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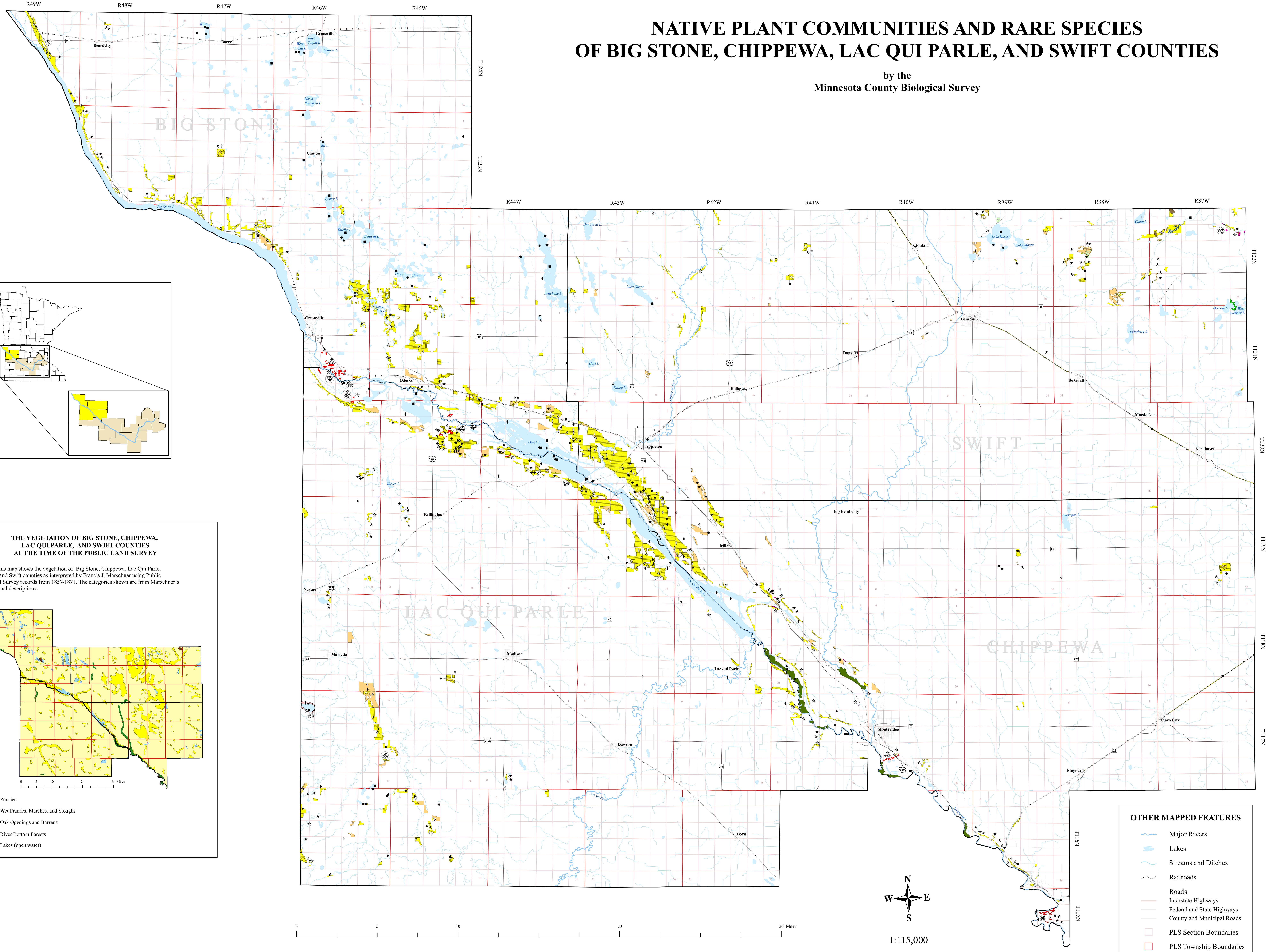
Native Plant Communities and Rare Species of Big Stone, Chippewa, Lac Qui Parle, and Swift Counties

NATIVE PLANT COMMUNITIES AND RARE SPECIES OF BIG STONE, CHIPPEWA, LAC QUI PARLE, AND SWIFT COUNTIES

by the
Minnesota County Biological Survey



THE VEGETATION OF BIG STONE, CHIPPEWA, LAC QUI PARLE, AND SWIFT COUNTIES AT THE TIME OF THE PUBLIC LAND SURVEY

This map shows the vegetation of Big Stone, Chippewa, Lac Qui Parle, and Swift counties as interpreted by Francis J. Marschner using Public Land Survey records from 1857-1871. The categories shown are from Marschner's original descriptions.

- Prairies
- Wet Prairies, Marshes, and Sloughs
- Oak Openings and Barrens
- River Bottom Forests
- Lakes (open water)

OTHER MAPPED FEATURES

- Major Rivers
- Lakes
- Streams and Ditches
- Railroads
- Roads
  - Interstate Highways
  - Federal and State Highways
  - County and Municipal Roads
- PLS Section Boundaries
- PLS Township Boundaries
- County Boundaries

NATIVE PLANT COMMUNITIES

Native plant communities are groups of native plants that interact with each other and with their environment in ways not greatly altered by 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 Prairie Parkland and Tallgrass Aspen Parklands Provinces* (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. White areas in Big Stone and Lac Qui Parle counties, the first counties surveyed in the region, may also include forests and marshes that were not surveyed or mapped. 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

FDs37 Southern Dry-Mesic Oak (Maple) Woodland

FDs37b Pin Oak – Bur Oak Woodland
Dry-mesic woodlands on well-drained soils formed in sandy outwash deposits or occasionally on 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 including paper birch, eastern red cedar, and quaking aspen. Understory is generally patchy to barely present and typically contains ironwood, green ash, and bur oak. Shrub layer is typically dense and commonly includes chokecherry, gray dogwood, prickly ash, prickly gooseberry, and downy arrow-wood. 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

MHs38 Southern Mesic Oak-Basswood Forest

MHs38b Basswood – Bur Oak – (Green Ash) Forest
Mesic forests on hummocky topography of rolling till plains or stagnation moraines. Interrupted to continuous canopy (50-100% cover) dominated mostly by bur oak, basswood, and green ash. Understory usually contains ironwood, and occasionally basswood, green ash, and red elm. Shrub layer is sparse and typically contains prickly gooseberry and prickly ash. Ground layer commonly contains Virginia waterleaf, zig-zag goldenrod, Clayton's sweet cicely, wild geranium, lopseed, Jack-in-the-pulpit, blue cohosh, nodding trillium, and bloodroot.

FLOODPLAIN FOREST SYSTEM

FFs68 Southern Floodplain Forest

FFs68a Silver Maple – (Virginia Creeper) Floodplain Forest
Wet 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 are 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.

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 surfaces 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, false 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. Deeper, 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 plantains, and smartweeds.

LAKESHORE SYSTEM

LKi54 Inland Lake Clay/Mud Shore

LKi54b Mud Flat (Inland Lake)

LKi54b1 Mud Flat (Inland Lake) Saline Subtype
Herb-dominated communities in shallow saline basins that flood and draw down seasonally. Exposed sediments provide habitat for a distinctive community of plants that tolerate high salinity. Characteristic plants are red glasswort, Nuttall's alkali grass, prairie bulrush, salt grass, and seablite.

UPLAND PRAIRIE SYSTEM

UPs13 Southern Dry Prairie

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 than 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 puccoon, and bluets.

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 on 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 scurfpea, heart-leaved alexanders, prairie milk vetch, purple prairie clover, hoary puccoon, heath aster, prairie smoke, Flodman's thistle, and hairy golden aster.

UPs23 Southern Mesic Prairie

UPs23a Mesic Prairie (Southern)
Dry-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's 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; on wetter sites, giant sunflower, great blazing star, Maximilian's sunflower, northern plains blazing star, smooth rattlesnakeroot, and Virginia mountain mint are common.

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 by 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 trefoil, Clayton's sweet cicely, and golden alexanders.

OPEN RICH PEATLAND SYSTEM

OPp93 Prairie Extremely Rich Fen

OPp93b Calcareous Fen (Southwestern)
Open peatlands continuously saturated by upwelling, calcium-rich groundwater; typically at the bases of steep slopes formed in calcareous till on stagnation moraines or the sides of the Glacial River Warren Valley. Deep deposits of peat, accumulated over thousands of years, often form large, elevated mounds or shelves. Wet, saturated muck on the tops of peat mounds is typically dominated by aquatic sedge, bog birch, and willows. Areas of greatest groundwater seepage have scattered groundwater pools and sparsely vegetated soils encrusted with marl deposits. These seepage zones contain a distinctive flora that includes hair-like beak rush, whorled nutrush, three-square bulrush, American grass-of-Parnassus, seaside arrowgrass, clustered muhly grass, marsh arrowgrass, Kalm's lobelia, bog aster, purple false foxglove, and lesser fringed gentian. Margins of seepage zones are dominated by other wetland species, including prairie sedge, hardstem bulrush, narrow reedgrass, and tussock sedge.

WET MEADOW/CARR SYSTEM

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 (OPp93b). 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.

WMp73 Prairie Wet Meadow/Carr

WMp73a Prairie Meadow/Carr
Open wetlands on muck or shallow mucky peat soils in shallow basins or swales on rolling moraines and till plains. Commonly dominated by woolly sedge, Sartwell's sedge, narrow reedgrass, prairie cordgrass, and Baltic rush. Shrub cover is generally sparse to patchy and includes red-osier dogwood, pussy willow, and slender willow. Common forbs include eastern panicled aster, swamp milkweed, rough bugleweed, spotted Joe pye weed, common mint, and cut-leaved bugleweed.

WETLAND PRAIRIE SYSTEM

WPs54 Southern Wet Prairie

WPs54a Wet Seepage Prairie (Southern)
Wet prairies on wet, calcareous silt or silty clay loam soils with high organic matter, groundwater seepage, and poor drainage. Located on level or shallowly sloping terrain at the bases of hills in rolling moraines or on valley toe slopes in large river channels. Dominated mostly by narrow reedgrass, prairie cordgrass, bluejoint, and tussock sedge. Other common graminoids include Baltic rush, knotty rush, Dudley's rush, interior sedge, and mat muhly grass. Common forbs include great blazing star, golden alexanders, giant goldenrod, eastern panicled aster, spotted Joe pye weed, great lobelia, Riddell's goldenrod, prairie loosestrife, clasping dogbane, rough bugleweed, New England aster, western heart-leaved groundsel, tall meadow rue, giant sunflower, and Virginia mountain mint. Shrubs cover 30% or less of the area and commonly include red-osier dogwood, pussy willow, heart-leaved willow, and slender willow.

WPs54b Wet Prairie (Southern)
Wet prairies on mineral soil formed in glacial till or glacial outwash deposits. Present in shallow depressions where drainage is impeded but flooding is temporary and water tables are below the rooting zone for most of growing season. Dominated mostly by prairie cordgrass, big bluestem, switchgrass, bluejoint, and woolly sedge. Other common graminoids include Baltic rush, Sartwell's sedge, Buxbaum's sedge, rigid sedge, marsh muhly grass, and dark green bulrush. Typical forbs include great blazing star, grass-leaved goldenrod, closed gentian, swamp milkweed, spotted water hemlock, autumn sneezeweed, giant sunflower, prairie loosestrife, New England aster, and great lobelia. Shrubs cover 30% or less of the area and commonly include pussy willow, Bebb's willow, slender willow, and red-osier dogwood.

WPs54c Wet Saline Prairie (Southern)
Wet prairies on fine-textured loams formed in glacial lake sediments or broad stream valleys within till plains. Subject to temporary flooding, but water tables are generally below the rooting zone for most of the growing season. Elevated concentrations of salts (sulfates and carbonates of calcium and magnesium) result in bare, salt-encrusted soil patches and a distinctive vegetation. Major grasses are mat muhly grass, little bluestem, rough dropseed, switchgrass, scratchgrass, and salt grass. Common or distinctive associates are big bluestem, prairie cordgrass, foxtail barley, very slender sedge, Dudley's rush, flattened spikerush, and plains bluegrass. Typically, forb diversity is low and commonly includes heath aster, western ragweed, alkali plantain, and seaside crowfoot.

NATIVE PLANT COMMUNITY COMPLEXES

PWL_CX Prairie Wetland Complex

A complex of Prairie Meadow/Carr (WMp73a), Wet Prairie (WPs54b), Mesic Prairie (UPs23a), and Prairie Mixed Cattail Marsh (MRp83) where the plant community types occur in a mosaic of patches that are too small to map individually. Occurs in broad stream valleys within till plains and outwash plains in areas with poorly drained soils in low areas and better-drained soils on rises.

RARE SPECIES AND ANIMAL AGGREGATIONS

Locations 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 rare and common species) have been found in Big Stone, Chippewa, Lac Qui Parle, and Swift counties. Mapped locations include both historical records and the results of field surveys conducted by the Minnesota County Biological Survey from 1987 to 2000. Many of these species are protected under the provisions of the Federal Endangered Species Act of 1973, as amended, or the Minnesota Endangered Species Statute (Minnesota Statutes, Section 84.0895), or both. The common and scientific names of plant species listed below have been updated to follow the Minnesota DNR's 2002 checklist of vascular plants and may differ slightly from names published in the Minnesota Statute.

★ **Plants, federally or state-listed**

Ball Cactus	(*Coryphantha vivipara* var. *vivipara*)
Buffalo Grass	(*Buchloe dactyloides*)
Cutleaf Ironplant	(*Haplopappus spinulosus* var. *spinulosus*)
Eared False Foxglove	(*Agalinis auriculata*)
Few-flowered Spike-rush	(*Eleocharis pauciflora*)
Hair-like Beak Rush	(*Rhynchospora capillacea*)
Hall's Sedge	(*Carex parryana*)
Louisiana Broomrape	(*Orobanche ludoviciana* var. *ludoviciana*)
Missouri Milk Vetch	(*Astragalus missouriensis* var. *missouriensis*)
Mudwort	(*Limosella aquatica*)
Plains Prickly Pear	(*Opuntia macrorhiza*)
Prairie Mimosa	(*Desmanthus illinoensis*)
Prairie Moonwort	(*Botrychium campestre*)
Red Saltwort	(*Salicornia rubra*)
Red Three-awn	(*Aristida purpurea* var. *longiseta*)
Sea Naiad	(*Najas marina*)
Short-pointed Umbrella Sedge	(*Cyperus acuminatus*)
Slender Milk Vetch	(*Astragalus flexuosus var. flexuosus*)
Small White Lady's Slipper	(*Cypripedium candidum*)
Soft Goldenrod	(*Solidago mollis*)
Sterile Sedge	(*Carex sterilis*)
Tumble Grass	(*Schedonnardus paniculatus*)
Water Hyssop	(*Bacopa rotundifolia*)
Yellow Prairie Violet	(*Viola nuttallii*)

☆ **Plants, previously state-listed**

Carolina Foxtail	(*Alopecurus carolinianus*)
Little Barley	(*Hordeum pusillum*)
Lotus Milk Vetch	(*Astragalus lotiflorus*)
Marsh Arrowgrass	(*Triglochin palustris*)
Mousetail	(*Myosurus minimus*)
Nuttall's Alkali Grass	(*Puccinellia nuttalliana*)
Plains Bluegrass	(*Poa arida*)
Three-Stamened Waterwort	(*Elatine triandra*)
Virginia Forget-me-not	(*Myosotis verna*)

♦ **Animals, federally or state-listed**

Mammals	
Prairie Vole	(*Microtus ochrogaster*)
Birds	
American White Pelican	(*Pelecanus erythrorhynchos*)
Bald Eagle	(*Haliaeetus leucocephalus*)
Burrowing Owl	(*Speotyto cunicularia*)
Chestnut-collared Longspur	(*Calcarius ornatus*)
Forster's Tern	(*Sterna forsteri*)
Greater Prairie-chicken	(*Tympanuchus cupido*)
Henslow's Sparrow	(*Ammodramus henslowii*)
Loggerhead Shrike	(*Lanius ludovicianus*)
Marbled Godwit	(*Limosa fedoa*)
Nelson's Sharp-tailed Sparrow	(*Ammodramus nelsoni*)
Red-shouldered Hawk	(*Buteo lineatus*)
Short-eared Owl	(*Asio flammeus*)
Wilson's Phalarope	(*Phalaropus tricolor*)
Reptiles	
Blanding's Turtle	(*Emydoidea blandingii*)
Western Hognose Snake	(*Heterodon nasicus*)
Fish	
Blue Sucker	(*Cycleptus elongatus*)
Paddlefish	(*Polyodon spathula*)

◊ **Animals, previously state-listed**

Mammals	
Northern Grasshopper Mouse	(*Onychomys leucogaster*)
Birds	
American Bittern	(*Botaurus lentiginosus*)
Lark Bunting	(*Calamospiza melanocorys*)
Sandhill Crane	(*Grus canadensis*)
Upland Sandpiper	(*Bartramia longicauda*)
Reptiles	
Eastern Fox Snake	(*Elaphe vulpina*)

■ **Animal Aggregations**

Colonial waterbird nesting site

Rare Species Cluster

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