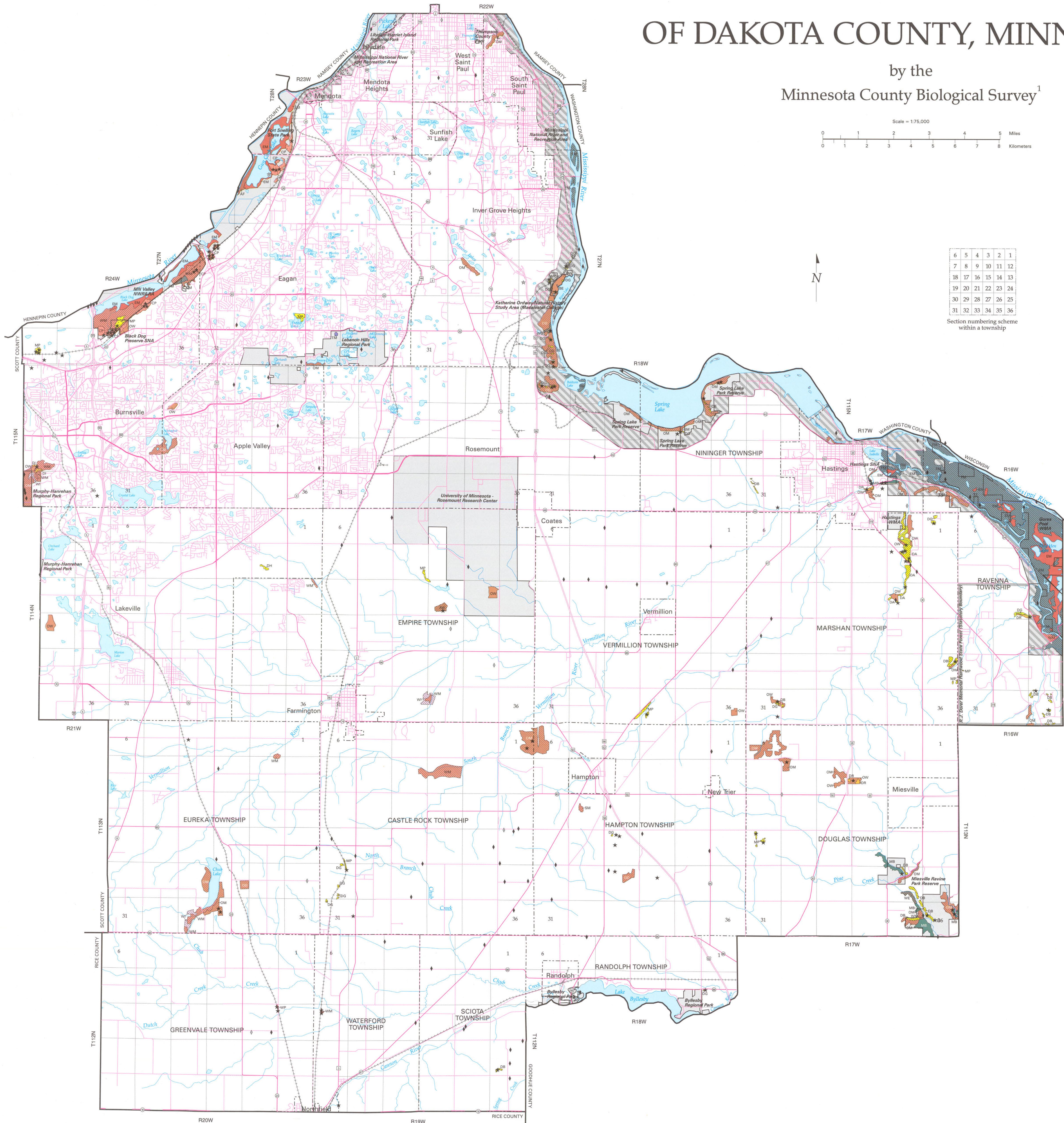
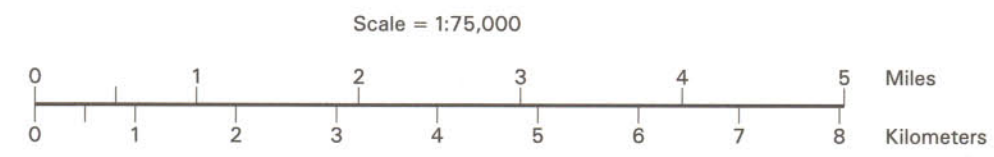


NATURAL COMMUNITIES AND RARE SPECIES OF DAKOTA COUNTY, MINNESOTA

by the
Minnesota County Biological Survey¹



UPLAND FORESTS

DECIDUOUS FOREST

006 Oak Forest - mesic subtype - dry-mesic to mesic forests on loess, colluvium, or glacial till, often on north- to east-facing slopes; canopy most often dominated by one or more oak species, usually including red oak (*Quercus rubra*); other dominant or important canopy species are bur oak (*Quercus macrocarpa*), northern pin oak (*Quercus ellipsoidalis*), white oak (*Quercus alba*), and basswood (*Tilia americana*); common subcanopy and shrub-layer species include ironwood (*Ostrya virginiana*), sugar maple (*Acer saccharum*), paper birch (*Betula papyrifera*), bitternut hickory (*Carya cordiformis*), gray dogwood (*Cornus feminis* ssp. *remosa*), and American hazelnut (*Corylus americana*); ground layer dominated by summer-blooming species such as pointed-leaved tick-trefoil (*Osmorhiza lutea*), wild geranium (*Geranium maculatum*), and sweet cicely (*Osmorhiza claytonii*). Approximate total area: 1,770 acres.

009 Oak Forest - dry subtype - dry forests on outwash; canopy dominated by one or more oak species, including northern pin oak, white oak, and bur oak; common canopy associates include red oak and black cherry (*Prunus serotina*); common subcanopy and shrub species include hackberry (*Celtis occidentalis*), bitternut hickory, downy arrowwood (*Viburnum rafinesquianum*), chokecherry (*Prunus virginiana*), gray dogwood, and American hazelnut; ground layer dominated by summer-blooming species such as shining bedstraw (*Galium concinnum*), white snakeroot (*Asclepias tuberosa*), and Pennsylvania sedge (*Carex pensylvanica*). Approximate total area: 410 acres.

010 Aspen Forest - dry - dry forests on outwash or alluvium, often occurring on former prairies where fire has been excluded; canopy dominated by quaking aspen (*Populus tremuloides*). Approximate total area: 70 acres.

011 Maple-Basswood Forest - mesic forests on loess or colluvium on steep north- to east-facing slopes; canopy dominated by sugar maple, basswood, and red oak; occasional canopy associates are white ash (*Fraxinus americana*), white oak, and paper birch; subcanopy and shrub layer usually dominated by sugar maple and often contain ironwood and bladder nut (*Staphylea trifolia*); ground layer contains a diverse assemblage of spring-blooming species including Virginia spring beauty (*Claytonia virginica*), Dutchman's breeches (*Platanus occidentalis*), false rue-anemone (*Sanguinaria canadensis*), white trout-lily (*Erythronium albidum*), and white-bear sedge (*Carex albistylis*). Approximate total area: 190 acres.

012 White Pine-Hardwood Forest - mesic subtype - mesic forests associated with cliffs and bedrock outcrops on steep north- to east-facing slopes in Mesville Ravine; supercanopy of white pine (*Pinus strobus*); canopy dominated by white pine with sugar maple, red oak, bur oak, basswood, and paper birch; common subcanopy species are ironwood and sugar maple; ground-layer species similar to those of oak forest - mesic subtype. Approximate total area: 30 acres.

013 White Pine-Hardwood Forest - dry subtype - dry forests on outwash on steep slopes and in ravines adjacent to the Mississippi River; supercanopy of white pine; canopy dominated by white pine with paper birch and red oak; common subcanopy species are paper birch and red oak; ground-layer species similar to those of oak forest - dry subtype. Approximate total area: 20 acres.

MIXED CONIFEROUS - DECIDUOUS FOREST

014 White Pine-Hardwood Forest - mesic subtype - mesic forests associated with cliffs and bedrock outcrops on steep north- to east-facing slopes in Mesville Ravine; supercanopy of white pine (*Pinus strobus*); canopy dominated by white pine with sugar maple, red oak, bur oak, basswood, and paper birch; common subcanopy species are ironwood and sugar maple; ground-layer species similar to those of oak forest - mesic subtype. Approximate total area: 30 acres.

DECIDUOUS WOODLANDS / SAVANNAS

DECIDUOUS WOODLAND

015 Oak Woodland-Brushland - dry woodlands on loess, outwash, and glacial till, often on south- to west-facing slopes; canopy cover 50-70%, dominated by northern pin oak and occasionally white oak, often as open-grown trees; common canopy associates include red oak, bur oak, quaking aspen, big-toothed aspen (*Populus grandidentata*), and red elm (*Ulmus rubra*); shrub layer often dense; common shrubs include American hazelnut, gray dogwood, and chokecherry; ground-layer species similar to those of oak forest - dry subtype; scattered prairie openings often present. Approximate total area: 420 acres.

016 Aspen Woodland - wet to wet-mesic woodlands in shallow depressions on mineral or organic soil; often occurring on former wet prairies where fire has been excluded; canopy cover 30-70%, dominated by quaking aspen; shrub layer often dense; common shrubs include willows (*Salix* spp.) and red-osier dogwood (*Cornus stolonifera*); ground-layer species similar to those of wet prairies. Approximate total area: 40 acres.

MISCELLANEOUS FEATURES⁵

- Section lines
- City and township lines
- Managed area statutory boundaries (DMA = State Wildlife Management Area) (SNA = State Scientific and Natural Area) (NWRRA = National Wildlife Refuge and Recreation Area)
- Disturbed land in public ownership within statutory boundaries of managed areas
- Disturbed land in private ownership within statutory boundaries of managed areas
- Primary roads
- Secondary roads
- Other roads
- Railroads
- Rivers, streams, and ditches
- Lakes and Rivers - open water, sometimes with beds of submergent vegetation. Approximate total area: 11,180 acres.

THE VEGETATION OF DAKOTA COUNTY AT THE TIME OF THE PUBLIC LAND SURVEY

This map shows the vegetation of Dakota County as interpreted by Francis J. Manschner using Public Land Survey records from 1847-1855. The legend descriptions are slightly modified from Manschner's as appropriate for southeastern Minnesota. Extant natural community types corresponding to Manschner's categories are listed in parentheses.

HARDWOOD FOREST

Upland Deciduous Forest - bur oak, white oak, red oak, northern pin oak, elm, basswood, ash, maple, hornbeam, aspen, birch, Oak Forest, Maple-Basswood Forest, White Pine-Hardwood Forest, Black Ash Swamp, Tamarack Swamp.

BRUSHLAND

Brush Prairie - grass and brush of oak and aspen (Oak Woodland-Brushland, Dry Oak Savanna).
Oak Openings and Barrens - scattered trees and groves of oak or scrubby form with some brush and thickets (Dry Oak Savanna; also includes many areas that have succeeded to Oak Forest or Oak Woodland-Brushland).
Aspen-Oak Land - aspen, generally dense, and small in most places, with scattered oaks and few elms, ash and basswood (Oak Forest, early successional stage, Aspen Forest).

GRASSLAND

Prairie - (Dry Prairie, Mesic Prairie).
Wet Prairies, Marshes and Sloughs - marsh-grasses, flags, rushes, wild rice, with willow in some places (Willow Swamp, Emergent Marsh, Wet Prairie, Calcareous Seepage Fen, Wet Meadow, Seepage Meadow; also includes areas that have succeeded to Aspen Woodland).

Open Water

NATURAL COMMUNITIES

DECIDUOUS SAVANNA

017 Dry Oak Savanna - hill subtype - dry savannas on glacial till; canopy cover 10-70%, dominated by open-grown bur oak; shrub layer sparse; ground layer dominated by grasses and forbs typical of dry prairies. Approximate total area: 10 acres.

018 Dry Oak Savanna - sand-gravel subtype - dry savannas on outwash; canopy cover 10-70%, dominated by open-grown northern pin oak or bur oak; shrub layer sparse; ground layer dominated by grasses and forbs typical of dry prairies. Approximate total area: 30 acres.

UPLAND PRAIRIE

019 Dry Prairie - barrens subtype - dry prairies on outwash sand (with gravel fraction < 10%); common graminoids include tall wild grass (*Lepidosium caput-medusae*), little bluestem (*Schizanthus scoparius*), big bluestem (*Andropogon gerardii*), June grass (*Koeleria macrantha*), Muhlenberg's sedge (*Carex muhlenbergii*), and Schweinitz's nut-sedge (*Cyperus schweinitzii*); common forbs include round-headed bush-clover (*Lepodactylis capitata*), large-flowered beard-tongue (*Prunella grandiflora*), and hairy puccoon (*Lithospermum carolinense*). Approximate total area: 300 acres.

020 Dry Prairie - bedrock bluff subtype - dry prairies on thin loess over bedrock on steep south- to west-facing bluffs; rock outcrops frequent; common graminoids include little bluestem, Indian grass (*Sorghastrum nutans*), side-oats grama (*Stipa spodiopogon*), hairy grama (*Bouteloua hirsuta*), and plains muhly (*Muhlenbergia cuspidata*); common forbs include stiff tickseed (*Cornus palustris*), gray goldenrod (*Solidago nemoralis*), silky aster (*Aster serotinus*), and prairie bird-foot violet (*Viola pedunculata*); lead-plant (*Ampelis canadensis*) is a common shrub. Approximate total area: 140 acres.

021 Dry Prairie - hill subtype - dry to dry-mesic prairies on glacial till on slopes and hilltops; common graminoids include little bluestem, big bluestem, side-oats grama, hairy grama, plains muhly, and Indian grass; common forbs include sky-blue aster (*Aster cernuus*), bastard toad-flax (*Conoclinium umbellatum*), and western sunflower (*Helianthus occidentalis*). Approximate total area: 140 acres.

022 Dry Prairie - sand-gravel subtype - dry prairies on outwash (with gravel fraction > 10%); common graminoids include little bluestem, big bluestem, side-oats grama, hairy grama, plains muhly, and Schweinitz's nut-sedge; common forbs include bird-foot violet (*Viola pedunculata*), western spidewort (*Tradescantia occidentalis*), stiff sunflower (*Helianthus rigidus*), green milkweed (*Asclepias verticillata*), bluests (*Holcus longifolius*), and pasque-flower (*Pulsatilla nuttalliana*). Approximate total area: 70 acres.

023 Mesic Prairie - mesic to wet-mesic prairies on glacial till, loess, or terrace deposits; common graminoids include big bluestem, Indian grass, and little bluestem; common forbs include white prairie-clover (*Trifolium pratense*), mountain mint (*Pycnanthemum virginianum*), gray-headed coneflower (*Rudbeckia hirta*), stiff goldenrod (*Solidago rigida*), gay-feather (*Liatris pycnostachya*), and heart-leaved alexanders (*Zizia aurea*). Approximate total area: 150 acres.

FORESTED WETLANDS

FLOODPLAIN FOREST

024 Floodplain Forest - silver maple subtype - lowland forests on alluvium along the Mississippi River, flooded for weeks at a time during seasonal high water; canopy dominated by silver maple (*Acer saccharinum*), which contributes >50% cover; common canopy associates include green ash (*Fraxinus pennsylvanica*), cottonwood (*Populus deltoides*), and peach-bark hickory (*Microcarpin canadensis*) and wild grape (*Vitis riparia*); common, especially in light gaps, include white species include wood nettle (*Laportea canadensis*), tall coneflower (*Rudbeckia laciniata*), and honeysuckle (*Cryptanthus canadensis*). Approximate total area: 3,300 acres.

HARDWOOD SWAMP FOREST

025 Black Ash Swamp - seepage subtype - lowland forests on saturated organic soil around groundwater seepage areas as bases of dunes along the Mississippi River; canopy dominated by black ash (*Fraxinus nigra*); canopy associates include basswood and green ash; subcanopy and shrub layer poorly developed; ground layer contains a diverse assemblage of wetland species, including several that are restricted to seepage areas, such as skunk cabbage (*Symplocarpus foetidus*). Approximate total area: 5 acres.

CONIFER SWAMP FOREST

026 Tamarack Swamp - minerotrophic subtype - lowland forests on saturated organic soil in shallow lake basins; canopy dominated by tamarack (*Larix laricina*); shrub layer dominated by speckled alder (*Alnus incana* ssp. *rigida*); ground layer of wetland species, including bog bean (*Mertensia trifida*) and tall northern orchid (*Platanus hyperborea*). Approximate total area: 3 acres.

SHRUB WETLANDS

SHRUB SWAMP

027 Willow Swamp - wet shrub communities on mineral or organic soil in shallow basins or along lake or stream margins; shrub cover > 70%, dominated by willows (*Salix* spp.) and red-osier dogwood; herbaceous species are those characteristic of mixed emergent marshes or wet meadows. Approximate total area: 100 acres.

OPEN WETLANDS

EMERGENT MARSH

028 Emergent Marsh - open wetlands along stream or lake margins or in river backwaters on floodplains of the Mississippi River and its tributaries; standing water present most of the year; dominant species vary but often include distinct zones of broad-leaved cattail (*Typha latifolia*), river bulrush (*Scirpus fascicularis*), broad-leaved arrowroot (*Sagittaria latifolia*), and occasionally giant bur-reed (*Sagittaria arifolia*). Approximate total area: 1,220 acres.

WET MEADOW / FEN

029 Wet Prairie - wet prairies in shallow depressions on poorly drained, mineral or shallow organic soil; areas with organic soil saturated by upwelling calcareous groundwater; dominated by sedges and grasses, especially prairie sedge (*Carex stricta*), sterile sedge (*Carex stricta*), tussock sedge (*Carex stricta*), interior sedge (*Carex interior*), and hard-stemmed bulrush (*Scirpus americanus*); low shrubs are often common and typically include sage-leaved willow (*Salix candida*) and bog birch (*Betula glandulifera*); contains plant species adapted to cold, mineral-rich groundwater, including several forb species rarely seen in other Minnesota wetlands, such as grass-corn (*Perennis americana*), lesser fringed gentian (*Gentiana procera*), Kalm's lebelia (*Lebelia kalmii*), and Riddell's goldenrod (*Solidago riddellii*). Approximate total area: 30 acres.

030 Calcareous Seepage Fen - prairie subtype - open wetlands on gentle slopes along the Minnesota River in areas with organic soil saturated by upwelling calcareous groundwater; dominated by sedges and grasses, especially prairie sedge (*Carex stricta*), sterile sedge (*Carex stricta*), tussock sedge (*Carex stricta*), interior sedge (*Carex interior*), and hard-stemmed bulrush (*Scirpus americanus*); low shrubs are often common and typically include sage-leaved willow (*Salix candida*) and bog birch (*Betula glandulifera*); contains plant species adapted to cold, mineral-rich groundwater, including several forb species rarely seen in other Minnesota wetlands, such as grass-corn (*Perennis americana*), lesser fringed gentian (*Gentiana procera*), Kalm's lebelia (*Lebelia kalmii*), and Riddell's goldenrod (*Solidago riddellii*). Approximate total area: 30 acres.

031 Wet Meadow - open wetlands on mineral or shallow organic soil; dominated primarily by lake sedge (*Carex lasiocarpa*), tussock sedge, and blue-joint grass; clumps of shrubs are common and typically include red-osier dogwood, slender yellow willow (*Salix gracilis*), and pussy willow (*Salix discolor*); common forbs are tufted loosestrife (*Lythrum hyssagifolium*), spotted joe-pye-weed (*Eupatorium maculatum*), northern marsh fern (*Thelypteris palustris*), American water-hemlock (*Lycopus americanus*), and Labrador bedstraw (*Galium labradoricum*); includes some former calcareous seepage fens in which groundwater flow has been altered. Approximate total area: 900 acres.

032 Seepage Meadow - open wetlands on organic soil in areas of continuous groundwater discharge; dominated by graminoids, including tussock sedge, prairie sedge, bristly sedge (*Carex comosa*), hairy-fruited sedge (*Carex lasiocarpa*), and blue-joint grass; clumps of shrubs are common and typically include red-osier dogwood, slender yellow willow (*Salix gracilis*), and pussy willow (*Salix discolor*); common forbs are tufted loosestrife (*Lythrum hyssagifolium*), spotted joe-pye-weed (*Eupatorium maculatum*), northern marsh fern (*Thelypteris palustris*), American water-hemlock (*Lycopus americanus*), and Labrador bedstraw (*Galium labradoricum*); includes some former calcareous seepage fens in which groundwater flow has been altered. Approximate total area: 900 acres.

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RARE SPECIES AND ANIMAL AGGREGATIONS

Locations of rare plants, rare animals, and selected animal aggregations are maintained in the Natural Heritage Information System⁶. The following rare species and animal aggregations have been found in Dakota County. Mapped locations include both historical records and Minnesota County Biological Survey field results. Most Minnesota County Biological Survey field results were done from 1992 to 1994. Most rare species are protected under the provisions of the federal Endangered Species Act or the Minnesota Endangered Species Statute and associated Rules. An asterisk (*) indicates that no recent observation (1970-1994) of that species has been confirmed. A dagger (†) indicates that the species has been documented in the county but its exact location is unknown.

Plants, federally- or state-listed	Animals, federally- or state-listed
<ul style="list-style-type: none">Eared false hoglove* (<i>Arctostaphylos uva-ursi</i>)Sea-beach needlergrass (<i>Amorpha canescens</i>)Tuberous Indian-plantain (<i>Asclepias speciosa</i>)Clasping milkweed (<i>Asclepias speciosa</i>)Sulcatella milkweed (<i>Asclepias speciosa</i>)Plains wild indigo (<i>Baptisia bracteata</i> ssp. <i>leucophylla</i>)Kentia's (<i>Bessey</i> bulrush) (<i>Carex stricta</i>)Sterile sedge (<i>Carex stricta</i>)EBB's thicket (<i>Carex stricta</i>)Twip-rush (<i>Cladonia mariscoides</i>)Lamert's (<i>Cladonia mariscoides</i>)Small white lady's-slipper (<i>Cypripedium candidum</i>)Big tick-trefoil (<i>Osmorhiza lutea</i>)Rattlesnake-master (<i>Eryngium yuccifolium</i>)Heads-in-the-sky (<i>Hesperis matronalis</i>)Creeping juniper (<i>Juniperus horizontalis</i>)Reddish-leaved (<i>Linum catharticum</i>)Rock sandwort (<i>Mimulus lewisii</i>)Thicket-pole (<i>Thalictrum flavum</i>)Primrose (<i>Oenothera biennis</i>)One-flowered broomrape* (<i>Monarda mollis</i>)American grass (<i>Plantago flexilis</i> var. <i>herbifolia</i>)Thicket-pole (<i>Thalictrum flavum</i>)Hair-like oak-rush (<i>Scirpus capillaris</i>)Scirpus (<i>Scirpus capillaris</i>)Whorled nut-rush (<i>Scirpus capillaris</i>)Yellow sandshell mussel (<i>Trilium nivale</i>)Snow trillium (<i>Trilium nivale</i>)Illinois tick-trefoil (<i>Osmorhiza lutea</i>)Valley's barberry-grass (<i>Echinochloa vulpina</i>)False asphodel (<i>Thibetia glutinosa</i>)Marsh arrow-grass (<i>Trifolium pratense</i>)	<ul style="list-style-type: none">Mammals<ul style="list-style-type: none">Plains pocket mouse* (<i>Thomomys talpae</i>)Eastern spotted skunk* (<i>Spilogale putorius</i>)Birds<ul style="list-style-type: none">Red-shouldered hawk (<i>Buteo lineatus</i>)Cerulean warbler (<i>Dendroica cerulea</i>)Acadian flycatcher (<i>Empidonax virens</i>)Belted kingfisher (<i>Halcyon leucostictus</i>)Bald eagle (<i>Haliaeetus leucocephalus</i>)Loggerhead shrike (<i>Lanius ludovicianus</i>)Hooded warbler (<i>Wilsonia citrina</i>)Reptiles<ul style="list-style-type: none">Wood turtle (<i>Emydoidea blandingii</i>)Racer (<i>Coluber constrictor</i>)Timber rattlesnake (<i>Erythronotus horridus</i>)Blanding's turtle (<i>Emydoidea blandingii</i>)Gopher snake (<i>Pituophis catenifer</i>)Fish<ul style="list-style-type: none">Blue sucker (<i>Cyprinus elongatus</i>)Paddlefish (<i>Polyodon spathula</i>)Mollusks<ul style="list-style-type: none">Rock pocketbook mussel (<i>Anodonta cuneata</i>)Elephant-ear mussel (<i>Elliptio cuneata</i>)Brown-shelled mussel (<i>Elliptio cuneata</i>)Yellow sandshell mussel (<i>Trilium nivale</i>)Black sandshell mussel (<i>Trilium nivale</i>)Variegated mussel (<i>Trilium nivale</i>)Pistolgrit mussel (<i>Trilium nivale</i>)Animals, previously state-listed⁷<ul style="list-style-type: none">Birds<ul style="list-style-type: none">Upland sandpiper (<i>Bartramia longicauda</i>)Reptiles<ul style="list-style-type: none">Coon snake (<i>Elaphe vulpina</i>)Milk snake (<i>Lampropeltis triangulum</i>)

FOOTNOTES

- The Minnesota County Biological Survey is a systematic survey of rare biological resources. 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 natural 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. 11 pp.
- Natural communities were interpreted from 1:40,000 color infrared photography taken in May and June 1991 (National Wetlands Inventory Program, U.S.G.S., U.S. Department of the Interior), and from 1:15,000 color infrared photography taken in May and June 1991 (Minnesota Wetlands Inventory Program, U.S.G.S., U.S. Department of the Interior). Natural community boundaries were determined at a scale of 1:25,000.
- Acres figures are approximate to the nearest ten acres.
- Civil division, transportation, water features, and managed area boundaries data were obtained from the Department of Natural Resources, St. Paul, Minnesota. County park boundaries were obtained from the Dakota County Parks Department. 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 natural community map units.
- Data are available from the Minnesota Natural Heritage Information System, Department of Natural Resources, St. Paul, Minnesota. Phone (612) 296-2833.
- Endangered Species Act of 1973 (16 USC 1531) and U.S. Fish and Wildlife Service, U.S. Department of the Interior, and from 1:15,000 color infrared photography taken in May and June 1991 (Minnesota Wetlands Inventory Program, U.S.G.S., U.S. Department of the Interior). Natural community boundaries were determined at a scale of 1:25,000.
- These species were listed under the provisions of the Minnesota Endangered Species Statute when the Minnesota County Biological Survey was conducted in the county. New information on their distribution and abundance has since resulted in their removal from the state list.
- Manschner, F. J. 1978. The original vegetation of Minnesota (map, scale 1:500,000). USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota (revised from the original 1970 edition).
- Manschner, F. J. 1978. The original vegetation of Minnesota (map, scale 1:500,000). USDA Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota (revised from the original 1970 edition).

MINNESOTA COUNTY BIOLOGICAL SURVEY

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