occurrences of this extremely rare community exist in Stearns County: one along the Sauk River between Cold Spring and Rockville is a portion of a much larger seepage system on a broad river terrace; the other occurs in a fairly narrow band on the lower portion of an extremely steep slope in rugged terrain overlooking Lake Sylvia north of Melrose. Canopy dominated by moderate to dense stands of tamarack. Diverse shrub and herbaceous layers similar to minerotrophic tamarack swamp, but with spotted touch-me-not and fowl manna-grass often abundant in seeps. Approximate area mapped: 35 acres. Tamarack Swamp - sphagnum subtype - Forested swamps on saturated peat or muck in shallow basins on glacial till in northern and eastern Stearns County. Three intact occur-

### RARE SPECIES AND ANIMAL AGGREGATIONS

ocations of rare plants, rare animals, and selected animal aggregations are maintained in the Natural Heritage Information System The following rare species and animal aggregations (which include common and rare species) have been found in Stearns County. Mapped locations include both historical records and the results of field surveys conducted by the Minnesota County Biological Survey in 1997 and 1998. Rare plants and animals are either protected under the provisions of the Federal Endangered Species Act or the Minnesota Endangered Species Statute and associated Rules, or are being considered for protection \*. An asterisk (\*) indicates that no recent observation (1970-1999) of that species has been confirmed. A dagger ( +) indicates that the species has been documented in the county ♦ Animals, federally- or state-listed Northern myotis \* (Myotis septentrionalis) (Pipistrellus subflavus) Eastern pipistrelle\* Birds Henslow's sparrow \* (Ammodramus henslowii) Red-shouldered hawk (Buteo lineatus) Cerulean warbler Dendroica cerulea) cadian flycatcher Empidonax virescens) Peregrine falcon (Falco peregrinus) (Haliaeetus leucocephalus) ald eagle Marbled godwit (Limosa fedoa) Wilson's phalarope (Phalaropus tricolor) Forester's Tern (Sterna forsteri) Reptiles Blanding's turtle (Emydoidea blandingii) Fish Least darter (Etheostoma microperca) Pugnose shiner (Notropis anogenus) Butterflies Dakota skipper (Hesperia dacotae) owesheik skipper (Oarisma powesheik) (Speyeria idalia) Regal frittilary

#### story and herbaceous layers differing slightly from minerotrophic tamarack swamp by the presence of several northern species rare in Stearns County, including three-seeded bog sedge (*Carex trisperma*), creeping sedge (*Carex chordorrhiza*), small cranberry (*Vaccinium oxy-coccus*), and buckbean (*Menyanthes trifoliata*). Sphagnum mosses carpet the forest floor. Approximate area mapped: 40 acres. SHRUB WETLANDS SHRUB SWAMPS Alder Swamp - Shrub-dominated wetlands on saturated organic soils in shallow wetland basins, occasionally with a sparse overstory of tamarack (< 30% cover). Dense, tall shrub layer dominated by speckled alder, often forming nearly pure stands. Ground layer dominated by coarse-leaved sedges, of which lake sedge is predominant. Approximate area mapped: 170 acres. / **MM**// Willow Swamp - Shrub-dominated wetlands on saturated mineral or shallow organic soils in shallow wetland basins. Dense, often tall shrub layer dominated by a mix of pussy willow (Salix discolor), Bebb's willow (Salix bebbiana), slender willow (Salix petiolaris), and red-osier dogwood. Ground layer consists of common wetland species typical of wet meadows or mixed emergent marshes. Approximate area mapped: 535 acres. **Mixed Shrub Swamp** - Shrub-dominated wetlands on saturated mineral or thin organic soils in shallow wetland basins. Fairly dense shrub cover composed of a mix of several willow species, speckled alder, and red-osier dogwood; significant cover by scattered decid-uous trees, including green ash, paper birch, and elms. Standing dead trees are occasional. Ground layer similar to willow of alder swamp. Approximate area mapped: 55 acres. OPEN WETLANDS WET MEADOWS / FENS WP Wet Prairie - Wet to wet-mesic prairies on poorly-drained mineral or shallow organic soils in shallow depressions, often along margins of wet meadows in fairly level terrain. Diverse community dominated by graminoids with grasses more common than sedges. Major species are prairie cord-grass, big bluestem, bluejoint (*Calamagrostis canadensis*), sweet grass (*Hiero*chloe odorata), tall cotton-grass (Eriophorum angustifolium), rigid sedge (Carex tetanica), and Buxbaum's sedge, and on the Anoka Sand Plain Ecological Subsection in far eastern Stearns County, Hayden's sedge (*Carex haydenii*), and field sedge (*Carex conoidea*). Scattered clumps of willows and red-osier dogwood often present. Typical forbs include Virginia mountainmint, swamp thistle (Cirsium muticum), great blazing star (Liatris pycnostachya), Riddell's goldenrod (Solidago riddellii), giant sunflower, marsh vetchling (Lathyrus palustris), and small white lady's-slipper (*Cypripedium candidum*). Approximate area mapped: 91 acres. Wet Meadow - Open wetlands on wet, seasonally flooded mineral or thin organic soils in shallow basins, often part of larger marsh or swamp complexes. Dominated by coarse-bladed sedges, including tussock sedge (*Carex stricta*) and lake sedge, and frequently by bluejoint. pical forbs include spotted loe-pye weed (Eupatorium maculatum), common boneset Éupatorium perfoliatum), tufted loosestrife (Lysimachia thyrsiflora), common marsh-marigold, and great water dock (Rumex orbiculatus). Scattered clumps of willows and red-osier dogwood often present (includes wet meadow - shrub subtype where shrub cover is 30-70%). Approximate area mapped: 1,193 acres. **CP Calcareous Seepage Fen - prairie subtype -** Open wetlands on peat that is continuously saturated by cold, calcium-rich, oxygen-poor, upwelling groundwater; on broad, slightly-sloping plains or on slight terraces on steeper slopes in rolling terrain. Small, marly pools often occur where groundwater discharge is greatest. Dominated by graminoids including sterile sedge (*Carex sterilis*), big bluestem, clustered muhly grass (*Muhlenbergia glomerata*), mat muhly grass (Muhlenbergia richardsonis), northern reedgrass (Calamagrostis inexpansa), wiregrass sedge (*Carex lasiocarpa*), and aquatic sedge (*Carex aquatilis*); patches of hardstem bulrush (*Scirpus*) acutus) and three-square (*Scirpus pungens*) often present. Low to medium height shrubs often common, including sage-leaved willow (*Salix candida*) and bog birch. Typical forbs include American grass-of-Parnassus (Parnassia glauca), marsh grass-of-Parnassus (Parnassia palustris), seaside arrow-grass (Triglochin maritima), marsh arrow-grass (Triglochin palustris), Kalm's lobelia (Lobelia kalmii), bog aster (Aster borealis), and fringed gentians (both Gentianopsis procera and *G. crinita*). Approximate area mapped: 105 acres. Calcareous Seepage Fen - boreal subtype - Open wetlands on peat that is continuously saturated by cold, calcium-rich, oxygen-poor, groundwater along a narrow water tract flowing through a large minerotropic tamarack swamp complex. One significant example exists in Stearns County near St. Wendel, well south of other known occurrences of this subtype in the large forested peatlands of northern Minnesota. Dominated by sedges, including wiregrass sedge and interior sedge (*Carex interior*). Low to medium height shrubs common (30% cover), including bog birch and sage-leaved willow. Species restricted to the zones nearest ground water discharge include sterile sedge, tufted bulrush (Scirpus cespitosus), udson Bay bulrush (Scirpus hudsonianus), American grass-of-Parnassus, bog-rosemary (Andromeda glaucophylla), seaside arrow-grass, pitcher-plant (Sarracenia purpurea), greenkeeled cotton-grass (Eriophorum viridi-carinatum), candle-lantern sedge (Carex limosa), and intermediate bladderwort (Utricularia intermedia). Approximate area mapped: 10 acres. **Rich Fen - sedge subtype -** Open wetlands on saturated peat in small basins in rolling terrain or as inclusions in large shallow wetland complexes in northern and eastern Stearns County. Surface water slightly to moderately acidic, especially in small basins where sphagnum mosses typically form continuous carpets. Dominated by fine-bladed sedges, most commonly wiregrass sedge. Scattered small trees and tall shrubs often present, including tamarack, paper birch, red maple, bog birch, and balsam willow (Salix pyrifolia). Bog willow (Salix pedicellaris) and large cranberry (Vaccinium macrocarpon) are common low shrubs. Sageleaved willow occurs in non-sphagnum rich fens. Associated graminoids include beaked sedge (Carex utriculata), silvery sedge (Carex canescens), creeping sedge, candle-lantern sedge, three-way sedge (Dulichium arundinaceum), tall cotton-grass, slender cotton-grass (Eriophorum gracile), Chamisso's cotton-grass (Eriophorum chamissonis), clustered muhly grass, and in non-sphagnum habitats, prairie sedge and aquatic sedge. Typical forbs include northern marsh fern (Thelypteris palustris), marsh St. John's-wort (Triadenum fraseri), round-leaved sundew (Drosera rotundifolia), and northern bugleweed (Lycopus uniflorus). This subtype intergrades with poor fen - sedge subtype (not mapped in Stearns County). One example of seepage-fed rich fen occurs with mesic prairie in southwestern Stearns County. Approximate area mapped: 160 acres. **RH Rich Fen - shrub subtype -** Shrub-dominated wetlands on saturated peat in large, shallow basins, primarily in eastern Stearns County but with an unusual, large occurrence at Tamarack Lake WMA in the southwestern corner of the county. Shrub cover over 70%, dominated by bog birch. Associated shrubs include sage-leaved willow, pussy willow, Bebb's willow, slender willow, and small tamaracks. Ground layer composed of sedges and forbs similar to rich fen sedge subtype. Approximate area mapped: 530 acres.

stands of tamarack; paper birch and elms are occasional canopy associates. Woody under-

Minnesota County Biological Survey Map Series No. 19 (1999) Stearns County, Minnesota

Rich Fen - floating mat subtype - Open wetlands forming narrow zones surrounding open water on saturated peat in large wetland complexes in eastern Stearns County; substrate unstable, consisting of floating mat of sedges. Sphagnum mosses present or absent. Domin-ated by a mix of coarse- and fine-bladed sedges, including wiregrass sedge, beaked sedge, three-way sedge, and spike-rushes (*Eleocharis* spp.). Shrubs sparse, include bog birch and bog willow. Associated species include northern marsh fern, tufted loosestrife, marsh sinquefoil (Potentilla palustris), broad-leaved arrowhead (Sagittaria latifolia), bristly sedge (*Carex comosa*), and lesser-panicled sedge (*Carex diandra*). Approximate area mapped: 60 acres. Poor Fen - shrub subtype - Low-shrub dominated wetlands on saturated peat in small basins in strongly-rolling forested terrain. Only one example documented, in an ice-block depression in an esker in east-central Stearns County, Sphagnum mosses form a continuous carpet over hummocks and depressions of the substrate. Low shrub layer is dominated by fairly dense cover of leather-leaf (*Chamaedaphne calyculata*), bog-rosemary, and small cranberry. Tamarack and paper birch occur as scattered small trees, occasionally in clumps. Ground-layer species include wiregrass sedge, candle-lantern sedge, creeping sedge, scheuchzeria (*Scheuchzeria*) *palustris*), and round-leaved sundew. Shares several species uncommon in Stearns County with sphagnum-covered fens mapped as rich fen - sedge subtype, and with sphagnum tamarack swamp. Approximate area mapped: 5 acres. EMERGENT MARSHES ME Mixed Emergent Marsh - Open, flooded wetlands with standing water present throughout most of the growing season; on mineral or shallow organic soils in small basins in rolling forested terrain in northern and eastern Stearns County, and in level open terrain in the southwestern third of the county. Dominant species vary but often include zones of cattails (Typha spp.), lake sedge, rice cut grass (Leersia oryzoides), wool-grass (Scirpus cyperinus) softstem bulrush (Scirpus validus), broad-leaved arrowhead, and occasionally, common reed grass (*Phragmites australis*). Associated plants include willows (*Salix* spp.), speckled alder, water parsnip (*Sium suave*), and water plantain (*Alisma* sp.). Approximate area mapped: Cattail Marsh - Open, flooded wetlands with standing water present throughout most of the growing season; on mineral or shallow organic soils in shallow basins or along margins of lakes and streams. Dominated by cattails (Typha latifolia, T. angustifolia, or hybrids between the two). (Because of the disturbed nature of this type, it was not mapped except where it functions as an important component in a complex of native plant communities). Approximate area mapped: 730 acres. PRIMARY COMMUNITIES **RO Rock Outcrop -** Dry, rather sparsely vegetated communities on exposures of granitic bedrock concentrated along the Sauk River corridor between St. Cloud and Cold Spring, with scat-

tered examples in the vicinity of Sartell. Vegetation typically occurs as a complex growing on bare rock surfaces, in rock crevices, and in shallow soils less than a couple of feet deep between and around exposures. Lichen-encrusted rock surfaces and rock crevices subject to frequent, extreme drought. Dry-mesic prairie and oak savanna vegetation predominate in the shallow soils between the rock exposures. Scattered, stunted, open-grown bur oak and northern pin oak trees occur on many of the larger outcrops. Shrub cover patchy; common taller shrubs include American hazeInut, Juneberry (*Amelanchier* sp.), gray dogwood, and large-thorned hawthorn (Crataegus macracantha). Low, often prostrate, shrubs rooted along margins of exposed rock and in crevices include sand cherry (*Prunus pumila*) and several blackberry species (Rubus multifer, R. frondosus, and R. recurvans). Specialized vascular plants of crevices and rock margins include small-flowered fameflower (*Talinum varviflorum*), rusty woodsia (Woodsia ilvensis), brittle prickly pear (Opuntia fragilis), pale corydalis (Corydalis sempervirens) rock spikemoss (Selaginella rupestris), and rarely, bearberry (Arctostaphylos uva-ursi), lowbush blueberry (Vaccinium angustifolium), and false pennyroyal (Isanthus brachiatus). Prairie species in shallow soil areas include big bluestem, Indian grass, prairie dropseed, prairie wild onion (Allium stellatum), round-headed bush clover, arrow-leaved violet (Viola sagittata), blood milkwort (*Polygala sanguinea*), and leadplant. Small exposures under heavy shade of surrounding woodland canopy are often moister and moss-covered. Approximate area mapped: 120 acres.

FOOTNOTES

#### 1. The Minnesota County Biological Survey is a systematic survey of rare biological features. The goal of the Survey is to identify significant natural areas and to collect and interpret data on the distribution and ecology of rare plants, rare animals, and native plant communities. Minnesota Natural Heritage Program. 1993. Minnesota's Native Vegetation: A Key to Natural Communities, Version 1.5. Minnesota Department of Natural Resources, St. Paul, Minnesota.

- 3. Native plant community boundaries were delineated by photo-interpretation of 1:18,540 color infrared (CIR) aerial photography taken on 22 September, 1992 (Minnesota DNR Division of Forestry) and 1:40,000 CIR aerial photography taken in April 1991 (National Aerial Photography Program, U.S. Geological Survey, Department of the Interior). Native plant community boundaries were digitized at a scale of 1:24,000. 4. Acreage figures for mapped types are approximate to the nearest five acres.
- 5. Marschner, F. J. 1974. The original vegetation of Minnesota (map, scale 1:500,000). Forest Service, U.S. Dept. of Agriculture, North Central Forest Experiment Station, St. Paul, Minnesota (redraft of the original 1930 edition). The Public Land Survey records include information on trees that were marked as "witness" or "bearing" trees at the section, quarter-section, and meander corners: the kind of tree, its diameter at breast height, and its distance and compass direction from the corner. Also included are notes about features encountered along section lines, and summary descriptions of each township.
- 6. Civil division, transportation, water features, and state-owned managed area boundary data were obtained from the Department of Natural Resources, St. Paul, Minnesota. Every effort was made to obtain current versions of these data; however, errors may exist on this map. Land ownership within managed areas is sometimes obscured by native plant community map units. 7. Data are available from the Minnesota Natural Heritage Information System, Department of Natural Resources, St. Paul, Minnesota. Phone (612) 296-2835.
- 8. Endangered Species Act of 1973 (16 USCA 1531 et seq.); Minnesota Statutes, section 84.0895, and Minnesota Rules, Part 6212.1800 to 6212.2300. Additional information on rare species is available in Minnesota's Endangered Flora and Fauna, edited by B. Coffin and L. Pfannmuller, University of Minnesota Press, Minneapolis, 1988.

Natural Resources Trust Fund.

Funding for this project approved by the Minnesota Legislature with partial funding [ML 1997, Chapter 216, Sec. 15 Subd. 17 (n)] as recommended by the Legislative Commission on Minnesota Resources from the Environment and