A RESOURCE INVENTORY

OF THE

RACINE PRAIRIE SCIENTIFIC AND NATURAL AREA

"A portion of the former railroad bed and right-of-way of the Chicago and Northwestern Railroad"

Mower County

W½, NW¼ Section 23

E½, NE¼ Section 22

Township 104 North, Range 14 West

Prepared by

The Minnesota Natural Heritage Program

Division of Fish and Wildlife

Minnesota Department of Natural Resources

May, 1983

PREFACE

This report documents biological information collected on Racine Prairie Scientific and Natural Area (SNA) during 1981 and 1982. It also summarizes information from a variety of sources regarding the site's physical resources. This document will facilitate the preparation of a management plan for the Racine Prairie SNA. The report will also be a valuable aid for scientists, educators and others interested in the site.

Support for this project was provided by the Legislative Commission on Minnesota Resources.

TABLE OF CONTENTS

LIST OF FIGURES

Description of Study Area

The Racine Prairie Scientific and Natural Area (SNA) is a ½ mile segment of the former railroad bed and right-of-way of the Chicago and Northwestern Railroad. It is located in Mower County between the towns of Racine and Stewartville. U.S. Highway 63 forms the west boundary of the SNA. This right-of-way contains prairie of exceptionally high natural quality.

The prairie community at Racine Prairie SNA is an excellent example of mesic tall grass prairie which in Minnesota is confined to the southeastern part of the state. This (SE MN) Tall Grass Prairie harbors upwards of 300 species of native plants and is the most diverse prairie community type in Minnesota. The conversion of this prairie type to agricultural production has nearly eliminated its occurrence in the present landscpae.

The (SE MN) Tall Grass Prairie is considered threatened throughout its entire range and is critically endangered in Minnesota. In addition two species occurring at Racine Prairie SNA are listed as "special concern" in the state. These are: wild indigo (Baptisia leucophea) and rattlesnake master (Eryngium yuccifolium).

This segment of railroad right-of-way was designated the Racine Prairie Scientific and Natural Area in September, 1981.

GEOMORPHOLOGY AND SOILS*

The landforms of this part of the state may conveniently be subdivided into two major regions:

1) An area of younger glacial drift or probably mid-Wisconsin age, and

2) An area of older glacial drift.

The younger drift area for the most part was covered by ice of the Des Moines lobe, which advanced through Minnesota from the northwest into Iowa over 14,000 years ago. This area consists largely of constructional glacial landforms, many of which have been scarcely eroded, or even mildly gullied.

A greater variety of landforms exists within the area covered by the Des Moines lobe than in the old drift area where the surface has been lowered and dissected by streams and mass-wasting processes and smoothed out by the deposition of wind-borne loess. The extreme southeastern part of the older drift area in parts of Houston and Winona Counties seems to be largely free of glacial drift. It is considered part of the Driftless Area which extends into southwestern Wisconsin, northwestern Illinois, and northeastern Iowa.

Possibly an almost universal feature of the nearly level surfaces of the old drift area is the cover of windblown silt or loess, which thickens towards the east. It is probably not older than the Wisconsin, and it was derived from the Mississippi Valley train deposits as well as from local tributary outwash and valley train deposits.

The age of the glacial drift in this older drift area has been disputed, and probably drift of at least two ages is present. Most of the surface has been developed on Kansan till from which the original soil was removed and the newly eroded surface covered with loess. The lowering of the Kansan till surface so that it maintained long gently sloping surfaces without excessive dissection has been explained by an appeal to pedimentation, a process of landscape modification now largely restricted to arid and semi-arid regions. During pedimentation coarse sediments were deposited along the major drainageways leading off the eroded Kansan surface. These deposits are mostly covered with a loess. Present-day soils are formed in the loess but their properties are frequently greatly influenced by the underlying material.

Fig. 2 delineates the geomorphic areas within Mower County as identified in the Minnesota Soil Atlas, St. Paul sheet. Geomorphic areas illustrate broad physiographic features and provide some identification as to the nature of parent materials on which the soils have developed. The geomorphic areas represented in Mower County are described in the following paragraphs.

*Summarized from Misc. Report 120-1973 Minnesota Soil Atlas, St. Paul sheet, Agricultural Experiment Stn., Univ. of Minn.

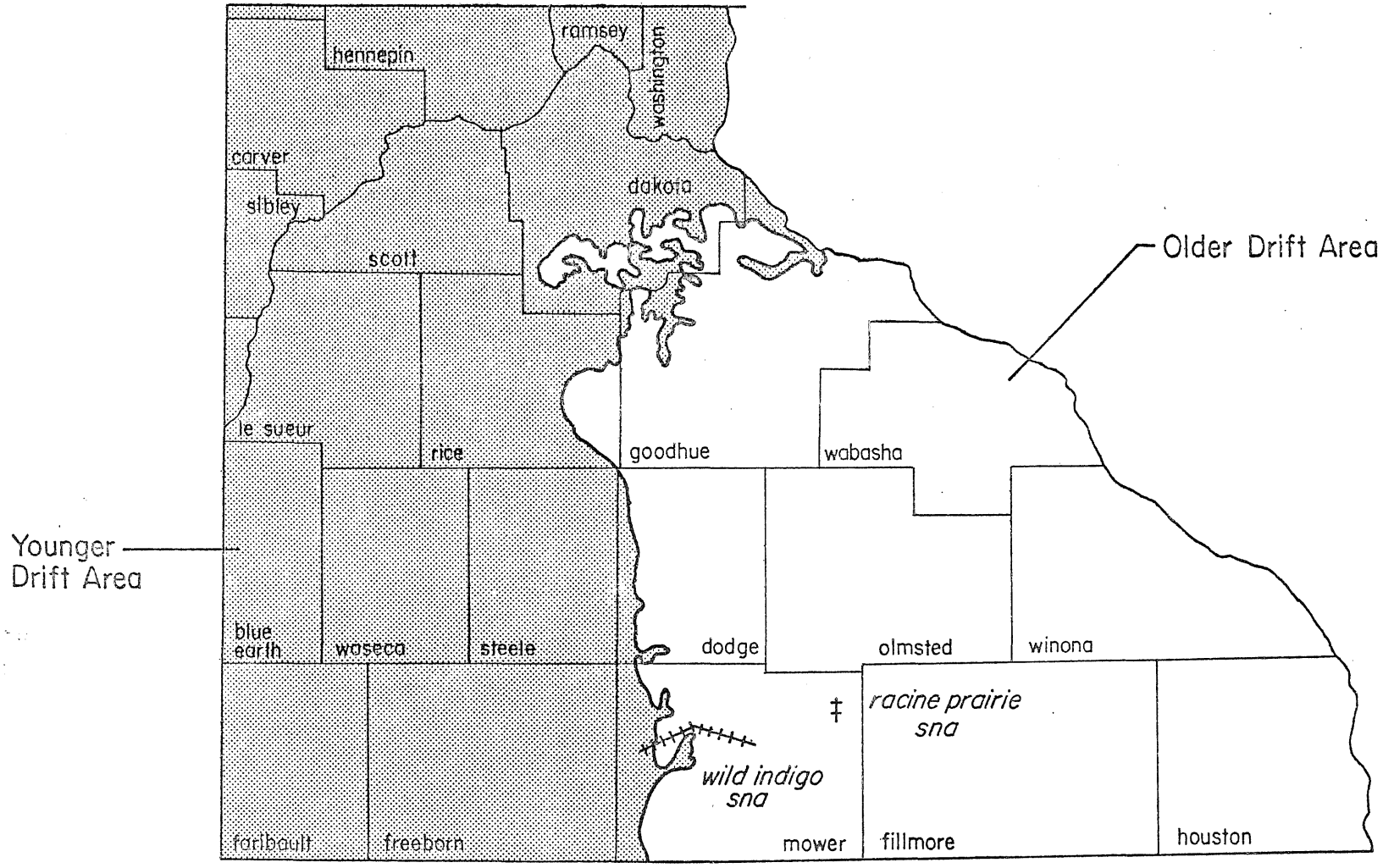


Figure 1

Major Landform Regions of Southeastern Minnesota
(adapted from misc. report 120-1973, minnesota soil atlas, st. paul sheet, agriculture experiment station university of minnesota)

Legend of Geomorphic Areas

31 cedar valley outwash

36 northfield/myrtle moraine, silty, gently rolling

37 claremont/lyle, plain, silty, level

38 kenyon/taopi plain, silty, undulating

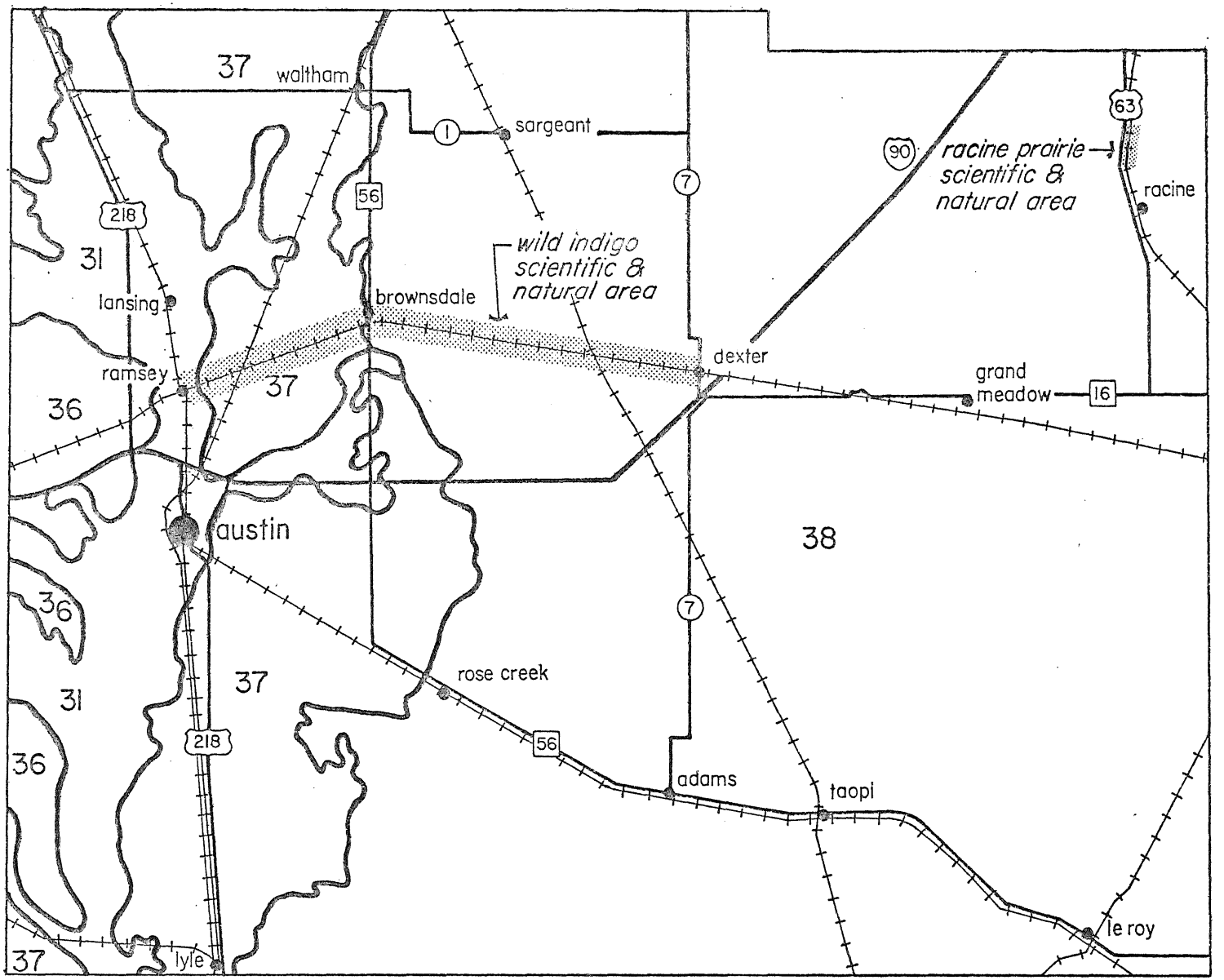


Figure 2

Geomorphic Regions of Mower County

Cedar Valley Outwash (31)

The Cedar Valley Outwash consists of nearly level outwash plains, terraces, and bottomlands along the headwater tributaries of the Cedar River. The water table is normally deeper than 10 feet on the outwash and terraces, but about one-third of the area is less than 3 feet from the surface. The bottomland water table occurs between the surface and a depth of 6 feet.

Most of the soils on the terraces and outwash range from loamy sand to loam or silt loam less than 36 inches thick over sand and gravel. The water-holding capacity ranges from low to moderate. Bottomland soils are subject to frequent flooding. Most are loam or silt loam in texture.

The original vegetation on the terraces and outwash was dominantly prairie grass with occasional oak clumps. Bottomland hardwoods consisting of elm, ash, cottonwood, boxelder, basswood, soft maple, willow, and hackberry were the original cover. The terraces and outwash are cropped with corn, soybeans, oats, and alfalfa-brome hay. Peat areas are cropped to potatoes. Bottomlands have about 25% corn and the rest, pasture of woodland.

Northfield-Myrtle Moraine: Silty, Gently Rolling (36)

The Northfield-Myrtle Moraine consists of a gently rolling silt-mantled and moraine. The dominant landform is a complex of knolls irregularly emplaced on a regional slope. Slope irregularity has been subdued by a silt mantle. Closed depressions are common. Contour lines have a very erratic pattern.

Water tables on the knolls are more than 10 feet deep. The water tables on the lower levels are from 1 to 6 feet deep. Three small lakes occur in this region. Old lakebeds and depressions are filled with peat.

Original vegetation consisted of tall prairie grass with some aspen-oak land and oak openings scattered over the region. Wet soils and peat were covered by sedge grass. Present crops are corn, soybeans, alfalfa-brome hay, oats, and wheat. Less than 5 percent of this region is pastured and less than 5 percent, woodland.

Claremont-Lyle Plain: Silty, Level (37)

The Claremont-Lyle Plain consists of a nearly level silt mantled till plain. The dominant landform is one of very gently undulating to nearly level plain. The few highs are 5 to 15 feet above the low landforms. Bedrock is within 5 feet in a few places.

Water tables in this region range from the surface to 6 feet deep seasonally. No lakes occur in the region. Some small depressions have a thin coating of peat or muck but not large enough to record on the map.

Original vegetation consisted of tall prairie grass and sedges with an oak brush cover on the slightly elevated areas. Present crops are corn, soybeans, oats, wheat, timothy, clover, hay and alfalfa-brome hay. Approximately 10 to 15% of this region is pasture. Less than 1 percent is woodland.

Kenyon-Taopi Plain: Silty, Undulating (38) -- includes Racine Prairie SNA

The Kenyon-Taopi Plain consists of a sloping silt mantled eroded till plain. The dominant landform is one of long swell and swale relief with highs from 20 to 80 feet above the lows. Slopes are long, 250 to 1,000 feet.

Water tables vary from 1 to 10 feet deep, seasonally. Depressions are few and nonexistent over much of the area. The drainage net is a well-established dendritic type, but few streams beyond the main trunks have incised the silty mantle. No lakes occur in this region.

Original vegetation consisted of tall prairie grass on the west and south. On the east, aspen-oak land occurred, consisting of small dense stands of aspen and scattered oaks. Present crops are corn, soybeans, alfalfa-brome hay, oats, and wheat. Approximately 10% of this region is pasture. Another 5 to 10% woodland.

Major soil series occurring within the Kenyon-Taopi Plain geomorphic region include:

Tripoli silty clay: Dark colored, poorly drained silty clay loams about 20 inches thick over loamy glacial till (Typic Haplaquoll). Nearly level uplands.

Taopi silt loam: Dark colored, moderately well drained slightly acid silty or loamy mantle 11 to 24 inches thick over a strongly acid, somewhat slowly permeable compacted loamy till extending in depth for many feet. Very gently sloping uplands.

CLIMATE*

The climate of any land area is an extremely important component of the resources. Some of the general climate characteristics of this area are given in the series of nine diagrams. The area has a typical continental climate with wide extremes in temperature from summer to winter. Total annual precipitation varies from 28 inches in the Minnesota River Valley in the northwest to 32 inches in the very southeast part (Fig. 3). About 40% of the precipitation falls during the summer (Fig. 4).

The annual snowfall averages about 40 inches. This approximates 4 inches water content. Figures 5 and 6 show that this area averages about 30 to 45 days with 6 inches or more of snow on the ground and 10 to 20 days with over 12 inches.

The average date of the last occurrence of frost in the spring ranges from May 2 to May 12 (Fig. 7), the first frost in the fall ranges from September 26 to October 11 (Fig. 8).

Summer weather is typically one of warm days and relatively cool nights. Figure 9 shows that maximum temperatures in July average 83°F. in the south central counties to 86°F. along the Mississippi River. The minimum temperatures in July average 58°F. in the south central to about 63°F. in the larger river valleys, in the metropolitan areas, and the southwest part of the area (Fig. 10).

*From: Misc. Report 120-1973, Minnesota Soil Atlas, St. Paul Sheet, Agricultural Experiment Stn., University of Minnesota.

One of the important aspects of the climate is the temperature and moisture range which occurs within the soil and within the air several feet above ground. The nature of the soil, local topography, direction of slope, and vegetation, all interact to modify long term air temperature averages. The south central part of the area is the coldest; however, to date meteorologists cannot answer why. Agronomists are also aware of this cold area since early maturity soybeans are the most successful.

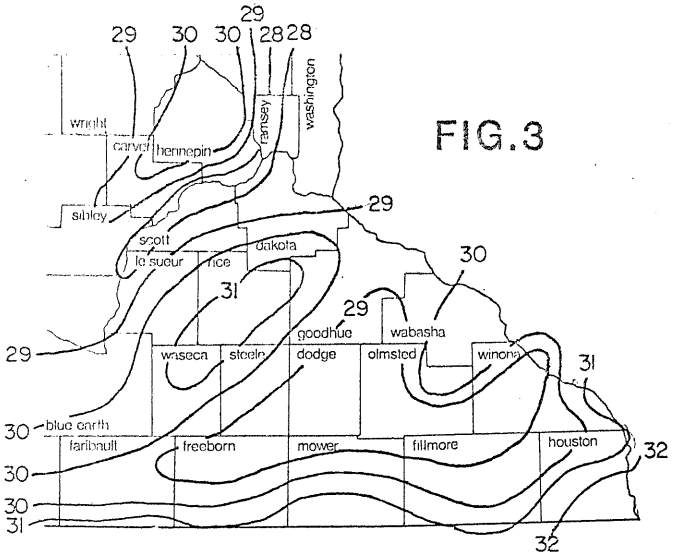


FIG.3

Annual normal precipitation in inches. 1951-1970. St. Paul Sheet. (adapted from climatography of the U.S. no. 60-21 U.S. dept. of commerce, 1972.)

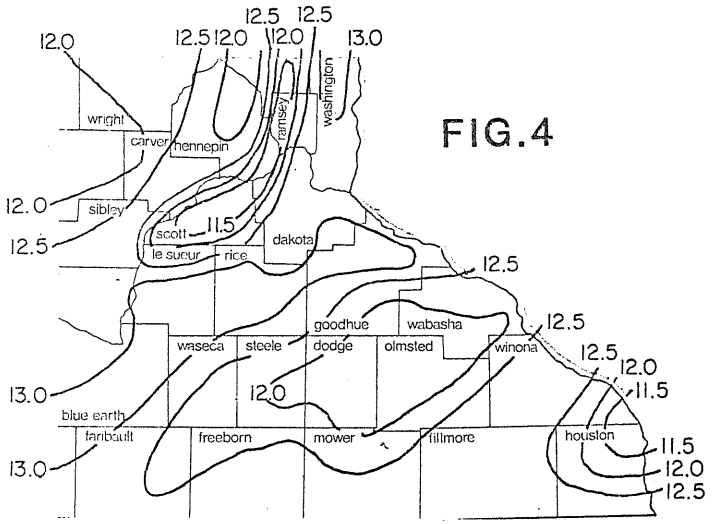


FIG.4

Summer (june, july, august) normal precipitation in inches. 1941-70. St. Paul Sheet. Prepared by earl l. kuehnast, state climatologist, 1973

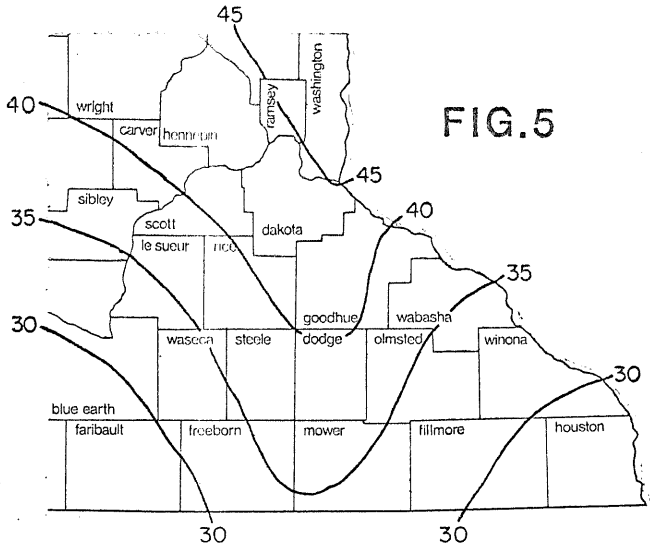


FIG.5

Average number of days per year when snow cover is more than 6 inches. 1951-1970. St. Paul Sheet. Prepared by earl l. kuehnast, state climatologist, 1973.

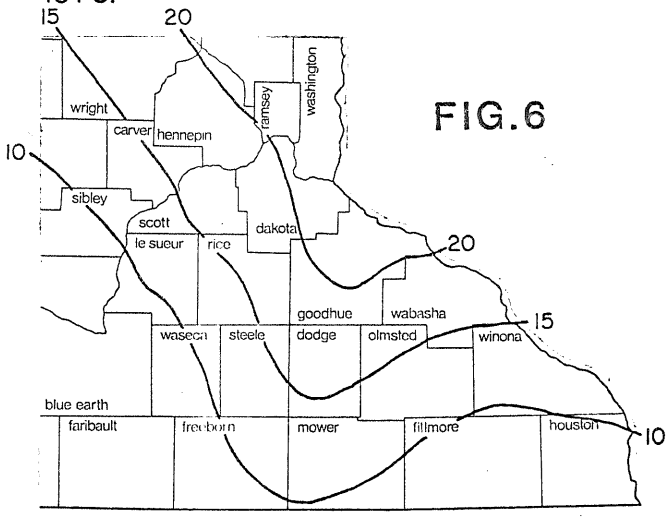


FIG.6

Average number of days per year when snow cover is more than 12 inches. 1951-1970. St. Paul Sheet. Prepared by earl l. kuehnst, state climatologist, 1973

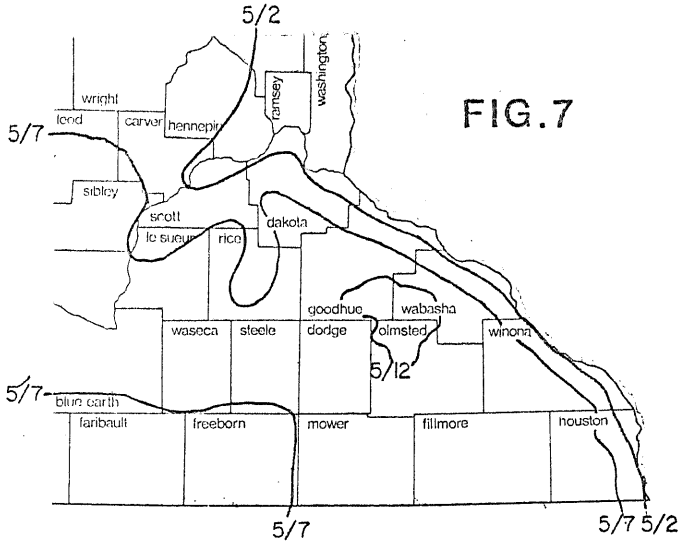


FIG.7

Average date of last occurrence of 32° F or lower in the spring. St. Paul Sheet. (adapted from minn. tech. bull. 243, 1963.)

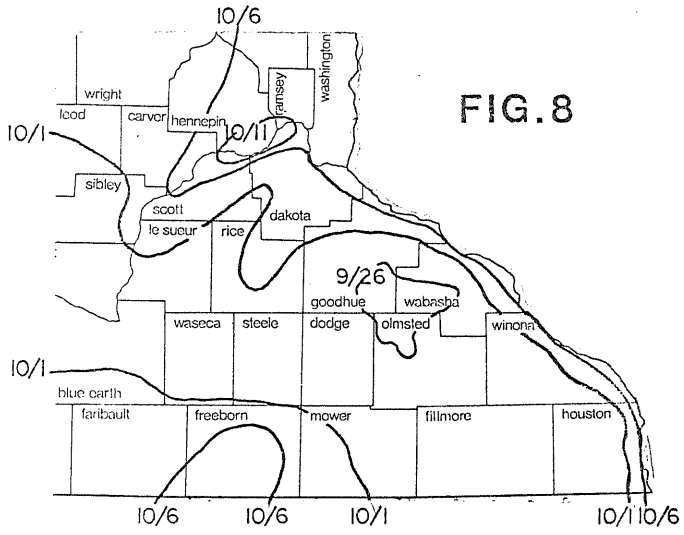


FIG.8

Average date of first occurrence of 32° F or lower in the fall. St. Paul Sheet. (adapted from minn. tech. bull. 243, 1963.)

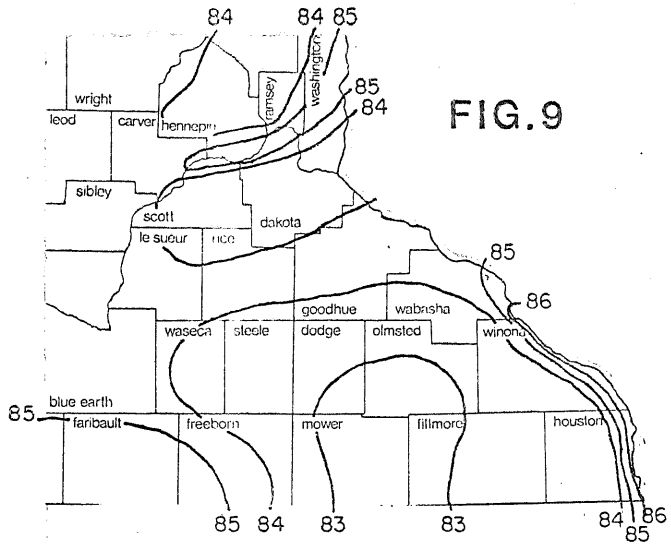


FIG.9

Average daily maximum temperature during July. 1951-1970. St. Paul Sheet. (adapted from climatography of the U.S.. no. 60-21. U.S. dept. of commerce, 1972.)

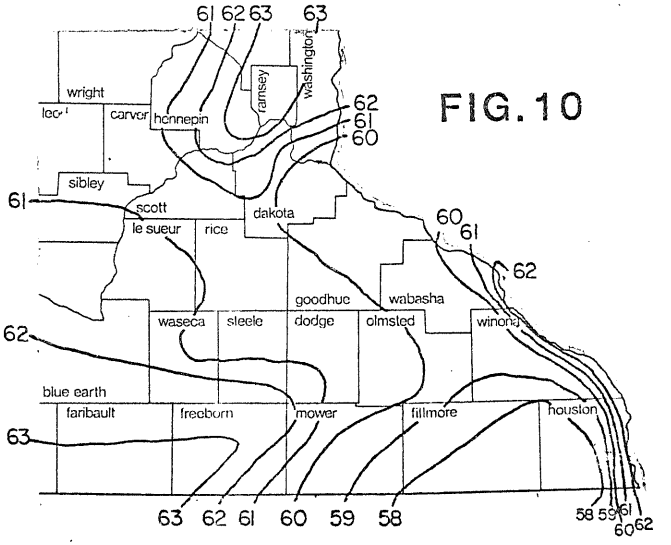


FIG.10

Average daily minimum temperature during July. 1951-1970. St. Paul Sheet. (adapted from climatography of the U.S. no. 60-21. U.S. dept. of commerce, 1972.)

VEGETATION

Introduction

Racine Prairie is a good example of a distinctive type of tall grass prairie vegetation which in Minnesota is confined to the southeastern portion of the state. In SE MN, at the time of settlement, the tallgrass prairie and the closely related oak savanna were the dominant vegetation features on the landscape. Tall grass prairie found on deep, nutrient rich, silt-loam soils was once continuous over thousands of square miles (see Fig.11). Today, as a result of destruction of the prairie through cultivation the continuous tall grass prairie is gone. According to the Minnesota Natural Heritage Program (NHP), which maintains a comprehensive data base on sensitive biotic communities and species, less than 500 acres of intact (SE MN) Tall Grass Prairie exists in the region. Railroad right-of-ways are now the only significant areas in SE Minnesota where virgin tall grass prairie can still be found. The NHP considers this tall grass prairie type to be threatened throughout its entire range and critically endangered in Minnesota.

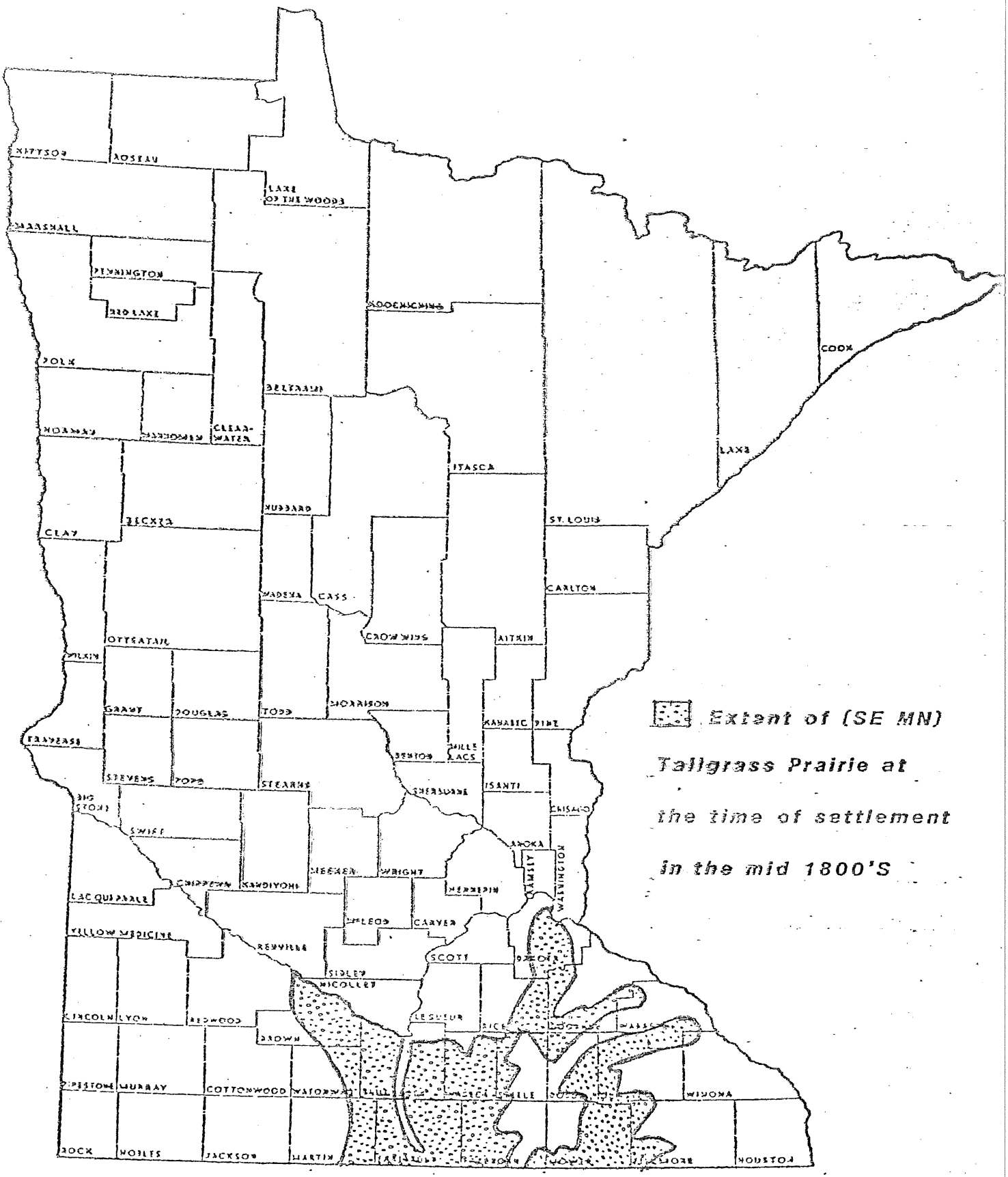
The (SE MN) Tall Grass Prairie exhibits greater species diversity than any other prairie community type in Minnesota. The flora shows a strong affinity to the south and east, and contains species which in Minnesota are either restricted to or modal to the southeastern portion of the state, including prairie wild indigo (Baptisia leucophaea), wild indigo (Baptisia leucantha), Rattlesnake master (Eryngium yuccifolium), wild quinine (Parthenium integrifolium), Indian plantain (Cacalia tuberosa), Cowbane (Oxypolis rigidior), and Cream gentain (Gentiana flavida).

The Racine SNA contains several distinctive vegetation assembledges including mesic and wet-mesic Tall Grass prairie vegetation, wet prairie and marsh vegetation, and disturbed old field vegetation. Along the ½ mile length of Railroad ROW at Racine SNA, are found segments of relatively undisturbed Tall Grass prairie vegetation displaying a species composition similar to the original prairie in this region. Interspersed with undisturbed prairie are vegetational assembledges which reflect various degrees of disturbance. Drift of herbicides from crop spraying, soil disturbance from construction and maintenance of the railbed, siltation from upland erosion of adjacent cropland, and cultivation of the right-of-way are some of the possible disturbances which have altered the original vegetation. The degree of alteration is largely dependent upon the severity of disturbance. Severely disturbed areas may exhibit a complete replacement of the original prairie components by weedy Eurasian species. These areas are confined to the ballast of the tract and the railbed shoulder. Confinement of the prairie to the narrow fifty foot right-of-way between the railroad bed and adjacent cropland makes the tract especially susceptible to degradation. Even small scale soil disturbances, such as animal burrowing, appear large relative to the size of the unit. Such disturbances can significantly alter the species composition of a segment of the prairie and create conditions unfavorable for the survival and propagation of the "climax" species, especially those with narrow ecological tolerances which require more stable conditions.

METHODS

Racine SNA shows distinctive vegetational assembleges reflecting differences in soil moisture and disturbance factors. The vegetation, however, is confined to such a small area (a narrow strip ½ mile long x 75ft. wide) no attempt was made to delineate discrete community types. The tendency of the vegetation types to grade into each other imperceptibally, and to contain inclusions of other types makes drawing boundaries difficult and artificial. A field inspection of the site was made in August 1983 and 3 broad vegetation types were identified: high quality

FIG. 11 (SE MN) TALLGRASS PRAIRIE



Extent of (SE MN) Tallgrass Prairie at the time of settlement in the mid 1800'S

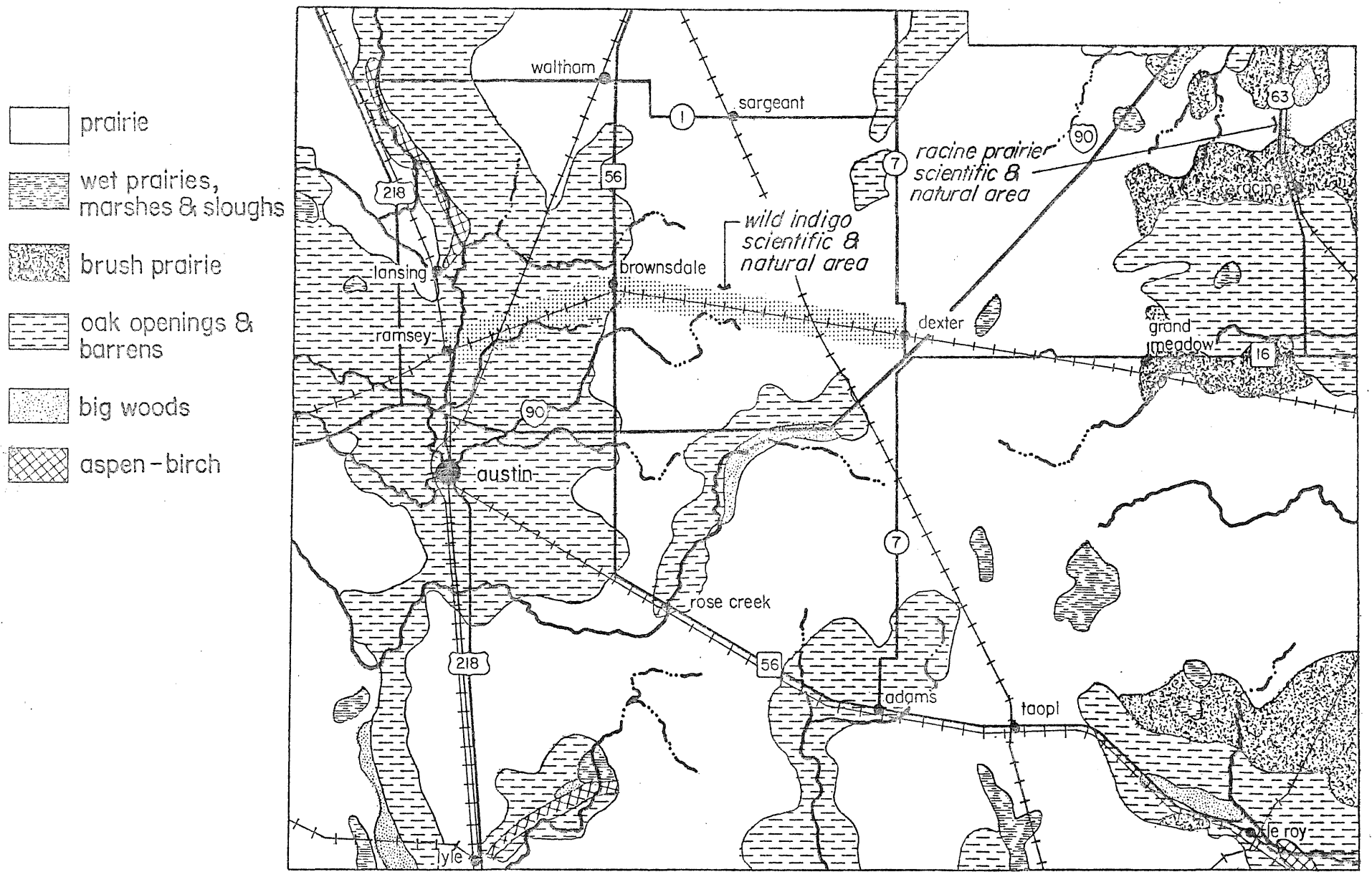


Figure 12

Presettlement Vegetation of Mower County adapted from F.J. Marshner, The Original Vegetation of Minnesota

native prairie, disturbed native prairie, and severely disturbed old field.

Selecting one area for each of these types, the approximate center of each area was sampled for species frequency using ½ m^2 plots at regular intervals along a transect. The number of plots sampled varied with the size of the vegetation type. This data was used to provide species composition information on the various vegetation types and to provide baseline data prior to initiating management programs.

Community Descriptions

High Quality Tall Grass Prairie -- Vegetation assembleges reflecting natural presettlement conditions are found scattered throughout the Racine SNA. The south half of the Racine unit contains most of the high quality prairie. This prairie occurs in areas where the soil has not been disturbed. They are characteristically mesic to wet mesic tall grass prairie displaying a high native species diversity, a high native species diversity, a lack of exotic or weedy species and presence of conservative species (e.g. those which typify and are relatively restricted to stable, undisturbed conditions). This prairie type is dominated by native prairie grasses including big bluestem (Andropogon gerardi), cord grass (Spartina pectinata) and bluejoint grass (Calamogrostis canadensis). Characteristic prairie forbs include rattlesnake master (Eryngium yuccifolium), coreopsis (Coreopsis palmata), blazing star (Liatris pycnostachia), golden alexanders (Zizia aurea), bottle gentian (Gentiana andrewsii), Wild indigo (Baptisia leucantha), lead plant (Amorpha canescens) and compass plant (Silphium laciniatum).

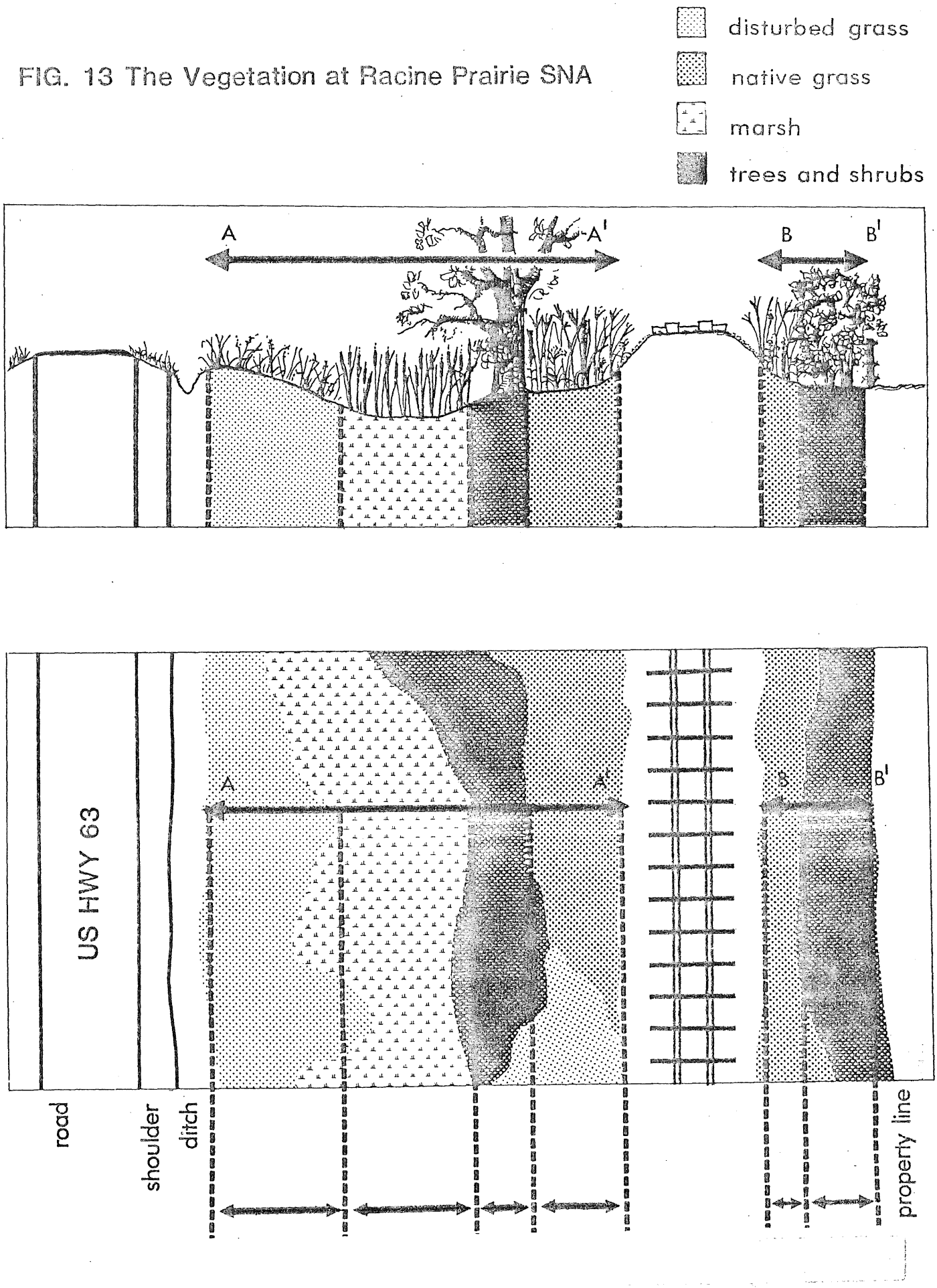
Disturbed Tall Grass Prairie -- This prairie type dominates most of the Racine unit; it is identified by a species composition which no longer reflects virgin conditions. These areas have been altered somewhat by light to moderate disturbance. The disturbed prairie habitat has a lower species diversity than virgin prairie, & is otherwise dominated by the native species which tolerate or increase with disturbance. This vegetation type lacks many of the more conservative species typically found in the high quality prairie areas. The most prevalent species are the rank native forbs including tall sunflower (Helianthus grosseserratus), and giant goldenrod (Solidago gigantea) which often form dense stands. Other common species include Aster (Aster ericoides), strawberry (Fragaria virginiana), Wormwood (Artemisia ludoviciana) and Big bluestem (Andropogon gerardi). These sites vary from fairly good prairie with few exotic weeds, to more heavily disturbed sites where Eurasian weeds (notably Phalaris arundinacea and Bromis inermis are common and native grasses are infrequent. The wetter areas are typically dominated by almost pure stands of bluejoint grass (Calamagrostis canadensis) and reed canary grass (Phalaris arundinaceae).

Severely Disturbed Vegetation -- This habitat type is characterized by destruction of the original vegetation and partial to complete replacement by old field weeds. The vegetation is dominated by agressive sod forming Eurasian grasses including bluegrasses (Poa sp.), timothy (Phleum pratense), quack grass (Agropyron repens), foxtail (Setaria glauca), redtop (Agrostis alba), and field brome (Bromus inermis), with old field forbs such as common milkweed (Asclepias syriaca), sweet clover (Melilotus alba), and wild parsnip (Pastinaca sativa). This habitat type commonly occurs in two areas of the Racine SNA where severe soil disturbance has taken place: 1) the shoulder area adjacent to the railbed and 2) the railbed.

The shoulder area has been significantly altered by cut and fill, and grading operations during construction of the railroad. On the south half of the Racine SNA the shoulder area is typically narrow, less than 5 feet wide. Although this area harbors the typical old field vegetation, native prairie species are also common (esp. Ratibida pinnata, Aster novae-angliae, Lespedeza capitata and Andropogon gerardi). On the north end of the Racine SNA the shoulder becomes a steep embankment, is quite wide and takes up a good part of the right-of-way. These embankments are often colonized by dense thickets of smooth sumac (Rhus glabra) and Willows (Salix spp.).

The ballast of the rail bed in general is characterized by weedy old field species, although parts of the south half of Racine SNA contains many early successional native plants, and occasional climax prairie species, notably Big bluestem (Andropogon gerardi). Typical exotic plants found on the railbed include wild parsnip (Pastinaca sativa), Wintercress (Barbarea vulgaris), Birdsfoot-trefoil (Lotus corniculatus), Sweet clover (Melilotus spp.) and Alsite clover (Trifolium hybridum).

FIG. 13 The Vegetation at Racine Prairie SNA



FLORA

The following list of plants is based on voucher specimens collected on Racine Prairie SNA in 1982. These specimens are on permanent deposit in the herbarium of the University of Minnesota in St. Paul. The list represents a comprehensive sample of the species occurring on the SNA at the time of the survey. It is likely, however, that additional species will be found on the SNA in the future. Species on the list that are believed to be non-native are marked with an asterisk.

Two species occur on the SNA which are significant statewide because of their rarity. They are Eryngium yuccifoluim and Baptisia leucophea. Both are frequent along much of the SNA and listed as species of special concern in Minnesota. Status sheets on these two species are provided in the appendix to this report.

PLANT SPECIES LIST - RACINE PRAIRIE

Aceraceae
- Acer negundo L. Box Elder

Amaryllidaceae
- Hypoxis hirsuta (L.) Coville Stargrass

Anacardiaceae
- Rhus glabra L. Smooth Sumac

Apiaceae
- Cicuta maculata L. Spotted Cowbane
- Erynguim yuccifolium Michx. Rattlesnake-master
- Oxypolis rigidior (L.) C. & R. Cowbane
- Pastinaca sativa L. Wild Parsnip
- Sanicula marilandica L. Maryland Black Snakeroot
- Zizia aurea (L.) W.D.J. Koch Golden Alexander

Apocynaceae
- Apocynum androsaemifolium L. Spreading Dogbane

Asclepiadaceae
- Asclepias incarnata L. Swamp Milkweed
- Asclepias syriaca L. Common Milkweed

Asteraceae
- Achillea lanulosa nutt. Woolly Yarrow
- Ambrosia artemisiifolia L. Common Ragweed
- Ambrosia trifida L. Great Ragweed
- Antennaria neglecta Greene
- Artemisia ludoviciana nutt. Wormwood
- Aster ericoides L. Aster
- Aster laevis L. Aster
- Aster novae-angliae L. New England Aster
- Aster sagittifolius Willd. Aster
- Aster simplex Willd. Silky Aster
- Bidens vulgata Greene Common Beggar-ticks
- Cirsuim discolor (Muhl.) Spring Thistle
- Conyza canadensis (L.) Crong. Horse-weed
- Coreopsis palmata nutt. Tickseed
- Erigeron annuus (L.) Pers. Daisey-fleabane
- Eupatorium maculatum L. Joe-Pye weed
- Eupatorium perfoliatum L. Boneset
- Helenuim autumnale L. Autumn Sneezeweed
- Helianthus grosseserratus Martens Sunflower
- Helianthus hirsutus Rof. Sunflower
- Helianthus rigidus (Cars.) Desf. Sunflower
- Helianthus tuberosus L. Jerusalem artichoke
- Hieracium canadense Michx. Hawkweed
- Lactuca canadensis L. Canadian lettuce
- Liatris ligulistylis (Nels.) K. Schum. Blazing-star
- Liatris pycnostachya Michx. Blazing-star
- Prenanthes alba L. White Rattlesnake-root
- Prenanthes racemosa Michx. Rattlesnake-root
- Ratibida pinnata (Vent.) Barnh. Coneflower
- Senecio pseudaureus Rydb. var semicordatus (Mack. & Bush) Barkley

Silphium laciniatum L. Compass-plant
Solidago gigantea Art. var. leiophylla Fern
Solidago graminifolia (L.) Salisb. Grass-leaved Goldenrod
Solidago nemoralis Art. Gray Goldenrod
Solidago rigida L. Stiff-leaved Goldenrod
*Taraxicum officinale Weber Dandelion
*Tragopogon major Jacq. Goat's-Beard

Betulaceae
Corylus americana Walt. American Hazel

Boraginaceae
Lithospermum canescens (Michx.) Lehm. Hoary Puccoon

Brassicaceae
*Barbarea vulgaris R. Br. Common Winter-cress
*Lepidium densiflorum Schrad. Pepperwort

Caprifoliaceae
Sambucus canadensis L. Common Elder

Caryophyllacene
*Dianthus armeria L. Deptford Pink
Lychnis alba Muhl. White Cockle
Silene antirrhina L. Sleepy catchfly
Silene stellata (L.) Art. f. Starry Campion

Convolvulaceae
Convolvulus sepium L. Hedge-bindweed

Cyperaceae
Carex bebbii (Bailey) Fern. Sedge
Carex bicknellii Britt. Sedge
Carex buxbaumii Wahlenb. Sedge
Carex gravida Bailey Sedge
Carex haydenii Dew. Sedge
Carex lanuginosa Michx. Sedge
Carex molesta Mock. Sedge
Carex scoparia Willd. Sedge
Carex stipata Willd. Sedge
Carex tenera Dew. Sedge
Carex tetanica Schkuhr. Sedge
Scirpus cyperinus (L.) Kunth Bulrush

Equisetaceae
Equisetum arvense L. Field Horsetail

Euphorbiaceae
Euphorbia corollata L. Flowering spurge

Fabaceae
Amorpha canescens Pursh Leadplant
Amorpha fruticosa L. False Indigo
Astragalus canadensis L. Canadian Milk-Vetch
Amphicarpa bracteata Fern. Hog-peanut
Baptisia leucantha T. & G. White False Indigo
Desmodium canadense (L.) DC. Canadian Tick-trefoil
Lathyrus venosus Muhl. var. intonsus Butt. & St. John
Lespedeza capitata Michx. Round-headed Bush-Clover
*Lotus corniculatus L. Birdsfoot-trefoil
*Melilotus alba Desr. White Sweet Clover
*Melilotus officinalis (L.) Lam. Yellow Sweet Clover

Petalostemum purpureum (Vent.) Rydb. Purple Prairie-Clover
*Trifolium hybridum L. Alsike Clover
*Trifolium pratense L. Red Clover
*Vicia angustifolia Reichard Vetch

Gentianaceae
Gentiana andrewsii Griseb. Closed Gentian

Geraniaceae
Geranium maculatum L. Wild Geranium

Iridaceae
Sisyrinchium campestre Bickn. Blue-eyed Grass

Juncaceae
Juncus interior Wieg. Rush
Juncus vaseyi Engelm. Rush

Lamiaceae
Lycopus americanus Muhl. Water-Horehound
Monarda fistulosa L. Wild Bergamot
*Nepeta cataria L. Catnip
Pycnanthemum virginianum (L.) Durand & Jackson Mountain-Mint

Lythraceae
Lythrum alatum Pursh Winged loosestrife

Oleaceae
Fraxinus pennsylvanica Marsh var. subintegerrima (Vahl.) Fern. Green Ash

Onagraceae
Oenothera biennis L. Evening Primrose
Epilobium ciliatum Raf. Willow herb
Epilobium coloratum Biehler Willow herb

Plantaginaceae
Plantago major L. Plantain

Poaceae
*Agropyron repens (L.) Beauv. Quack-grass
Agrostis alba L. Red top
Andropogon gerardi Vitman Big Bluestem
*Bromus inermis Leyss. Hungarian Brome-Grass
Calamagrostis canadensis (Michx.) nutt. Blue-joint
Elymus canadensis L. Canadian Wild Rye
Elymus virginicus L. Virginia Wild Rye
Hierochloe odorata (L.) Beauv. Vanilla Grass
Muhlenbergia racemosa (Michx.) BSP Muhly
Panicum leibergii (Vasey) Scribn. Panic-Grass
*Phalaris arundinacea L. Reed-Canary-Grass
*Phleum pratense L. Timothy
Poa palustris L. Fowl-meadow Grass
Poa pratensis L. Bluegrass
Spartina pectinata Link Cord-Grass

Polemoniaceae
Phlox pilosa L. var. fulgida Wherry Prairie Phlox

Polygonaceae
Polygonum convolvulus L. Black Bindweed
Polygonum pensylvanicum L. Pinkweed
Rumex crispus L. Yellow Dock
Rumex mexicanus Meisn. Mexican Dock

Primulaceae
- Lysimachia ciliata L. Loosestrife
- Lysimachia quadriflora Sims. Loosestrife

Ranunculaceae
- Anemone canadensis L. Canadian anemone
- Anemone virginiana L. Virginia anemone
- Thalictrum dasycarpum Frisch. & Lall. Meadow-Rue

Rosaceae
- Fragaria virginiana Duchesne Virginia Strawberry
- Geum laciniatum Murr. var. tricocarpum Fern. Avens
- Potentilla simplex Michx. Old-field Cinquefoil
- Prunus americana Marsh Wild Plum
- Prunus virginiana L. Choke-Cherry
- Rosa arkansana Porter Rose
- Rubus pensylvanicus Poir Blackberry
- Spiraea alba Ru Roi Meadow-sweet

Rubiaceae
- Galuim boreale L. Northern Bedstraw

Salicaceae
- Populus deltoides Marsh Cottonwood
- Populus tremuloides Michx. Aspen
- Salix bebbiana Sarg. Long-beaked Willow
- Salix gracilis Anderss. Slender Willow
- Salix numilis Marsh Prairie Willow
- Salix interior Rowlee Willow
- Salix rigida Muhl. Stiff Willow

Santalaceae
- Comandra richardsiana Fern. Toadflax

Saxifragaceae
- Heuchera richardsonii R. Br. var. hispidior Rosend., Brutt. & Lak. Alumroot
- Saxifraga pensylvanica L. Swamp saxifrage

Scrophulariaceae
- *Choenorrhinum minus (L.) Lange Dwarf Snapdragon
- Scrophularia lanceolata Pursh Figwort
- Veronicastrum virginicum (L.) Farw. Culver's-root

Typhaceae
- Typha angustifolia L. Cat-tail
- Typha latifolia L. Cat-tail

Urticaceae
- Urtica dioica L. ssp. gracilis (Ait.) Selander Stinging Nettle

Verbenaceae
- Verbena stricta Vent. Vervain

Violaceae
- Viola pedatifida G. Don Bird's-foot Violet
- Viola sororia Willd. Wood Violet

Vitaceae
- Parthenocissus inserta (Kerner) K. Fritsch Woodbine

APPENDIX: RARE PLANT STATUS SHEETS

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Baptisia leucophaea* Nutt.

FAMILY: Fabaceae

COMMON NAME: Cream-colored False Indigo

STATE STATUS: Special Concern

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species occurs in Minnesota at the northwestern limit of its range and is more common in the geographic center of its range. Within Minnesota, it has suffered numerous local extirpations as a result of habitat lost to agricultural development.

PREFERRED HABITAT IN MINNESOTA: This is a prairie species with rather broad ecological amplitude. It occurs in mesic prairies as well as sand prairies and bluff prairies.

RECOMMENDATIONS: The population trends of this species should be watched carefully to determine the effect of local extirpations and the extent of overall decline in population numbers.

SELECTED REFERENCES:

Larsey, M.M. 1940. A Monograph of the genus *Baptisia*. Ann. Mo. Bot. Gard. 27(2):119-224.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eryngium yuccifolium* Michx.

FAMILY: Apiaceae

COMMON NAME: Rattlesnake Master

STATE STATUS: Special Concern

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species reaches the northern limit of its range in Minnesota and is restricted here to a specific and often exploited habitat type. Loss of habitat has recently caused significant decline in the number of populations of this species in Minnesota, and any further decline could threaten the survival of this species in the state.

PREFERRED HABITAT IN MINNESOTA: This species is largely restricted to mesic prairies, but has been reported from thin soil prairies on steep bluffs.

RECOMMENDATIONS: Because of the threats to the habitat of this species, its status could change rapidly. For this reason, there is a need to continue collecting data on the location and welfare of surviving populations.