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Flora of a Sand Prairie in Black Hawk County, Iowa¹

GLENN H. CRUM²

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SYNOPSIS. A 14.6 ha (36 acre) natural area consisting of marshes, moist to dry sandy prairie, and wet to moist swale was found 16 km (10 miles) northwest of the University of Northern Iowa, Cedar Falls. An annotated flora of 280 species of vascular

plants was compiled during the 1970 growing season. In addition to many species of vascular plants restricted to prairie remnants, sphagnum moss occurs in small patches in the swale. The occurrence of *Carex leptalea* Wahl. represents the first reported collection in Iowa.

INDEX DESCRIPTORS: *Carex leptalea* Wahl; Flora; Prairie.

Before Iowa was settled, the original vegetation was mostly tall-grass prairie on the uplands with woodlands along the drainageways. Few samples of the prairie biome are left except relics along unsprayed right-of-ways, publicly owned preserves, and on private land unsuitable for cultivation (Eilers, 1966). Most of these remnant prairies are on a soil of a loam nature. No large tract of sand prairie has been preserved in eastern Iowa.

In late summer of 1969 a 14.6 ha (36 acre) natural area, which includes marshes, sandy prairie, and a swale, was found 16 km (10 miles) northwest of the University of Northern Iowa, Cedar Falls. According to Mr. H. H. Siepert (Pers. Commun.), who is familiar with the history of the prairie, it has never been plowed. It had been grazed periodically by cattle until about five years ago, but the vegetation appears to be relatively undisturbed. Bobolink, yellow-headed blackbird, upland plover, and several more common species of birds nested within the boundaries of the Sand Prairie during the summer of 1970. Ducks were present on the southern marsh from the time the ice went out until mid-May. There was abundant evidence of the activities of mice, voles, pocket gophers and other mammals, although the animals themselves were rarely seen. Reptiles and amphibians were frequently encountered during the cooler hours of the day. In late August thousands of migrating monarch butterflies flitted among the flowers.

LOCATION, TOPOGRAPHY AND SOILS

The Sand Prairie is located in the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ Section 19, T-90N, R-14W, Black Hawk County, Iowa. It is near the eastern edge of a low band of hills which lie between the west fork of the Cedar River, 4 km (2.5 miles) to the north, and Beaver Creek, 3 km (1.8 miles) to the south. Both of these streams join the Cedar River, which flows towards the south, 5 km (3 miles) east of the prairie. The elevation of these streams is 262 m (860 ft), while the elevation of the prairie is slightly over 275 m (900 ft).

A ridge of Hagener loamy sand changes to Chelsa sand from the northwestern to the southeastern corner. These soils consist of excessively-drained eolian sand which has not changed appreciably since deposition during the Iowan sub-

stage of the Wisconsin glaciation (U. S. Department of Agriculture, 1967).³ A well defined depression about 2 m deep, in the Chelsa sand, is probably a wind blow-out. An organic seal on the bottom of the blow-out has caused a perched water table, creating an intermittent pool with water standing until mid-June and after rains. Three less well defined blow-outs without perched watertables lie to the southeast of the first blow-out. If the vegetation were removed, the entire ridge would be subject to severe wind erosion.

Dark-colored Lawler loam with moderate to high moisture supplying capacity surrounds the marshes near the western boundary and adjoins the western edge of the big marsh on the southern boundary. In the marshes, where water stands all year, the black upper horizon of the soil is a humic gley. An organic layer of decaying plant residue is on the surface. The transition from the moist loamy soils to the dry sandy soils is quite abrupt and reflected by the vegetation changes.

The wet swale with seepy side slopes has a surface layer of humic gley and a high water table. In the spring, and after rains, water stands in small depressions between *Carex* hummocks on the side slopes and even on top of the northern side of the swale. Although a certain amount of hummocking is natural with some species of *Carex*, it appears that cattle's hooves have penetrated the wet sod, accentuating the hummocks. Most of the water which seeps out of the northern slope is probably derived from subsoil water flowing downward from the higher elevations at the north. Several large boulders at the surface near the bottom of the swale may indicate the erratic top of the underlying glacial till.

THE VEGETATION

The most prominent habitats on the Sand Prairie are marshes; moist, mesic and dry prairie; and wet to moist swale (Fig. 1). Hair-cap moss, *Polytrichum commune* L., occurs over almost the entire length of the transition zone between the prairie and the southern side of the swale. Within the swale and on the northern rim there are small patches of unidentified *Sphagnum* moss. *Carex stricta* Lam. is the dominant species of the swale, forming dense hum-

¹ This work was carried out in partial fulfillment of the Master of Arts degree at the University of Northern Iowa, Cedar Falls. I wish to express my gratitude to the Iowa Chapter of the Nature Conservancy, and to Dr. L. J. Eilers, who directed this project.

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³ Field maps covering the prairie, to be used in the preparation of the forthcoming *Black Hawk County Iowa, Soil Survey*, were photographed. W. L. Fouts, Soil Conservation Service, helped correlate the field maps to the soil descriptions in the *Bremer County Iowa, Soil Survey*.

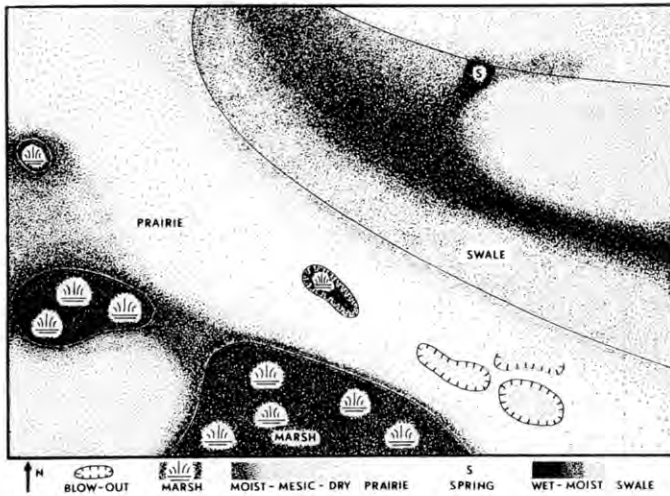


Fig. 1. The most prominent habitats on the Sand Prairie.

mocks. Sensitive fern, *Onoclea sensibilis* L., marsh fern, *Thelypteris palustris* Schott., and a wide variety of bryophytes and angiosperms are scattered on and between the hummocks. Bluejoint grass, *Calamagrostis canadensis* (Michx.) Beauv., is abundant in both the swale and around the marshes. *Carex lacustris* Willd. is one of the most abundant sedge species of the marshes. A dense stand of hardstem bulrush, *Scirpus acutus* Muhl., occurs in the largest marsh near the western boundary.

On the drier areas various species of grass, particularly big bluestem, *Andropogon gerardii* Vitman; little bluestem, *A. scoparius* Michx.; switchgrass, *Panicum virgatum* L.; *P. scribnerianum* Nash; June grass, *Koeleria cristata* (L.) Pers.; and porcupine grass, *Stipa spartea* Trin., are common. The moist loamy upland of the southwestern corner is the most disturbed part of the prairie. Here Kentucky bluegrass, *Poa pratensis* L., has invaded and formed a thick carpet.

Several species of woody plants have invaded the Sand Prairie, but the majority are not over 3 m tall. Two large red cedars, *Juniperus virginiana* L., occur near the western boundary and several smaller ones are scattered throughout the upland. A number of small Siberian elms, *Ulmus pumila* L., up to 2 m, appear to be adventive from a large wind-break across the road from the northwestern corner. In the swale, several small American elms, *U. americana* L., and quaking aspen, *Populus tremuloides* Michx., have gained a foothold. Most of the other woody plants are more typical of prairie flora. Sage-leaved willow, *Salix candida* Fleugge, is particularly noteworthy since it has been found at few other stations in Iowa. Other species of prairie willows are scattered throughout the swale and moist upland. Meadow-sweet, *Spiraea alba* Du Roi, is quite abundant along the seepy side slopes of the swale.

Marsh marigold, *Caltha palustris* L., the first forb evident in the spring, is locally abundant in the swale. Bird's foot violet, *Viola pedata* L., comes into bloom early on the moist prairie. In early June, the dry sandy prairie is ablaze with the yellow flowers of puccoon, *Lithospermum canescens* (Michx.) Lehm., and *L. carolinense* (Walt.) MacM. By the first of July, various forbs are in bloom. The flowers of bush-clover, *Lespedeza capitata* Michx., mingle with the brown

stems of the previous years on the upland in August. The purple of blazing star, *Liatris aspera* Michx., and the gold of goldenrod, mainly *Solidago missouriensis* Nutt., is striking. Ladies' tress orchids, *Spiranthes cernua* (L.) Rich., are almost hidden among the sedges of the moist marsh edges. Bottle gentian, *Gentiana andrewsii* Griseb., is among the last flowers to bloom in the fall.

Twayblade orchid, *Liparis loeselii* (L.) Rich., rattle-snake master, *Eryngium yuccifolium* Michx., and New Jersey tea, *Ceanothus americanus* L., are three common prairie species, each represented by only one specimen in 1970. Speedwell, *Veronica scutellata* L., and *Juncus vaseyi* Engelm. were not collected previously in the Iowan area of the Wisconsin glaciation in Iowa (Eilers, 1971).

A few strands of *Carex leptalea* Wahl., appearing in a collection of fowl meadow grass, *Glyceria striata* (Lam.) Hitchc. were overlooked at the time of collection, but as *Sphagnum* moss was being removed from the roots of the *Glyceria* in preparation for pressing, the *C. leptalea* was found. This represents the first reported collection of *C. leptalea* in Iowa, although Gilly (1946) indicated it should be expected in eastern Iowa. Later attempts to collect *C. leptalea* were unfruitful, even though the original site of collection was known within a few meters.

Collections were made at frequent intervals from mid-April until early October. An attempt was made to collect and identify as many vascular plants as possible. Within the major groups, families are arranged alphabetically as are genera and species within families. The nomenclature usually follows that of Gleason and Cronquist (1963) or Fernald (1950). Pohl (1966) was used as the authority for the Gramineae.

The common names come from a number of sources, primarily Aikman and Thorne (1956). The habitat refers to the micro-environmental conditions under which most plants of a given species grow, but distinct boundaries cannot be established. Relative abundance is even more difficult to define. Large or showy plants may be over-estimated while small or inconspicuous plants may be under-estimated. "Abundant" means that the species was found nearly everywhere in the habitat indicated. "Common" indicates the species was well represented, but more scattered. "Frequent" occurrence was 12-20 locations and "infrequent" was from 4-11 stations within a habitat. "Rare" species were seen less than four times. The month in which the species was first seen in flower is given, although flowering may have persisted into the following months. Voucher specimens of most species will be deposited in the University of Northern Iowa Herbarium.

ANNOTATED LIST OF VASCULAR PLANTS
COLLECTED ON THE SAND PRAIRIE

PTERIDOPHYTA

Equisetaceae (Horsetail Family)

- Equisetum arvense* L. Common Horsetail. Moist to dry prairie; common; May.
- Equisetum laevigatum* A. Br. Prairie Scouring-rush. Dry prairie; infrequent; June.
- Equisetum sylvaticum* L. Swale; rare; June.

Polypodiaceae (Polypody Family)

- Onclea sensibilis* L. Sensitive Fern. Marsh edges and swale; common; June.
Thelypteris palustris Schott. Marsh Fern. Marsh edges and swale; common; June.

SPERMATOPHYTA

GYMNOSPERMAE

Cupressaceae (Cypress Family)

- Juniperus virginiana* L. Red Cedar. Moist prairie; infrequent.

ANGIOSPERMAE

MONOCOTYLEDONEAE

Alismataceae (Water-plantain Family)

- Alisma subcordatum* Raf. Water-plantain. Shallow water in swale; rare; July.
Sagittaria cuneata Sheldon Arrowhead. Shallow water in swale; rare; July.
Sagittaria latifolia Willd. Arrowhead. Marsh; infrequent; Aug.
Sagittaria rigida Pursh Arrowhead. Marsh; infrequent; July.

Amaryllidaceae (Amaryllis Family)

- Hypoxis hirsuta* (L.) Coville Yellow Star-grass. Moist prairie; frequent; June.

Commelinaceae (Spiderwort Family)

- Tradescantia bracteata* Small Spiderwort. Mesic prairie; infrequent; June.
Tradescantia ohiensis Raf. Spiderwort. Mesic prairie; infrequent; June.

Cyperaceae (Sedge Family)

- Carex annectens* (Bickn.) Bickn. Marsh edges; common; June.
Carex atherodes Spreng. Marshes; common; June.
Carex bicknellii Britt. Dry prairie; infrequent; June.
Carex buxbaumii Wahl. Marsh edges and swale; frequent; May.
Carex conjuncta Boott Swale; infrequent; June.
Carex conoidea Schk. Moist prairie; common; May.
Carex gravida Bailey Dry prairie; infrequent; June.
Carex haydenii Dew. Marsh edges; infrequent; June.
Carex interior Bailey Swale; frequent; June.
Carex lacustris Willd. Marshes; locally abundant; May.
Carex lasiocarpa Ehrh. Marsh edges and swale; frequent; May.
Carex leptalea Wahl. Swale; rare, new Iowa record; June.
Carex meadii Dew. mesic prairie; infrequent; June.
Carex muhlenbergii Schk. Dry prairie; infrequent; June.
Carex sartwellii Dew. Marsh edges; infrequent; June.
Carex scoparia Schk. Marsh edges and swale; frequent; June.
Carex stricta Lam. Swale; abundant; May.
Carex vesicaria L. Marshes; abundant; May.
Carex vulpinoidea Michx. Swale; frequent; June.
Cyperus esculentus L. Yellow Nut-grass. Marsh edges; infrequent; Aug.
Cyperus schweinitzii Torr. Dry prairie; infrequent; July.
Cyperus strigosus L. Swale; infrequent; July.
Dulichium arundinaceum (L.) Britt. Three-way Sedge. South marsh; rare; June.
Eleocharis calva Torr. Spike Rush. Spring; rare; June.
Eleocharis compressa Sulliv. Spike Rush. Swale; infrequent; June.
Eleocharis palustris (L.) R. & S. Spike Rush. Marsh edges; frequent; June.
Eriophorum angustifolium Honckeny Cotton Grass. Swale; infrequent; May.
Scirpus acutus Muhl. Hard-stem Bulrush. Marshes; locally abundant; June.
Scirpus cyperinus (L.) Kunth Wool Grass. Marsh edges and swale; infrequent to locally abundant; July.
Scleria triglomerata Michx. Nut Rush. Moist prairie; rare; June.

Gramineae (Grass Family)

- **Agrostis alba* L. Redtop. Marsh edges and moist prairie; frequent; June.

- Agrostis hiemalis* (Walt.) B.S.P. Tickle Grass. Swale; frequent; June.
Alopecurus aequalis Sobol. Short-awn Foxtail. Edges of spring; rare; June.
Andropogon gerardii Vitman Big Bluestem. Moist to mesic prairie; common; Aug.
Andropogon scoparius Michx. Little Bluestem. Moist to dry prairie; common; Aug.
Aristida basiramea Engelm. ex Vasey var. *basiramea*. Needle Grass. Dry prairie; infrequent; Sept.
Bouteloua hirsuta Lag. Hairy Grama. Dry prairie; infrequent; Aug.
 **Bromus inermis* Leyss. Smooth Brome. Moist prairie; common in southwestern corner, rare elsewhere; June.
Calamagrostis canadensis (Michx.) Beauv. Bluejoint. Marsh edges and moist prairie; locally abundant; June.
Cenchrus longispinus (Hack.) Fern. Sandbur. Dry prairie; rare; Aug.
 **Dactylis glomerata* L. Orchard Grass. Moist prairie; rare; June.
Echinochloa muricata (Beauv.) Fern. Barnyard Grass. Desiccated bottom of marsh; rare; Sept.
Elymus canadensis L. Canada Wild-rye. Mesic prairie; infrequent; July.
Eragrostis spectabilis (Pursh) Steud. Purple Love Grass. Dry prairie; infrequent; Aug.
Glyceria grandis S. Wats. Reed Meadow Grass. Marshes and swale; frequent; June.
Glyceria septentrionalis Hitchc. Floating Manna Grass. Marsh on south boundary; infrequent; June.
Glyceria striata (Lam.) Hitchc. Fowl Meadow Grass. Swale; infrequent; June.
Hierchloë odorata (L.) Beauv. Holy Grass. Moist prairie; locally abundant in northeastern corner, rare or absent elsewhere; June.
Hordeum jubatum L. Squirrel-tail Barley. Moist prairie; infrequent; June.
Koeleria cristata (L.) Pers. June Grass. Dry prairie; common; June.
Leersia oryzoides (L.) Sw. Rice Cut-grass. Swale; infrequent; Aug.
Muhlenbergia glomerata (Willd.) Trin. Muhly Grass. Spring; rare; Aug.
Muhlenbergia mexicana (L.) Trin. Muhly Grass. Marsh edge; rare; Aug.
Panicum implicatum Scribn. Moist prairie; infrequent; June.
Panicum scribnerianum Nash Mesic to dry prairie; common; May, Oct.
Panicum virgatum L. Switch Grass. Moist to mesic prairie; common; Aug.
Paspalum ciliatifolium Michx. Dry prairie; infrequent; July.
 **Phleum pratense* L. Timothy. Moist prairie; infrequent; June.
 **Poa compressa* L. Canada Bluegrass. Dry prairie; common; June.
Poa palustris L. Fowl Meadow Grass. Swale; infrequent; June.
 **Poa pratensis* L. Kentucky Bluegrass. Moist to dry prairie and swale; locally abundant in southwestern corner and near fences, infrequent to common elsewhere; May.
 **Setaria lutescens* (Weigel) F. T. Hubb. Yellow Foxtail. Disturbed areas near southwestern corner; infrequent; July.
Sorghastrum nutans (L.) Nash Indian Grass. Moist to dry prairie; frequent; Aug.
Spartina pectinata Link Slough Grass. Swale; locally abundant in three clones; July.
Sphenopholis obtusata var. *major* (Torr.) Erdman Wedge Grass. Swale; infrequent; June.
Sporobolus cryptandrus (Torr.) A. Gray Sand Dropseed. Dry prairie; infrequent; Sept.
Sporobolus heterolepis (A. Gray) A. Gray Prairie Dropseed. Mesic to dry prairie; frequent; Aug.
Stipa spartea Trin. Porcupine Grass. Moist to dry prairie; common; May.

*Plants not indigenous to North America.

Iridaceae (Iris Family)

Iris virginica L. var. *schrevei* (Small) E. Andres. Blue Flag. Marsh edges; infrequent; May.

Sisyrinchium campestre Bickn. Blue-eyed-grass. Moist to dry prairie; common; May.

Juncaceae (Rush Family)

Juncus canadensis J. Gay Spring and marsh in the blowout; rare; Aug.

Juncus greenei Oakes & Tuckerm. Moist to mesic prairie; common; July.

Juncus tenuis Willd. Path Rush. Moist prairie; infrequent; June.

Juncus vaseyi Engelm. Moist to mesic prairie; infrequent; July.

Lemnaceae (Duckweed Family)

Lemna minor L. Duckweed. Marshes and spring; common.

Spirodela polyrhiza (L.) Schleiden Giant Duckweed. Marsh; rare.

Liliaceae (Lily Family)

Smilacina stellata (L.) Desf. False Solomon's Seal. Moist prairie; locally abundant along the southern rim of the swale, infrequent elsewhere; May.

Orchidaceae (Orchid Family)

Liparis loeselii (L.) Rich. Twayblade. Moist prairie near the northeastern corner; rare; June.

Spiranthes cernua (L.) Rich. Ladies' Tresses. Moist prairie; rare; Aug.

Sparganiaceae (Bur-reed Family)

Sparganium americanum Nutt. Bur-reed. South marsh; locally common; June.

Typhaceae (Cat-tail Family)

Typha latifolia L. Cat-tail. South marsh; infrequent clones; June.

DICOTYLEDONEAE

Aceraceae (Maple Family)

Acer negundo L. Boxelder. Swale; rare; May.

Acer saccharinum L. Silver Maple. Swale; infrequent; April.

Amaranthaceae (Amaranth Family)

Froelichia floridana (Nutt.) Moq. Cottonweed. Driest prairie; infrequent; Aug.

Anacardiaceae (Cashew Family)

Rhus radicans L. Poison Ivy. Moist prairie, on fence-line; rare; May.

Apocynaceae (Dogbane Family)

Apocynum sibiricum Jacq. Indian Hemp. Marsh edge; one small population, rare; June.

Asclepiadaceae (Milkweed Family)

Asclepias amplexicaulis J. E. Smith. Dry prairie; infrequent; June.

Asclepias incarnata L. Swamp Milkweed. Marsh edges and swale; infrequent; July.

Asclepias syriaca L. Common Milkweed. Mesic prairie in disturbed areas; infrequent; June.

Asclepias verticillata L. Whorled Milkweed. Dry prairie; infrequent; June.

Asclepias viridiflora Raf. Green Milkweed. Dry prairie; infrequent; June.

Betulaceae (Birch Family)

Corylus americana Walt. Hazel Nut. Swale; rare; April.

Boraginaceae (Borage Family)

Lithospermum canescens (Michx.) Lehm. Hoary Puccoon. Mesic to dry prairie; common; May.

Lithospermum carolinense (Walt.) MacM. Puccoon. Mesic to dry prairie; frequent; May.

Campanulaceae (Bluebell Family)

Campanula aparinoides Pursh Marsh Bellflower. Marsh edges and swale; common; June.

Lobelia siphilitica L. Great Blue Lobelia. Marsh edges and swale; infrequent; Aug.

Lobelia spicata Lam. Pale-spice Lobelia. Moist prairie; frequent; June.

Cannabinaceae (Hemp Family)

**Cannabis sativa* L. Marijuana. Disturbed area near the south-

western boundary; infrequent; July.

Caprifoliaceae (Honeysuckle Family)

**Lonicera tatarica* L. Tartarian Honeysuckle. Moist prairie; only one plant was seen; May.

Sambucus canadensis L. Elderberry. Swale near northern boundary; rare; June.

Viburnum lentago L. Nannyberry. Swale near northern boundary; only one plant was seen; May.

Caryophyllaceae (Pink Family)

**Cerastium vulgatum* L. Mouse-ear Chickweed. Swale; infrequent; June.

Stellaria longifolia Muhl. Chickweed. Swale; frequent; June.

Chenopodiaceae (Goosefoot Family)

Chenopodium album L. Lamb's-quarters. Disturbed areas near road and southwestern boundary; infrequent weed; July.

Cistaceae (Rockrose Family)

Helianthemum bicknellii Fern. Frostweed. Mesic to dry prairie; frequent; June.

Lechea stricta Leggett Pinweed. Dry prairie; frequent; Aug.

Compositae (Sunflower Family)

Achillea millefolium L. Yarrow. Mesic to dry prairie; frequent; June.

Ambrosia artemisiifolia L. Common Ragweed. Disturbed areas along fence-lines; infrequent; Aug.

Ambrosia psilostachya DC. Perennial Ragweed. Dry prairie; abundant; Aug.

Ambrosia trifida L. Giant Ragweed. Disturbed area near the entrance on northwestern corner; rare; Aug.

Antennaria neglecta Greene Pussy-toes. Dry prairie; common; May.

Artemisia ludoviciana Nutt. White Sage. Mesic to dry prairie; frequent to locally abundant; Sept.

Aster azureus Lindl. Bright Blue Aster. Moist prairie; infrequent; Aug.

Aster ericoides L. Heath Aster. Moist to mesic prairie and swale; common; Aug.

Aster novae-angliae L. New England Aster. Moist prairie and swale; frequent; Aug.

Aster puniceus L. Red-stem Aster. Moist prairie and swale; frequent; Aug.

Aster simplex Willd. Moist prairie and swale; infrequent; Aug.

Aster umbellatus Mill. Flat-topped White Aster. Swale; common; Aug.

Bidens cernua L. Stick-tight. Marsh edges and swale; infrequent; Aug.

Bidens coronata (L.) Britt. Swamp Beggar-ticks. Marsh edges and swale; infrequent; Aug.

**Cirsium arvense* (L.) Scop. Canada Thistle. One clone near the northeastern corner, apparently absent elsewhere; July.

Cirsium discolor (Muhl.) Spreng. Field Thistle. Moist to mesic prairie; infrequent; July.

Conyza canadensis (L.) Cronq. Horseweed. Disturbed areas on mesic to dry prairie; infrequent; July.

Coreopsis palmata Nutt. Tickseed. Moist to dry prairie; frequent to locally abundant; June.

Erechtites hieracifolia (L.) Raf. Fireweed. Marsh edges; infrequent; Aug.

Erigeron strigosus Muhl. Daisy-fleabane. Moist to dry prairie; common; June.

Eupatorium maculatum L. Joe-Pye Weed. Swale; frequent; July.

Eupatorium perfoliatum L. Boneset. Marsh edges and swale; common; July.

Helianthus grosseserratus Martens Sunflower. Swale; frequent; Aug.

Helianthus laetiflorus Pers. Sunflower. Mesic to dry prairie; infrequent; Aug.

Krigia biflora (Walt.) Blake Dwarf Dandelion. Moist prairie; frequent; June.

Kuhnia eupatorioides L. False boneset. Mesic to dry prairie; frequent; Aug.

- Lactuca canadensis* L. Wild Lettuce. Moist to mesic prairie; frequent; Aug.
- Liatris aspera* Michx. Blazing Star. Mesic to dry prairie; abundant; late July, with peak in mid-Aug.
- Liatris pycnostachya* Michx. Blazing Star. Moist prairie; infrequent; July.
- Prenanthes racemosa* Michx. Rattlesnake-root. Moist prairie; rare; Aug.
- Rudbeckia hirta* L. Black-eyed Susan. Moist to mesic prairie; common; June.
- Rudbeckia subtomentosa* Pursh Sweet Coneflower. Swale; infrequent; Aug.
- Senecio pauperculus* Michx. Groundsel. Mesic to dry prairie; locally abundant to frequent; June.
- Solidago canadensis* L. Pasture Goldenrod. Moist to mesic prairie; frequent; Aug.
- Solidago gigantea* Ait. Large Goldenrod. Moist to mesic prairie; infrequent; Aug.
- Solidago graminifolia* (L.) Salisb. Bushy Goldenrod. Swale; frequent; Aug.
- Solidago missouriensis* Nutt. Mesic to dry prairie; abundant; late July, with peak in mid-Aug.
- Solidago nemoralis* Ait. Field Goldenrod. Mesic to dry prairie; frequent; Aug.
- Solidago rigida* L. Stiff Goldenrod. Mesic to dry prairie; infrequent; Aug.
- Solidago speciosa* Nutt. Slender Showy Goldenrod. Mesic to dry prairie; Aug.
- **Taraxacum officinale* Weber Dandelion. Weed of mesic to dry prairie; infrequent, except, common along the southern boundary; May.
- **Taraxacum laevigatum* (Willd.) DC. Red-seeded Dandelion. Mesic to dry prairie; infrequent; May.
- **Tragopogon dubius* Scop. Goat's Beard. Mesic to dry prairie; frequent; June.
- Vernonia fasciculata* Michx. Ironweed. Marsh edges and moist prairie; infrequent; Aug.
- Convolvulaceae (Morning-glory Family)*
- Convolvulus sepium* L. Hedge Bindweed. Mesic prairie, along the northern boundary; infrequent; June.
- Cornaceae (Dogwood Family)*
- Cornus racemosa* Lam. Panicked Dogwood. Moist prairie and swale; frequent; June.
- Cruciferae (Mustard Family)*
- **Lepidium densiflorum* Schrad. Pepper Grass. Dry prairie; infrequent; June.
- Rorippa islandica* (Oeder) Borbas Yellow Cress. Spring; rare; June.
- Euphorbiaceae (Spurge Family)*
- Euphorbia corollata* L. Flowering Spurge. Mesic to dry prairie; abundant; June.
- Euphorbia geyeri* Engelm. Prostrate Spurge. Dry prairie; infrequent; Aug.
- Euphorbia glyptosperma* Engelm. Prostrate Spurge. Dry prairie; infrequent; Aug.
- Gentianaceae (Gentian Family)*
- Gentiana andrewsii* Griseb. Closed Gentian. Moist prairie; infrequent; Sept.
- Gentiana puberula* Michx. Prairie Gentian. Dry prairie; rare; Sept.
- Hypericaceae (St. John's-wort Family)*
- Hypericum majus* (A. Gray) Britt. St. John's-wort. Marsh edges and swale; common; July.
- Hypericum mutilum* L. St. John's-wort. Swale; common; July.
- Triadenum fraseri* (Spach) Gl. Marsh St. John's-wort. Swale; common; July.
- Labiatae (Mint Family)*
- Hedeoma hispida* Pursh Mock-pennyroyal. Dry prairie, infrequent; June.
- Lycopus americanus* Muhl. Bugleweed. Moist prairie; frequent; July.
- Monarda fistulosa* L. Horsemint. Moist to mesic prairie; infrequent; July.
- Prunella vulgaris* L. Self-heal. Moist to mesic prairie; common; July.
- Pycnanthemum flexuosum* (Walt.) BSP. Mountain Mint. Moist prairie and swale; common, July.
- Scutellaria galericulata* L. Skullcap. Swale; rare; June.
- Scutellaria lateriflora* L. Mad-dog. Swale; infrequent; Aug.
- Scutellaria parvula* Michx. Skullcap. Moist to dry prairie; frequent; May.
- Stachys palustris* L. Hedge Nettle. Marsh edges and swale; frequent; May.
- Leguminosae (Legume Family)*
- Amorpha canescens* Pursh Lead-plant. Mesic to dry prairie; frequent; July.
- Baptisia leucophaea* Nutt. Wild Indigo. Moist to mesic prairie; infrequent; June.
- Desmodium canadense* (L.) DC. Tick Trefoil. Moist prairie and swale; infrequent; July.
- Gleditsia triacanthos* L. Honey Locust. One tree, about 4 m, which did not flower was near the northern boundary.
- Lespedeza capitata* Michx. Bush-clover. Mesic to dry prairie; common; Aug.
- Petalostemon candidum* (Willd.) Michx. White Prairie-clover. Mesic to dry prairie; frequent; July.
- Petalostemon purpureum* (Vent.) Rydb. Purple Prairie-clover. Mesic to dry prairie; frequent; July.
- **Trifolium pratense* L. Red Clover. Disturbed roadway, near northwestern corner; rare; June.
- **Trifolium repens* L. White Clover. Disturbed roadway, near northwestern corner; rare; June.
- Lentibulariaceae (Bladderwort Family)*
- Utricularia vulgaris* L. Bladderwort. Marsh on southern boundary; frequent; June.
- Linaceae (Flax Family)*
- Linum sulcatum* Riddell Grooved Yellow Flax. Dry prairie; infrequent; July.
- Lythraceae (Loosestrife Family)*
- Lythrum alatum* Pursh Loosestrife. Swale; frequent; June.
- Oleaceae (Olive Family)*
- Fraxinus pennsylvanica* Marsh. Green Ash. One small tree was found by the abandoned roadway near the northwestern corner.
- Onagraceae (Evening-primrose Family)*
- Epilobium coloratum* Biehler Willow Herb. Swale; infrequent; Aug.
- Ludwigia polycarpa* Short & Peter Swale; infrequent; July.
- Oenothera biennis* L. Evening-primrose. Moist to dry prairie; frequent; July.
- Oenothera rhombipetala* Nutt. Dry prairie; infrequent; July.
- Oxalidaceae (Wood-sorrel Family)*
- Oxalis stricta* L. Yellow Wood-sorrel. Mesic to dry prairie; infrequent; May.
- Oxalis violacea* L. Violet Wood-sorrel. Moist to dry prairie; frequent; May.
- Plantaginaceae (Plantain Family)*
- Plantago aristata* Michx. Buckhorn. Driest prairie; infrequent; July.
- Plantago purshii* R. & S. Woolly Plantain. Driest prairie; infrequent; July.
- Plantago rugelii* Dcne. Common Plantain. Moist to dry prairie; infrequent; June.
- Polemoniaceae (Phlox Family)*
- Phlox maculata* L. Wild Sweet William. Moist prairie and swale; infrequent; June.
- Phlox pilosa* L. Prairie Phlox. Swale; infrequent; June.
- Polygalaceae (Milkwort Family)*
- Polygala sanguinea* L. Milkwort. Moist to mesic prairie; infrequent; July.
- Polygonaceae (Smartweed Family)*
- Polygonum coccineum* Muhl. Water Smartweed. Marshes; infrequent; July.

Polygonum convolvulus L. Wild Buckwheat. Moist prairie; twining on other plants; rare; June.

**Polygonum hydropiper* L. Water Pepper. Marsh edges; infrequent; July.

Polygonum pennsylvanicum L. Pinkweed. Marsh edges; infrequent; July.

Polygonum punctatum Ell. Water Smartweed. Marsh edges and swale; infrequent; July.

Polygonum sagittatum L. Tear-thumb. Abundant in swale, infrequent in marshes; July.

**Rumex acetosella* L. Red Sorrel. Mesic to dry prairie; frequent to locally abundant; May.

**Rumex crispus* L. Sour Dock. Marsh edges and swale; infrequent; June.

Rumex orbiculatus A. Gray Great Water Dock. Swale; infrequent; July.

Primulaceae (Primrose Family)

Dodecatheon meadia L. Shooting Star. Moist to mesic prairie; infrequent; May.

Lysimachia hybrida Michx. Loosestrife. Marsh edges and swale; infrequent; June.

Lysimachia terrestris (L.) BSP. Swamp Candles. Swale; rare; June.

Ranunculaceae (Buttercup Family)

Anemone canadensis L. Anemone. Swale; locally abundant near western end, apparently absent elsewhere; May.

Anemone cylindrica A. Gray Windflower. Mesic to dry prairie; frequent; June.

Caltha palustris L. Marsh Marigold. Swale; locally abundant; April.

Delphinium virescens Nutt. Larkspur. Mesic to dry prairie; frequent; June.

Ranunculus fascicularis Muhl. Buttercup. Moist to mesic prairie; infrequent; May.

Thalictrum dasycarpum Fisch. & Avé-Lall Moist prairie and swale; infrequent; June.

Rhamnaceae (Buckthorn Family)

Ceanothus americanus L. New Jersey Tea. Mesic prairie; rare, only one robust shrub was found; July.

Rosaceae (Rose Family)

Agrimonia parviflora Ait. Agrimony. Moist prairie; rare; July.

Crataegus mollis (T. & G.) Scheele Hawthorne. Moist prairie; rare, a small clump of trees was near the northern boundary, which apparently failed to flower.

Fragaria virginiana Duchesne Strawberry. Moist to dry prairie; locally abundant; May.

Potentilla arguta Pursh Tall Cinquefoil. Mesic to dry prairie; frequent; June.

Potentilla norvegica L. Cinquefoil. Spring; rare; June.

**Potentilla recta* L. Five-finger. Mesic to dry prairie; infrequent; June.

Potentilla simplex Michx. Old-field Cinquefoil. Moist to dry prairie; common; May.

Prunus americana Marsh. Wild Plum. Mesic prairie; locally abundant in two small thickets; May.

Prunus serotina Ehrh. Black Cherry. Moist to mesic prairie; rare; May.

Rosa carolina L. Wild Rose. Mesic to dry prairie; infrequent; June.

Rosa suffulta Greene Wild Rose. Mesic prairie; infrequent; June.

Rubus allegheniensis Porter Common Blackberry. Swale, above the spring; locally common; May.

Rubus flagellaris L. Northern Dewberry. Swale; locally abundant; May.

Spiraea alba DuRoi Meadow Sweet. Marsh edges and swale; locally abundant, forming small thickets; June.

Rubiaceae (Madder Family)

Galium obtusum Bigel. Bedstraw. Swale; frequent; June.

Galium trifidum L. Bedstraw. Swale; frequent; June.

Rutaceae (Rue Family)

Xanthoxylum americanum Mill. Prickly Ash, Toothache-tree. Moist prairie; a small thicket was present near the northern boundary; May.

Salicaceae (Willow Family)

Populus tremuloides Michx. Quaking Aspen. Swale; infrequent; May.

Salix bebbiana Sarg. Beaked Willow. Swale; infrequent; May.

Salix candida Fluegge Sage-leaved Willow. Swale; rare, only two shrubs were found; May.

Salix discolor Muhl. Pussy Willow. Marshes and swale; frequent; April.

Salix petiolaris Sm. Willow. Marshes and swale; April.

Salix rigida Muhl. Heart-leaved Willow. Swale; infrequent; April.

Santalaceae (Sandalwood Family)

Comandra umbellata (L.) Nutt. Bastard Toad-flax. Mesic to dry prairie; frequent; May.

Saxifragaceae (Saxifrage Family)

Heuchera richardsonii R. Br. Prairie Alumroot. Moist to mesic prairie; infrequent; June.

Penthorum sedoides L. Ditch Stonecrop. Swale; infrequent; July.

Saxifraga pennsylvanica L. Swamp Saxifrage. Swale; frequent; May.

Scrophulariaceae (Figwort Family)

Mimulus ringens L. Monkey Flower. Swale; infrequent; July.

Gerardia purpurea L. Gerardia. Marsh edges; rare; Aug.

Pedicularis lanceolata Michx. Lousewort. Moist prairie; infrequent; Aug.

Veronica scutellata L. Speedwell. Swale; rare; June.

Veronicastrum virginicum (L.) Farw. Culver's Root. Marsh edges and swale; frequent; July.

Solanaceae (Nightshade Family)

Physalis heterophylla Nees Ground Cherry. Mesic prairie; infrequent; June.

Physalis virginiana Mill. Moist to dry prairie; frequent; June.

Solanum carolinense L. Horse Nettle. Mesic prairie; rare; apparently restricted to a small disturbed area near the southeastern boundary; July.

Solanum nigrum L. Black Nightshade. Marsh edge; apparently rare; Aug.

Ulmaceae (Elm Family)

Ulmus americana L. American Elm. Swale; infrequent, a number of small trees, mostly under 3 m, were growing on drier parts of the swale; April.

**Ulmus pumila* L. Siberian Elm. Moist to dry prairie; infrequent, apparently the seed source was a wind break across the road, west of the prairie. Most of the trees are under 2 m.

Umbelliferae (Parsley Family)

Cicuta maculata L. Water Hemlock. Marshes and swale; infrequent; June.

Eryngium yuccifolium Michx. Rattlesnake-master. Moist prairie; rare, only one plant was found, near the western boundary; Aug.

Oxypholis rigidior (L.) Raf. Cowbane. Marshes and swale; infrequent; Aug.

Sium suave Walt. Water Parsnip. Swale; rare; Aug.

Verbenaceae (Vervain Family)

Verbena hastata L. Blue Vervain. Marsh edges and moist prairie; frequent; July.

Verbena X rydbergii Moldenke (*V. hastata* X *V. stricta*). Mesic prairie; infrequent; June.

Verbena stricta Vent. Hoary Vervain. Moist to dry prairie; frequent; June.

Violaceae (Violet Family)

Viola papilionacea Pursh Meadow Violet. Swale; infrequent; May.

Viola pedata L. Bird-foot Violet. Mesic prairie; locally abundant, with obvious variation between clones; May.

Viola pedatifida G. Don Prairie Violet. Mesic prairie; infrequent; May.

Viola sagittata Ait. Arrow-leaved Violet. Moist to mesic prairie; frequent; May.

Viola sororia Willd. Woolly Blue Violet. Swale; infrequent; May.

Vitaceae (Grape Family)

Parthenocissus vitacea (Knerr) Hitch. Virginia Creeper. Moist to mesic prairie; infrequent along boundary fence-lines; May.

Vitis riparia Michx. Wild Grape. Mesic prairie; rare.

SUMMARY

	Families	Genera	Species	
			Native	Naturalized
Pteridophyta	2	3	5	0
Spermatophyta				
Gymnospermae	1	1	1	0
Angiospermae				
Monocotyledoneae	12	49	81	7
Dicotyledoneae	48	118	171	15
Subtotal			258	22
Total	63	171		280

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