

HATURAL RESCURCES Phone (651) 259-5100

NATIVE PLANT COMMUNITIES

N Tative plant communities are groups of native plants that interact with each other and with their environment in ways not greatly altered by N modern human activity or by introduced organisms. These groups of native species form recognizable units, such as oak forest, prairie, or marsh, that tend to repeat over space and time. The classification and description of native plant communities depicted on this map are based on the Field Guide to Native Plant Communities of Minnesota: The Eastern Broadleaf Forest Province (MNDNR 2005). This hierarchical classification uses vegetation composition, hydrology, landforms, soils, and natural disturbance regimes to categorize plant communities first into system groups, followed by systems, classes, types, and subtypes. Descriptions given for the classes, types, and subtypes on this map are typical of the area mapped. Most native plant communities are mapped and described at the type level; where less detailed data were available, communities are mapped and described at the class level. Common and scientific names of plants follow the Minnesota DNR's Vascular Plants of Minnesota checklist (Sept. 25, 2002 version), available on the Minnesota DNR website (www.dnr.state.mn.us).

The Minnesota County Biological Survey located areas of native plant communities in the counties bordering the Minnesota River between 1987 and 2000 using aerial photo interpretation followed by field surveys of selected sites. White areas on the map represent land where modern human activities such as farming, overgrazing, wetland drainage, recent logging, and residential and commercial development have destroyed or greatly altered the natural vegetation. Some areas depicted as native plant communities may have been destroyed since they were mapped. For information on the years individual counties were surveyed and additional descriptions of survey methods, please see the companion report for this map entitled Native Plant Communities and Rare Species of the Minnesota River Valley Counties.

FIRE-DEPENDENT FOREST/WOODLAND SYSTEM

FDs27 Southern Drv -Mesic Pine-Oak Woodland

FDs27b White Pine - Oak Woodland (Sand) Dry-mesic woodlands on steep slopes on sandy outwash deposits. Fires were common historically. Patchy to interrupted canopy (25-75% cover) dominated by white pine, with lesser amounts of northern red oak, white oak, bur oak, and paper birch. Common subcanopy species are white pine, red oak and paper birch; basswood, black cherry and quaking aspen may also be present. Low to high shrub cover includes red raspberry, chokecherry, American hazelnut, prickly ash, and gray dogwood. Common herbs include lopseed, wild sarsaparilla, heart-leaved aster, northern bedstraw, zig-zag goldenrod, common enchanter's nightshade, and hog peanut.

FDs37 Southern Dry -Mesic Oak (Maple) Woodland

FDs37a Oak – (Red Maple) Woodland Dry-mesic woodlands on undulating, sandy outwash and rolling to hummocky, sandy or gravely glacial till. Historically, fires were common and many stands were brushlands 100 years ago. Interrupted to continuous canopy (50-100% cover) dominated by northern red oak, northern pin oak, and white oak, with lesser amounts of bur oak and red maple. Subcanopy either absent or composed of red maple. Chokecherry, American hazelnut, gray dogwood and bush honeysuckle are common shrubs. Common herbs include pointed -leaved tick trefoil, Clayton's sweet cicely, wild geranium, lady fern, bracken, wild sarsaparilla, and Pennsylvania sedge.

FDs37b Pin Oak – Bur Oak Woodland Dry-mesic woodlands on well-drained soils formed in sandy outwash deposits or occasionally or sandy or gravelly glacial till, often on south- to west-facing slopes. Historically, fires were common and many stands were brushlands 100 years ago. Interrupted to continuous canopy (50-100% cover) dominated by open-grown bur oak and/or northern pin oak, and often includes paper birch, eastern red cedar, and quaking aspen. Understory is generally patchy to barely present and typically contains ironwood, green ash and bur oak. The shrub layer is typically dense and commonly includes chokecherry, gray dogwood, prickly ash, prickly gooseberry, and downy arrow-wood. The ground layer consists of moderately shade-tolerant species, including hog peanut, pointed-leaved tick trefoil, white snakeroot, Clayton's sweet cicely, woodland sunflower northern bedstraw, golden alexanders, and Pennsylvania sedge.

MESIC HARDWOOD FOREST SYSTEM

MHs37 Southern Dry -Mesic Oak Forest

- MHs37a Red Oak White Oak Forest Dry-mesic forests on sandy or gravelly moraine or outwash deposits; on slopes with shallow soil over bedrock along the Mississippi River bluffs; or on steep slopes on outwash terraces in the Minnesota River Valley. Interrupted to continuous canopy (50-100% cover) dominated by northern red oak and white oak, with occasional quaking aspen, big-toothed aspen, basswood, green ash, and black cherry. Subcanopy composed of the same species present in the canopy plus American elm. Shrub layer commonly contains American hazelnut, gray dogwood, round-leaved dogwood, and black cherry. Common forbs are hog peanut, large-flowered bellwort, white snakeroot, woodland sunflower, and Canada mayflower.
- MHs37b Red Oak White Oak (Sugar Maple) Forest Dry-mesic forests on sandy or gravelly moraine or outwash deposits; on slopes with shallow soil over bedrock along the Mississippi River bluffs; or on steep slopes on outwash terraces in the Minnesota River Valley. Generally on more mesic sites than MHs37a. Interrupted to continuou canopy (50-100% cover) dominated by northern red oak and white oak, with sugar maple, red elm, bitternut hickory, and basswood also common in the canopy. Sugar maple and ironwood ar common in the understory. Shrub layer typically contains American hazelnut, Missouri gooseberry, prickly ash, and black raspberry. Common herbs include wood nettle, wild geranium, lopseed, shining bedstraw, rugulose violet, pale touch-me-not, starry sedge, and wood

MHs38 Southern Mesic Oak -Basswood Forest

- MHs38a White Pine Oak Sugar Maple Forest Mesic forests on wind-deposited silt or residuum over bedrock, typically on steep north- to east-facing slopes in southeastern Minnesota. A supercanopy of scattered white pines is present above a canopy dominated by northern red oak, sugar maple, and basswood. Understory has abundant ironwood and sugar maple, occasionally with scattered white pine. Common shrubs include chokecherry, nannyberry, and pagoda dogwood. Ground-layer composed of common herbs of mesic hardwood forests, including wild geranium, bloodroot, Clayton's sweet cicely, wood anemone, Pennsylvania sedge, and long-stalked sedge.
- MHs38c Red Oak Sugar Maple Basswood (Bitternut Hickory) Forest Mesic forests on hummocky till plains or moraines, often on steep north-facing slopes in stream valleys. Interrupted to continuous canopy (50-100% cover) dominated primarily by straighttrunked northern red oak, with abundant sugar maple and basswood; other canopy trees include bitternut hickory, green ash, and bur oak. Sugar maple and ironwood are the most abundant trees in the subcanopy, with bitternut hickory usually present. Shrub layer sparse and commonly contains prickly gooseberry, sugar maple, prickly ash, chokecherry, and pagoda dogwood. Common herbaceous species include Clayton's sweet cicely, common enchanter's nightshade, Virginia waterleaf, bloodroot, large-flowered bellwort, zig-zag goldenrod, and wild sarsaparilla.
- ch mesic hardwood forests on loamy soils derived from calcareous till or on wind deposited silt over bedrock. Found in sites that have been historically protected from fires on hummocky stagnation moraines, also on till plains along the Minnesota River, and on mid-lower slopes of edrock-controlled valley slopes. Two types are recognized in the region, both dominated primarily by sugar maple, basswood, and northern red oak: Sugar Maple – Basswood – (Bitternut Hickory) Forest and Sugar Maple Forest (Big Woods). A third type occurs primarily on steep north-facing valley slopes in the Blufflands region of southeastern Minnesota.
- MHs39a Sugar Maple Basswood (Bitternut Hickory) Forest Mesic forest mostly on north facing slopes on loamy soils derived from calcareous till of stagnation moraines and till plains. Interrupted to continuous canopy (50-100% cover) dominated primarily by forest-grown basswood, sugar maple and northern red oak; green ash, red elm, bitternut hickory, black ash, and white oak may also be present in the canopy. Ironwood and sugar maple are the most abundant subcanopy species. Shrub layer generally sparse and typica includes prickly gooseberry, chokecherry, pagoda dogwood, and bitternut hickory. Commo herbs include bloodroot, Virginia waterleaf, wild leek, large-flowered bellwort, rugulose violet,
- MHS39c Sugar Maple Forest (Big Woods) Mesic forests on gently sloping sites with loamy soils derived from calcareous till of stagnation moraines and till plains. Interrupted to continuous canopy (50-100% cover) dominated primarily by forest-grown sugar maple and basswood; other frequent canopy species include northern red oak, bur oak, hackberry, and red elm. Subcanopy often dominated by sugar maple and usually contains basswood and hackberry. Shrub layer is usually sparse and commonly contains prickly gooseberry, red-berried elder, and chokecherry. Ground layer dominated through much of th growing season by wood nettle; other common herbs include cleavers, Virginia waterleaf, bloodroot, large-flowered bellwort, rugulose violet, yellow violet, puttyroot, wild leek, and nodding trillium. Spring ephemeral wildflowers such as Dutchman's breeches, cut-leaved

MHs49 Southern Wet -Mesic Hardwood Forest

MHs49a Elm – Basswood – Black Ash – (Hackberry) Forest Wet-mesic forests on silty alluvial soils on level ground within small to mid-sized stream or riv valleys and occasionally on lake margins. These sites are not subject to prolonged seasonal flooding but have a high water table or other conditions that cause moisture retention in the rooting zone during most of the growing season. Interrupted to continuous canopy (50-100% cover) dominated by a combination of green ash, basswood, black ash, American elm, and hackberry; rock elm or sugar maple are also sometimes present. Hackberry and American elm typically dominate the understory. Shrub layer usually sparse and contains Missouri gooseberry and chokecherry. Ground layer commonly dominated by Virginia waterleaf, cleavers, and false rue anemone in the spring, and later dominated by wood nettle throughout the summer. Cow parsnip, tall coneflower, wild ginger, and Sprengel's sedge are also common. Vines are present in nearly all sites, most commonly Canada moonseed, wild grape, and Virginia creeper.

FLOODPLAIN FOREST SYSTEM

- FFs68 Southern Floodplain Forest
- FFs68a Silver Maple (Virginia Creeper) Floodplain Forest t forests on annually flooded, alluvial deposits in floodplains of major rivers. Interrupted to continuous canopy (50-100% cover) consists primarily of silver maple, often under a supercanopy of scattered, taller cottonwoods. Other frequent canopy and subcanopy trees include willows, green ash, hackberry, American elm, box elder, and basswood. Shrubs sparse or absent Vines are abundant, including Virginia creeper, wild grape, bur cucumber, and Canada moonseed. On higher ground between recent flood channels, the ground layer is typically dominated by wood nettles, and also contains tall coneflower, cow parsnip, white grass, Ontario aster, false nettle, ambiguous sedge, and Virginia wild rye. Within recent flood channels, ground layer herbs are generally absent.

WET FOREST SYSTEM

WFn55 Northern Wet Ash Swamp

- WFn55b Black Ash Yellow Birch Red Maple Basswood Swamp (Eastcentral) Wet forests on mucky mineral soils in shallow basins or on low, level terrain near rivers, lakes, or wetlands. Typically with standing water in the spring but draining by late summer. Canopy dominated by black ash, usually with abundant red maple, yellow birch, and basswood. Subcanopy may contain American elm, paper birch, and quaking aspen, in addition to species present in canopy. Shrubs are variable in cover and may include chokecherry and swamp red rurrant. Ground layer contains upland forest herbs on hummocks, decaying logs, and around tree bases, including lady fern and dwarf raspberry.
- WFn64 Northern Verv Wet Ash Swamp
- WFn64b Black Ash Yellow Birch Red Maple Alder Swamp (Eastcentral) Verv wet forests on peaty soils in small, closed depressions or around the edges of large peatlands. Typically with standing water throughout the spring and summer. Patchy to interrupted canopy (50-75% cover) dominated by black ash, often mixed with yellow birch, red maple, or paper birch. Subcanopy typically contains black ash, red maple, and yellow birch. Shrub layer commonly contains speckled alder and winterberry. Common ground-layer herbs include clearweeds, dwarf raspberry, common marsh marigold, touch-me-nots, northern bugleweed, fowl manna grass, bluejoint, and lake sedge.
- WFs55 Southern Wet Aspen Forest
- WFs55a Lowland Aspen Forest Wet to wet-mesic woodlands in poorly drained, shallow depressions on mineral or organic soil, often on former wet prairies or wet meadows where fire has been excluded. Interrupted canopy (50-70% cover) dominated by quaking aspen. Shrub layer is often dense and composed of pussy willow, Bebb's willow, and red-osier dogwood. Ground layer is similar to wet prairie or we meadow but may also contain some species common to mesic forests.

WFs57 Southern Wet Ash Swamp

WFs57a Black Ash – (Red Maple) Seepage Swamp Vet hardwood forests on mucky or peaty soils in areas of groundwater seepage. Usually present on level river terraces at the bases of steep slopes. Patchy to interrupted canopy (25-75% cover) dominated primarily by black ash, often with basswood, American elm, red maple, and green ash. Red maple saplings and seedlings commonly present. Shrubs are sparse and usually include wild black currant, chokecherry, and nannyberry. Seepage areas typically contain patches of skunk cabbage. Other wet areas contain wetland species such as common marsh marigold, lake sedge, and fowl manna grass. Hummocks are covered with mesic or wet-mesic forest species such a touch-me-nots, Virginia creepers, lady fern, wild sarsaparilla, naked miterwort, long-leaved chickweed, sensitive fern, side-flowering aster, Maryland black snakeroot, and tall coneflower.

FORESTED RICH PEATLAND SYSTEM

FPn73 Northern Rich Alder Swamp

FPn73a Alder – (Maple – Loosestrife) Swamp Tall shrub wetlands on mineral, muck or peat soils in wetland basins on glacial moraines and till plains, or along streams and drainageways. Dominated by dense cover of speckled alder, with red-osier dogwood, swamp gooseberry, and bog birch. Trees, if present, are sparse and may include red maple, black ash, or paper birch. Herbs occur mostly between shrub clumps in patches dominated by bluejoint. Other common herbs include fowl bluegrass, fowl manna grass bristle-stalked sedge, dwarf raspberry, northern bugleweed, touch-me-nots, common marsh marigold, red-stemmed aster, and crested fern.

FPs63 Southern Rich Conifer Swamp

FPs63a Tamarack Swamp (Southern) Forested swamps on shallow to deep peat in basins on moraines and outwash plains. Occasionally present on floating mats on the edges of ponds. Surface water circumneutral to mildly acidic. Patchy to interrupted (25-75% cover) canopy dominated by moderately to fairly dense stands of tamarack; red maple or paper birch are occasionally present. Shrub cover is variable but usually includes bog birch, willows, and red-osier dogwood. Diverse ground layer commonly includes northern marsh fern, dwarf raspberry, tall northern bog orchid, tufted loosestrife, bluejoint, bristle-stalked sedge, great water dock, and soft-leaved sedge. Some occurrences have a continuous mat of Sphagnum mosses, but often Sphagnum is only present in small acidic microhabitats, such as on decayed stumps

CLIFF/TALUS SYSTEM

CTs12 Southern Dry Cliff

CTs12a Dry Sandstone Cliff (Southern) Sparsely vegetated communities composed of lichens, mosses, and small herbaceous plants growing on dry south- to west-facing, sandstone bedrock cliffs. Located on the sides of small to large river valleys that cut through sedimentary bedrock layers. Vascular plants are largely restricted to crevices and ledges, and may include smooth cliff brake, harebell, columbine, rusty woodsia, and species of adjacent dry prairies such as plains muhly.

ROCK OUTCROP SYSTEM

ROs12 Southern Bedrock Outcrop

ROs12a Crystalline Bedrock Outcrop (Prairie) **ROs12a1** Crystalline Bedrock Outcrop (Prairie) Minnesota River Subtype Dry, open, lichen-dominated plant communities on exposures of igneous or metamorphic bedrock in the Minnesota River valley between Ortonville and New Ulm. A small area of this community also occurs on Jordan sandstone in the lower Minnesota River Valley. Woody vegetation is sparse and vascular plants are restricted to crevices and shallow soil deposits. Bare rock surface have numerous species of lichens and mosses. Shallow soil accumulations less than three centimeters deep in bedrock hollows typically contain species able to withstand frequent, extreme drought, including rock spikemoss, small-flowered fameflower, brittle cactus, Carolina cranesbill se pennyroyal, wild parsley, Pursh's plantain, Virginia forget-me-not, and rusty woodsia. Deeper soils over rock typically contain many species of dry prairies, such as blue grama, little bluestem, junegrass, and bracted spiderwort. Temporary rainwater pools in small rock

depressions may contain Carolina foxtail, ovoid spikerush, water hyssop, or disk hyssop. Deepe

more persistent rainwater pools may contain submergent plants, such as species of water starwort

mudwort, and pondweeds; as well as emergent plants including pointed broom sedge, water

UPLAND PRAIRIE SYSTEM

puccoon, and bluets.

UPs13 Southern Dry Prairie

UPs13a Dry Barrens Prairie (Southern) Dry prairies on excessively-drained, wind-reworked sands with little to no organically-enriched soil formation. Dune forms are typically evident, with small local blowouts present. Common grasses include little bluestem, porcupine grass, hairy grama, and junegrass. Other distinctive graminoids include sand reed grass, Schweinitz's nut sedge, sand dropseed, sandbur, hairy beadgrass, and Wilcox's panic grass. Shrubs are generally sparse and commonly include leadplant, tall wormwood, and prairie rose. Distinctive forb species not commonly seen in other prairie types include snake cotton, silky prairie clover, western spiderwort, hairy puccoon, and rock spikemoss

plantains, and smartweeds.

- **UPs13b** Dry Sand Gravel Prairie (Southern) Dry prairies on coarse-textured, usually gravelly soils formed in outwash. On nearly level to steeply sloping sites on glacial river terraces or glacial ice-contact deposits such as kames or eskers. Dominant grasses are little bluestem, porcupine grass, prairie dropseed, and side-oats grama; junegrass and plains muhly are also abundant. Sand reed grass, hairy grama, and sometimes needle-and-thread grass are prevalent in xeric areas of loose sand. Common shrubs include leadplant, sage wormwood, and smooth sumac; prairie rose and sand cherry are occasionally present. Some of the forbs occurring more frequently in sand-gravel prairie that other dry prairie types include Missouri goldenrod, aromatic aster, bastard toadflax, silky aster, pasqueflower, slender beard tongue, white beard tongue, Missouri milk vetch, narrow-leaved
- UPs13c Dry Bedrock Bluff Prairie (Southern) Dry prairies on shallow loess or residuum over sedimentary bedrock on steep south- to west-facing bluffs in southeastern Minnesota. Dominant grasses are little bluestem, Indian grass, side-oats grama, and prairie dropseed. Other common grasses include big bluestem, plains muhl and Leiberg's panic grass. Leadplant, smooth sumac, and prairie rose are common shrubs. These prairies share many of the same species with other dry prairie types but lack western species not present in eastern Minnesota. Some of the more distinctive forbs include bird's foot coreopsis, skyblue aster, cylindric blazing star, gray-headed coneflower, false boneset, and flowering
- **UPs13d Dry Hill Prairie (Southern)** Dry to dry-mesic prairies on well-drained soils formed in glacial till on slopes and hilltops on stagnation moraines and steep slopes in large river valleys. Dominant grasses are little bluestem, side-oats grama, porcupine grass, and prairie dropseed, with much Indian grass, big bluestem, and Leiberg's panic grass in dry-mesic areas such as mid-slopes. Other common graminoids include plains muhly, junegrass, sun-loving sedge, and Scribner's panic grass. Leadplant, wolfberry, and prairie rose are common shrubs. Common forbs include rough blazing star, alumroot, silverleaf

aster, prairie smoke, Flodman's thistle, and hairy golden aster.

scurfpea, heart-leaved alexanders, prairie milk vetch, purple prairie clover, hoary puccoon, heath

MHs39 Southern Mesic Maple-Basswood Forest

yellow violet, and blue cohosh.

toothwort, and white trout lily are present.

UPLAND PRAIRIE SYSTEM (continued)

UPs14 Southern Dry Savanna

UPs14a Dry Barrens Oak Savanna (Southern)

- UPs14a2 Dry Barrens Oak Savanna (Southern) Oak Subtype Dry savannas on excessively drained, wind-reworked sands with little to no organically enriched soil formation. Dune forms are typically evident, with small, local blowouts present. Open tree canopy (10-50% cover) dominated mostly by bur oak, with occasional eastern red cedar, quaking aspen, and northern pin oak. Shrubs are generally sparse in cover and commonly include eadplant, prairie rose, tall wormwood, prairie willow, and black cherry. Herbaceous species o dry barrens prairie are present in open areas between trees. Patches of closely spaced trees may be present that contain plant species that tolerate moderate shade, including northern bedstraw Canada mayflower, bastard toadflax, and starry false Solomon's seal.
- UPs14b Dry Sand Gravel Oak Savanna (Southern) Dry savannas on coarse-textured, usually gravelly soils formed in outwash. On nearly level to steeply sloping sites on glacial river terraces or glacial ice-contact features such as kames or eskers. Open canopy (10-50% cover) dominated by open-grown bur oak or northern pin oak; eastern red cedar may also be present. Shrubs are commonly moderate to dense in cover and include smooth sumac, leadplant, prairie rose, juneberries, American hazelnut, and American plum. Herbaceous species of dry sand-gravel prairie are present in open areas. Patches of clustered trees are commonly present and contain plant species adapted to partial shade, such as white snakeroot, Pennsylvania sedge, woodland sunflower, and starry false Solomon's seal.
- UPs14c Dry Hill Oak Savanna (Southern) Dry to dry-mesic savannas on well-drained soils formed in glacial till on slopes and hilltops on stagnation moraines and steep valley slopes. Open canopy (10-50% cover) dominated by opengrown bur oak; quaking aspen may also be present. Shrubs are commonly dense in cover and include smooth sumac, leadplant, chokecherry, wolfberry, prickly ash, black raspberry, and prairie rose. Herbaceous species of dry hill prairie are present in open areas. Patches of

UPs23 Southern Mesic Prairie

UPs23a Mesic Prairie (Southern)

Drv-mesic to wet-mesic prairies on level to undulating terrain on glacial till or outwash. Soils are moderately well-drained to moist loams with deep, dark, organic-enriched upper horizons. Dominated mostly by big bluestem, prairie dropseed, and Indian grass, in combination with porcupine grass and little bluestem on drier sites, and with prairie cordgrass and switchgrass on wetter sites. Other typical graminoids include Leiberg's panic grass, slender wheatgrass, Kalm' brome, and Mead's sedge. Shrubs are sparse but leadplant and prairie rose are usually present on dry-mesic sites; willows may be present on wet-mesic sites. Typical forbs on dry-mesic to mesic sites include smooth aster, purple prairie clover, white sage, black-eyed Susan, white camass, heath aster, heart-leaved alexanders, and stiff goldenrod; and on wetter sites giant sunflower, great blazing star, Maximilian's sunflower, northern plains blazing star, smooth rattlesnakeroot, and Virginia mountain mint are common.

clustered trees are commonly present and contain plant species adapted to partial shade, such as

white snakeroot, Pennsylvania sedge, woodland sunflower, hog peanut, and northern bedstraw.

UPs24 Southern Mesic Savanna

🔀 UPs24a Mesic Oak Savanna (Southern) Dry-mesic savannas on moist soils on outwash or till. Open canopy (10-50% cover) dominated b open-grown bur oak or northern pin oak; quaking aspen, black cherry, and green ash may also be present. Shrubs are abundant and include American hazelnut, smooth sumac, gray dogwood, chokecherry, and red raspberry. Many graminoid and forb species typical of dry and mesic prairie are present, including big bluestem, little bluestem, Indian grass, stiff goldenrod, butterfly weed, and white prairie clover. Patches of clustered trees are commonly present and contain woodland plant species adapted to partial shade, such as white snakeroot, Pennsylvania sedge, woodland sunflower, hog peanut, starry false Solomon's seal, northern bedstraw, pointed-leaved tick trefoll, Clayton's sweet cicely, and golden alexand

OPEN RICH PEATLAND SYSTEM

OPn92 Northern Rich Fen (Basin)

OPn92a Graminoid Rich Fen (Basin) Open peatlands on deep, well-decomposed peat or floating peat mats in basins, often adjacent to lakes and ponds. These sites receive enough groundwater flow to maintain circumneutral pH (>5.5). Dominated most commonly by wiregrass sedge; other frequent graminoids include tussock sedge, clustered muhly grass, and tall cottongrass. Shrubs may be scattered or codominant, including slender willow, pussy willow, Bebb's willow, red-osier dogwood, bog willow, and bog birch. Typical forbs include spotted Joe pye weed, common boneset, cut-leaved bugleweed, Labrador bedstraw, northern marsh fern, marsh cinquefoil, and great water dock. When present, *Sphagnum* mosses cover less than 25% of the community.

OPn92b Graminoid – Sphagnum Rich Fen (Basin) Open peatlands on floating peat mats in small, nutrient-poor basins that have little surface water

runoff. Sphagnum mosses have nearly continuous cover throughout. A narrow moat of open water often separates the floating Sphagnum mat from dry land on the edge of the basin. Stunte shrubs, such as bog birch, slender willow, speckled alder, and bog willow are often scattered across the community. Ericaceous shrubs are also present, including small cranberry and leatherleaf. Fine-leaved sedges are abundant, particularly wiregrass sedge, creeping sedge, thre way sedge, slender cottongrass, Chamisso's cottongrass, and tall cottongrass. Typical forbs include round-leaved sundew, marsh cinquefoil, marsh St. John's wort, tufted loosestrife, northern marsh fern, and Labrador bedstraw.

OPp93 Prairie Extremely Rich Fen

OPp93c Calcareous Fen (Southeastern)

Open peatlands continuously saturated by upwelling, calcium-rich groundwater; typically at the ases of steep slopes formed in calcareous till on rolling moraines or the sides of the Glacial River Warren Valley. Deep deposits of peat often accumulate over thousands of years to form elevated mounds or broad shelves. Low shrubs are often common and typically include sageleaved willow, bog birch, and red-osier dogwood; shrubby cinquefoil is present in a few place Areas of greatest groundwater flow have soils containing marl deposits and are dominated by low sedges and grasses including prairie sedge, sterile sedge, clustered mully grass, and mat mully grass. Other typical forb and graminoid species include American grass-of-Parnassus, lesser inged gentian, Kalm's lobelia, marsh arrowgrass, seaside arrowgrass, porcupine sedge, prairie loosestrife, swamp thistle, flat-topped aster, swamp saxifrage, and Riddell's goldenrod; a few sites also have edible valerian, beaked spikerush, whorled nutrush, and twig rush. The margins of seepage zones are dominated by other wetland species, most commonly hardstem bulrush and tussock sedge.

WET MEADOW/CARR SYSTEM

WMn82 Northern Wet Meadow/Carr

WMn82a Willow – Dogwood Shrub Swamp

- Open wetlands on mineral to sapric peat soils in basins or along streams. Trees are sometimes present, mostly as scattered saplings of American elm, black ash, or red maple. Tall shrub layer greater than 25% cover and includes a mix of pussy willow, Bebb's willow, slender willow, red osier dogwood, and speckled alder; occasionally bog birch, meadowsweet, swamp gooseberry, and red raspberry are also present. Dominant graminoids are bluejoint, tussock sedge, beaked sedge, or lake sedge. Common forbs include marsh bellflower, tufted loosestrife, marsh skullcap great water dock, northern marsh fern, common boneset, spotted Joe pye weed, willow herbs, bulb-bearing water hemlock, water smartweed, and marsh cinquefoil.
- WMn82b Sedge Meadow
- Open wetlands on mineral to sapric peat soils in basins or along streams. Shrubs typically less than 25% cover, including red-osier dogwood, willows, and speckled alder. Dominated by broad leaved graminoids, including lake sedge, bluejoint, tussock sedge, or beaked sedge. Common forbs include marsh bellflower, tufted loosestrife, marsh skullcap, great water dock, northern marsh fern, common boneset, spotted Joe pye weed, willow herbs, bulb-bearing water hemlock. water smartweed, and marsh cinquefoil.

WMs83 Southern Seepage Meadow/Carr

WMs83a Seepage Meadow/Carr

Open wetlands on peat or mucky peat soils continuously saturated by upwelling, calcium-rich groundwater; typically at bases of steep slopes formed in calcareous till on rolling moraines or the sides of the Glacial River Warren Valley. Sometimes occurring adjacent to areas of Calcareous Fen (OPp93c). Shrub cover varies and includes bog birch, pussy willow, slender willow, and red-osier dogwood. Dominated by sedges and grasses, including tussock sedge, prairie sedge, hardstem bulrush, woolly sedge, bluejoint, and mat muhly grass. Common forbs include many species of wet meadows and some of calcareous fens, such as spotted Joe pye weed, willow herbs, flat-topped aster, bog aster, marsh bellflower, swamp thistle, giant sunflower, and prairie loosestrife.

MARSH SYSTEM

MRn83 Northern Mixed Cattail Marsh

Open emergent marshes dominated by cattails in shallow wetland basins or along lake shores and river valleys where standing water is present most of the year. Found on floating mats or mineral or shallow organic soils on glacial till, outwash, or alluvium. Historically, broad-leaved cattail dominated these communities but has been largely displaced by narrow-leaved and hybrid cattail which are invasive species not native to Minnesota. Communities dominated by broad-leaved catta were not documented in the region and may no longer exist in southern Minnesota. Some wetlands co-dominated by cattails have a significant component of other emergent species, including sedges, giant bur reed, and bluejoint.

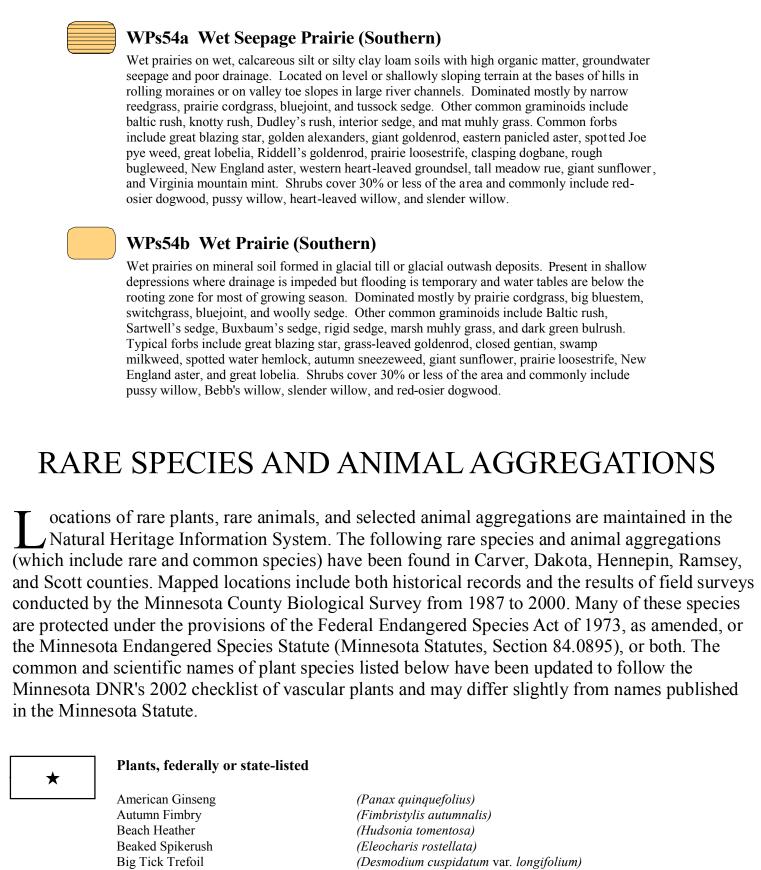
- MRn83a Cattail Sedge Marsh (Northern) Open emergent marshes in shallow wetland basins or along lake shores and river valleys where standing water is present most of the year. Found on floating mats or mineral or shallow organic soils on glacial till, outwash, or alluvium. Dominated primarily by species of cattails but with a significant component of other emergents, including lake sedge, bluejoint, common reed grass giant bur reed, hardstem bulrush, and red-stalked spikerush. Other common graminoids include bristly sedge, soft stem bulrush, tall manna grass, fowl manna grass, fowl bluegrass, and rice cut grass. Common forbs include sweetflag, spotted touch-me-not, spotted Joe pye weed, broadleaved arrowhead, common mint, and bulb-bearing water hemlock. Floating or submergent aquatic plants are present in open pools, including pondweeds, duckweeds, and common bladderwort. Shrubs are absent or sparse, with willows and red-osier dogwood most common.
- MRn93 Northern Bulrush-Spikerush Marsh Open emergent marshes in shallow wetland basins or along lake shores and river valleys where standing water is present most of the year. Found on floating mats, or mineral or shallow organic soils on glacial till, outwash, or alluvium. Dominated by persistent emergent vegetation often in a mosaic of single species patches, including river bulrush, soft stem bulrush, hardstem bulrush, wild rice, rice cut grass, broad-leaved arrowhead, giant bur reed, common reed grass, and red stalked spikerush. Two types occur in the region, Bulrush Marsh (Northern) and Spikerush-Bu Reed Marsh (Northern).
- MRn93a Bulrush Marsh (Northern)
- Open emergent marshes along lake shores and river valleys that have standing water present during most of the year. Found on mineral or shallow organic soils on glacial till, outwash, or alluvium. Dominated primarily by river bulrush, soft stem bulrush, or hardstem bulrush. May include patches dominated by other species, including wild rice, rice cut grass, and broad-leaved arrowhead. Floating-leaved and submergent aquatic plants are usually present, including pondweeds, duckweeds, and northern water milfoil.

MARSH SYSTEM (continued)

MRn93b Spikerush – Bur Reed Marsh (Northern) pen emergent marshes in shallow wetland basins and occasionally along lake shores and rive valleys that have standing water present during most of the year. Found on mineral or shallow organic soils on glacial till, outwash, or alluvium. Dominated primarily by red-stalked spikerush and giant bur reed. Plant species diversity is variable: some sites have a diverse assemblage of wetland plant species, including broad-leaved arrowhead, hardstem bulrush, soft stem bulrush sweet flag, lake sedge, rice cut grass, common water plantain, bristly sedge, common mint, water parsnip, swamp milkweed, and cut-leaved bugleweed.

WETLAND PRAIRIE SYSTEM

WPs54 Southern Wet Prairie



(Asclepias amplexicaulis)

(Orobanche fasciculata)

(Juniperus horizontalis)

(Erythronium propullans)

(Scirpus clintonii)

Edible Valerian (Valeriana edulis) Hair-like Beak Rush (Rhynchospora capillacea) Hill's Thistle (Cirsium hillii) James's Polanisia (Polanisia jamesii) Kittentails (Besseya bullii) (Viola lanceolata) Lance-leaved Violet Marginated Rush (Juncus marginatus) Narrow-leaved Pinweed (Lechea tenuifolia var. tenuifolia) Ovate-leaved Skullca (Scutellaria ovata var. versicolor Plains Wild Indigo (Baptisia bracteata var. glabrescens) Prairie Bush Clover (Lespedeza leptostachya) Prairie Moonwort *Botrychium campestre)* Rattlesnake Master (Eryngium yuccifolium) Rhombic Evening Primrose (Oenothera rhombipetala) Rock Sandwo Arenaria stricta var. litorea) Rough-seeded Fameflower (Talinum rugospermum) Seaside Threeawn (Aristida tuberculosa) Small White Lady's Slipper (Cypripedium candidum) Snow Trillium (Trillium nivale) Sterile Sedge (Carex sterilis) Scleria triglomerata) Tubercled Rein Orchid (Platanthera flava var. herbiola) Tuberous Indian Plantai (Cacalia plantaginea) Cladium mariscoides) Water Hyssop (Bacopa rotundifolia) Waterwillow (Decodon verticillatus var. laevigatus) White Wild Indigo (Baptisia lactea) Whorled Nutrush (Scleria verticillata) Wolf's Spikerush (Eleocharis wolfii) Plants, previously state-listed *Faura biennis* var. *bien* phalanthus occidentali. Canada Frostweed (Helianthemum canadense) (Alopecurus carolinianus) Oxypolis rigidior)

Carolina Foxtail Grass-leaved Arrowhea Halberd-leaved Tearthumb umped Bladderwo Kentucky Coffee Tree Lily-leaved Twayblade Virginia Forget-me-not Animals, federally or state-listed

Clasping Milkweed

Clustered Broomrape

Clinton's Bulrush

Creeping Juniper

Dwarf Trout Lily

Eastern Spotted Skunk Northern Myotis Plains Pocket Mouse Birds Acadian Flycatcher Cerulean Warbler

Henslow's Sparrow Hooded Warbler Loggerhead Shrike Louisiana Waterthrush Peregrine Falcon Red-shouldered Hawk

Common Moorhen

Eastern Racer Gopher Snake Northern Cricket Frog Smooth Softshell Timber Rattlesnake

Trumpeter Swar

Western Hognose Snake Wood Turtle Black Buffalo Blue Sucker

Lake Sturgeon Least Darter Ozark Minnow Pugnose Shine Insects

A Jumping Spider

Animals, federally or state-listed Mammals Western Harvest Mouse

American Bitter Sandhill Crane Upland Sandpiper Reptile

Eastern Fox Snake Eastern Hognose Snak Milk Snake American Brook Lamprey

Shovelnose Sturgeon Animal Aggregations Bat concentration

Colonial waterbird nesting site **Rare Species Cluster**

Ialiaeetus leucocephalus, (Dendroica cerulea) (Gallinula chloropus) erna forsteri) (Ammodramus henslowii) (Wilsonia citrina) (Lanius ludovicianus) (Seiurus motacilla) (Falco peregrinus) (Buteo lineatus)

(Sagittaria graminea ssp. graminea)

(Polygonum arifolium)

(Utricularia gibba)

(Pipistrellus subflavus

(Spilogale putorius)

(Empidonax virescens)

(Myotis septentrionalis)

(Perognathus flavescens)

(Liparis lilifolia)

(Myosotis verna)

(Gymnocladus dioica)

(Cygnus buccinator) (Coluber constrictor) (Pituophis catenifer)

(Acris crepitans) (Apalone mutica) (Crotalus horridus) (Heterodon nasicus) (Clemmys insculpta)

(Ictiobus niger) (Cycleptus elongatus) (Acipenser fulvescens) (Etheostoma microperca) (Notropis nubilus) (Polyodon spathula)

(Aphredoderus sayanus) (Notropis anogenus) (Paradamoetas fontana)

(Reithrodontomys megalotis)

(Botaurus lentiginosus) (Vireo bellii)

(Grus canadensis) (Bartramia longicauda)

(Elaphe vulpina) (Heterodon platirhinos) (Lampropeltis triangulum)

(Lampetra appendix) (Opsopoeodus emiliae) (Scaphirhynchus platorynchus)

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