NATIVE PLANT COMMUNITIES

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

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

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 Lac Qui Parle County, one of the first counties surveyed in the region, may also include

Tative plant communities are groups of native plants that interact with each other and with their environment in ways not greatly altered by I 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).

> companion report for this map entitled Native Plant Communities and Rare Species of the Minnesota River Valley Counties. OPEN RICH PEATLAND SYSTEM

OPp93 Prairie Extremely Rich Fen

OPp93b Calcareous Fen (Southwestern) Open peatlands continuously saturated by upwelling, calcium-rich groundwater; typically at 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,

WET MEADOW/CARR SYSTEM

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

WMp73 Prairie Wet Meadow/Carr

WMp73a Prairie Meadow/Carr

panicled aster, swamp milkweed, rough bugleweed, spotted Joe pye weed, common mint, and

ROs12a Crystalline Bedrock Outcrop (Prairie)

FDs37b Pin Oak – Bur Oak Woodland

northern bedstraw, golden alexanders, and Pennsylvania sedge.

MHs38b Basswood – Bur Oak – (Green Ash) Forest

lopseed, Jack-in-the-pulpit, blue cohosh, nodding trillium, and bloodroot.

prv-mesic woodlands on well-drained soils formed in sandy outwash deposits or occasionally on

common and many stands were brushlands 100 years ago. Interrupted to continuous canopy (50-

birch, eastern red cedar, and quaking aspen. Understory is generally patchy to barely present and

100% cover) dominated by open-grown bur oak and/or northern pin oak, and often includes paper

sandy or gravelly glacial till, often on south- to west-facing slopes. Historically, fires were

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

Mesic forests on hummocky topography of rolling till plains or stagnation moraines. Interrupted

o continuous canopy (50-100% cover) dominated mostly by bur oak, basswood, and green ash.

commonly contains Virginia waterleaf, zig-zag goldenrod, Clayton's sweet cicely, wild geranium,

Vet forests on annually flooded, alluvial deposits in floodplains of major rivers. Interrupted to

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.

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-

Understory usually contains ironwood, and occasionally basswood, green ash, and red elm.

Shrub layer sparse and typically contains prickly gooseberry and prickly ash. Ground laye r

FFs68a Silver Maple – (Virginia Creeper) Floodplain Forest

continuous canopy (50-100% cover) consists primarily of silver maple, often under a

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

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

layer herbs are generally absent.

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

puccoon, and bluets.

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

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

UPs14 Southern Dry Savanna

UPs14c Dry Hill Oak Savanna (Southern) Dry to dry-mesic sayannas 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. The herbaceous species of dry hill 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, hog peanut, and northern bedstraw.

UPs23 Southern Mesic Prairie

and Virginia mountain mint are common.

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,

WMs83 Southern Seepage Meadow/Carr

hardstem bulrush, narrow reedgrass, and tussock sedge.

WMs83a Seepage Meadow/Car r

weed, willow herbs, flat-topped aster, bog aster, marsh bellflower, swamp thistle, giant sunflower, and prairie loosestrife.

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

MARSH SYSTEM

MRp93 Prairie Bulrush-Arrowhead Marsh

MRp93a Bulrush Marsh (Prairie) 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 hardstem bulrush, slender bulrush, or river bulrush. May

Floating-leaved and submergent aquatic plants are usually common, including pondweeds, duckweeds, common coontail, and whorled water milfoil. MRp93b Spikerush – Bur Reed Marsh (Prairie) Open emergent marshes in shallow wetland basins and occasionally along lake shores and river valleys that have standing water present during most of the year. Found on mineral or shallow

include patches dominated by other species, including broad-leaved arrowhead and beaked sedge.

organic soils on glacial till, outwash, alluvium, or bedrock outcrops. Dominated primarily by red-

stalked spikerush and giant bur reed. Other graminoids may be abundant, including tall manna

grass, woolly sedge, pointed broom sedge, Sartwell's sedge, and prairie cordgrass. Plant species

diversity is variable: some sites have a diverse assemblage of wetland plant species, including

water smartweed, giant water dock, dotted smartweed, bulb-bearing water hemlock, marsh skullcap, 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 plain's bluegrass. Typically forb diversity is low and commonly includes heath aster, western ragweed, alkali plantain, and

NATIVE PLANT COMMUNITY COMPLEXES

ROP CX Rock Outcrop - Dry Prairie Complex A complex of Crystalline Bedrock Outcrop (ROs12a1) with one or more of the following community types: Dry Sand-Gravel Prairie (UPs13b), Pin Oak – Bur Oak Woodland (FDs37b), Basswood – Bur Oak – (Green Ash) Forest (MHs38b), Prairie Bulrush - Arrowhead Marsh (MRp93), and Mesic Prairie (UPs23a). Areas mapped as this complex occur on bedrock knobs where the individual native plant community types occur in a mosaic of patches that are too small to map individually.

SWP CX Wet Saline Prairie Complex complex of Wet Saline Prairie (WPs54c), Wet Prairie (WPs54b), and Mesic Prairie (UPs23a)

where the individual plant community types occur in a mosaic of patches that are too small to map individually. Occurs within broad stream valleys on till plains in areas of shallowly undulating topography with poorly-drained soils in low areas and better-drained soils on rises.

