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The Vegetation of Stinson Prairie, Kossuth County, Iowa

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Stinson Prairie, a 12.5 ha native preserve, is a rich grassland exhibiting the full range of prairie vegetation. Situated on a rolling moraine, topographic differences produce four main vegetation types: dry prairie, mesic prairie, swales and

potholes. Species richness is highest in the mesic prairie and lowest in the swales and potholes. Stinson Prairie, although small, is well preserved, and compared to Kalsow Prairie (mesic) and Sheeder Prairie (dry), shows a well-developed vegetation gradient. *Cypripedium candidum*, an orchid rare in Iowa, is found on Stinson Prairie.

INTRODUCTION

Although 85% of Iowa was once covered by prairie (Dick-Peddie, 1955), the native grassland presently exists only as small remnants in private and public ownership. Stinson Prairie is a state prairie preserve of about 12.5 hectares (31 acres) located in section 13, T 95 N, R 30 W, Kossuth County, Iowa, about eight kilometers (five miles) west of Algona. The preserve was obtained by the Kossuth County Conservation Board in 1969, prior to which it was privately owned and mowed for prairie hay. In 1971, the area was placed in the State Preserves System. Since then, the only management activities have been a burning of the front (east) one-half in 1972 and 1976, the back one-half in 1973, and construction of a small parking lot.

It is the purpose of this paper to describe and interpret some important features of Stinson Prairie. Specifically addressed are: a) a description of the prairie, including a vegetation map and a species list; and b) a comparison of Stinson Prairie with Kalsow Prairie (Pocahontas County) and Sheeder Prairie (Guthrie County).

STINSON PRAIRIE

Climate. The climate of the area is illustrated by the records for Algona, the nearest station. The area is characterized by cold winters and warm summers, with moderate but variable precipitation. The mean January temperature is -8.5 C (16.7 F); the mean July temperature is 23.2 C (73.7 F). There are an average of 156 days between spring and fall frosts. Annual precipitation averages 769 mm (30.38 in), of which 74% (571 mm) falls in the summer. Much of the precipitation occurs in brief but severe storms. The climate is classified as cool mesothermal subhumid in the Thornwaite (1948) system, and as cool temperate continental by Cloudsley-Thompson (1975). Figure 1 shows a climate diagram (Walter, 1973) for the region.

Geology and Soils. Stinson Prairie is perched on the Algona moraine, a recessional moraine caused by stagnant ice. To the south is a level outwash plain, while to the north the topography is gently undulating with numerous depressions and potholes (most of which now are drained for cultivation). The moraine itself is rolling and broken (Fig. 2), causing substantial differences in soil conditions which, in turn, produce a widely varying vegetation.

The parent material of the moraine is glacial till, but the soil-formation processes of prairie plant decay yield rich, black soils which may have little structural or chemical relation to the till. On Stinson

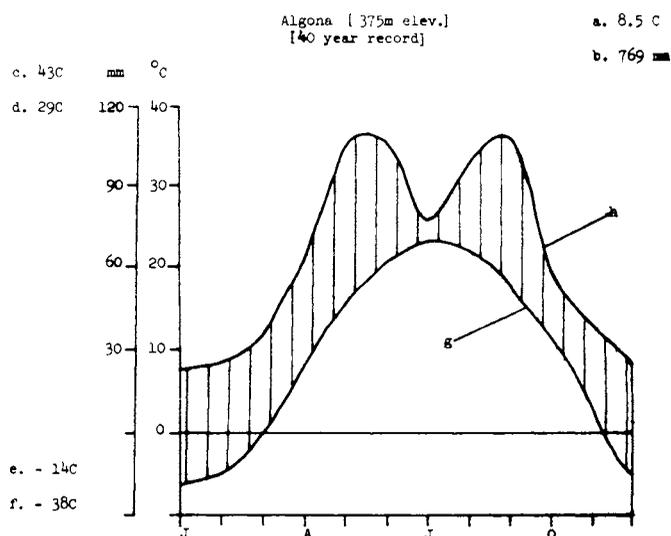


Figure 1

Climate diagram for Stinson Prairie. a – mean annual temperature, b – mean annual precipitation, c – highest temperature recorded, d – mean July daily maximum temperature, e – mean January daily minimum temperature, f – lowest temperature recorded, g – curve of mean monthly temperature, h – curve of mean monthly precipitation. Data from Algona, Iowa, 5 miles east of Stinson Prairie.

Prairie drainage differences have produced two main types of soil. Webster soils are found in the moist swales and pothole depressions. Clarion soils are found over the uplands of the prairie.

Surface pH is relatively low (5.1) on the hills and crests because of leaching, and increases downslope into the depressions. The highest pH (7.7) is at the "old shoreline" of the potholes, because of calcium recharge due to upward capillary movement of water.

Soil moisture tends to be very low on the crests and upper slopes during the drier and hotter parts of the summer. The depressions and swales have moist soils, being almost saturated except during periods of extreme drought. The potholes retain standing water into June and occasionally July, but then dry up until the fall, although the pothole soil itself stays moist.

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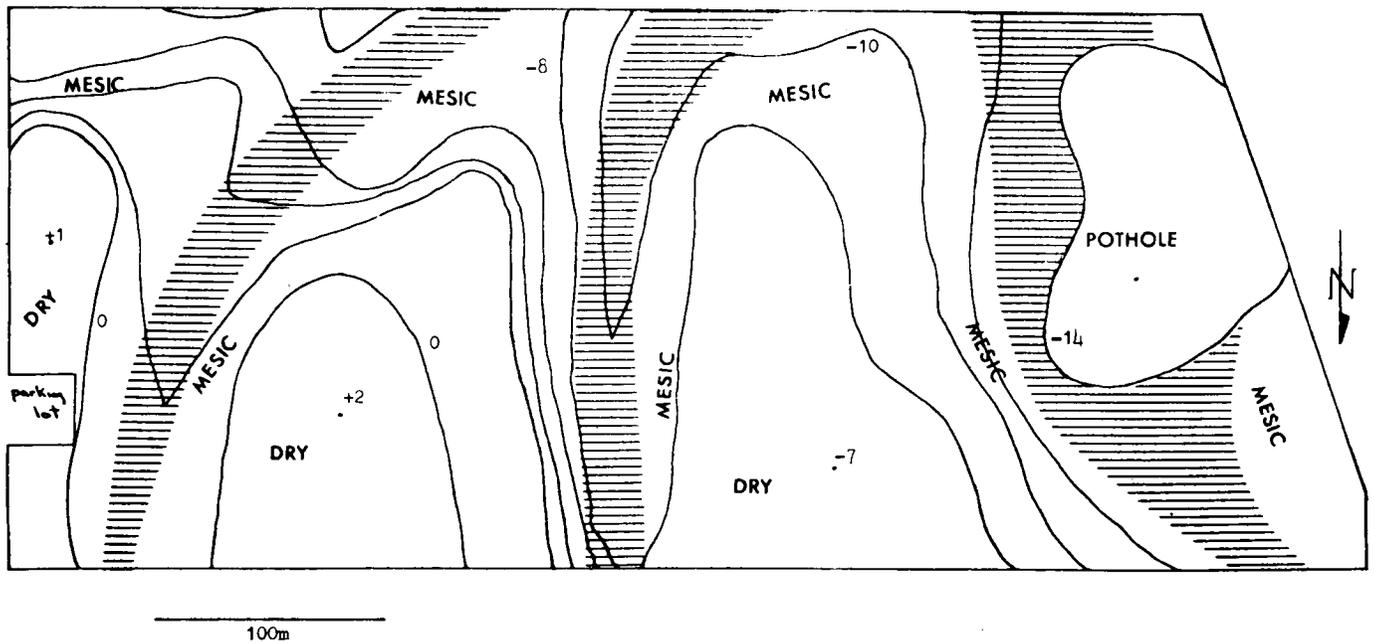


Figure 2

Vegetation map of Stinson Prairie. Elevations are in meters, with the reference point (elev. 0) at the NW corner of the parking lot. Contour intervals are 2m. Swales are shown as lined areas.

Vegetation. Stinson Prairie shows variation in vegetation over a relatively small area because of the topographic and soil differences. There are many species in the Preserve; at least 175 species have been distinguished on the site, and it is likely that several more are to be found (Appendix I; identification and nomenclature follow Gleason (1952), except the Cyperaceae (follows Gilly, 1946) and the Gramineae (follows Pohl, 1966). Although the vegetation is mixed and variable, four basic types can be recognized (Fig. 2): dry prairie, mesic prairie, swales, and potholes. In addition to the four basic types, special types of vegetation appear in disturbed areas.

Dry Prairie. Dry prairie occurs on the well-drained upper slopes and crests of the hills. This vegetation tends to be somewhat lower in stature than the rest, giving an open appearance to the ridges. However, the sod is dense and the litter layer is thick, indicating the openness is due to low plant height, not low plant density. Although many species are found in this vegetation, it may be characterized by several grasses, needlegrass (*Stipa spartea*), little blue-stem (*Andropogon scoparius*), side-oats grama (*Bouteloua curtipendula*), and rosette panic-grass (*Panicum scribnerianum*); and by these forbs: leadplant (*Amorpha canescens*) pasque-flower (*Anemone patens*), purple cone-flower (*Echinacea pallida*), showy sunflower (*Helianthus laetiflorus*), many-flowered aster (*Aster ericoides*), and blazing star (*Liatris aspera*).

Mesic Prairie. This vegetation type is found on the relatively well-drained lower slopes where soil moisture is either greater, or the soil tends to dry out later, than that of the dry prairie. The mesic prairie is taller in aspect than the dry prairie, some of the grasses and forbs reaching to nearly head height. As in the dry prairie, many species are found in this type; grasses that are particularly characteristic include big

blue-stem (*Andropogon gerardii*), switch-grass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*); common forbs are toothed sunflower (*Helianthus grosseserratus*), simple aster (*Aster simplex*), mountain mint (*Pycnanthemum virginianum*), tick-trefoil (*Desmodium canadense*), and New Jersey tea (*Ceanothus americanus*). There is no clear or definite boundary between the dry and mesic prairie types. Rather, they merge imperceptibly along the moisture gradient of the hill slopes.

Swales. There are three swales on Stinson Prairie, running from north to south. One of these surrounds the potholes of the western end, the other two are narrow bands running between ridges. These areas are drainage routes where soil moisture is generally high; often the soil remains nearly saturated with moisture below the surface. In this environment, a number of species not found in the dry or mesic prairie types are seen. The characteristic grass is slough-grass (*Spartina pectinata*), while Canada anemone (*Anemone canadensis*) is the characteristic forb. The slough-grass grows very densely, and completely dominates the vegetation; most other species in this type grow under the slough-grass canopy. Because the swales drain cultivated fields to the north, weed seeds wash in. Thus, plants such as dock (*Rumex* spp.) and giant ragweed (*Ambrosia trifida*) may be found in this habitat.

In contrast to the imperceptible merging of the dry and mesic prairies, there are distinct border areas between the mesic prairie and swales. These borders, a few meters wide, are the lower limits of the distributions of many upland species, and the upper boundary of many of the species found in the swale community. The border zones appear to coincide with the highest elevations of soil moisture saturation. Around the potholes at the western end, this border area coincides with the higher reaches of the water level during the wet season (spring).

Potholes. At the western end of Stinson Prairie are two depressions ("potholes") which contain standing water into spring and sometimes mid-summer. There are many fewer species in this habitat than in the upland prairie types, and many of the pothole species have distinct morphologies, so that a pothole has the appearance of being divided

into several "zones". However, the distributions of the species overlap such that the zones actually intergrade one with another.

The vegetation of the potholes is dominated by very tall and dense rushes (*Scirpus fluviatilis*, innermost part of the potholes), sedges (*Carex* spp., probably *C. atherodes* and *C. aquatilis*), and slough-grass and blue-joint (*Calamagrostis canadensis*) around the outer parts of the potholes, with a tangle of Devil's shoe-string (*Polygonum coccineum*) in the lower stratum of the rushes and sedges.

Disturbance vegetation. In some of the disturbed areas of Stinson Prairie, vegetation changes have occurred which produce an altered species composition and appearance. The two important sources of disturbance are mowing for prairie hay previous to establishment of the preserve, and weeds perhaps due to spray drift or blown soil from adjacent fields and the road along the east edge.

The upland nearest the road (the easternmost upland, Fig. 2) shows the greatest effect of mowing. Strong elements of smooth brome grass (*Bromus inermis*), timothy (*Phleum pratense*), sweet clover (*Melilotus alba* and *M. officinale*) and red clover (*Trifolium pratense*) are evident in this area. The sweet clover and brome grass are especially noticeable right along the road-side, indicating the effect of road construction and maintenance. Mowing for hay has ceased since the prairie was placed in the Preserves system. Regular fire management should help to eliminate these disturbance species.

Weeds invading from the adjacent fields enter the heart of the prairie mainly in the drainage swales, where water coursing through carries weed seeds from higher cultivated fields. Around the edges of the Preserve, weedy species have invaded wherever cultivation has opened the sod or where wind-blown soil has been deposited. These problems appear mainly along the west edge; otherwise wind-blown soil on Stinson Prairie is not serious.

Diversity. There is an increase in species richness (number of species per area) toward the mesic prairie. The dry prairie showed 36 species per 15 m². Along the gradient of increasing moisture, intermediate stands had 40 and 52 species, whereas 56 species were recorded in the same-sized plot in the mesic type. However, in the slough-grass swale community, diversity was much lower; only 24 species were found in a 15m² sample in this type.

The concentration of dominance (Simpson's Index) was very low in all the upland prairie samples ($c = .06-.07$), indicating that no species was particularly or overwhelmingly abundant in the upland vegetation. The swale again was distinctly different, having a high dominance concentration ($c = .39$) by the blanket of slough-grass.

Similar increases in species richness from dry to mesic prairie were found by Levin and Keleher (1969) and Bliss and Cox (1964). These latter also found the same low richness in slough-grass swales as was found in Stinson Prairie. On the other hand, Hladek, *et al.* (1972) found the highest species richness on the dry end of the gradient. In general, plant species diversity lacks uniform patterns along moisture gradients (Lewin, 1973), perhaps because of the independent nature of community evolution (Whittaker, 1976).

Regional Relationships. The dry prairie as described here contains elements of the *Andropogon scoparius* type and the *Stipa spartea* type of Weaver and Fitzpatrick (1934), and the *A. scoparius* and *S. spartea-A. scoparius* types of Conard (1952). The mesic prairie type on Stinson corresponds to the *Andropogon gerardii* association of Conard (1952) and has elements of both the Panicum-Elymus type and *A. gerardii* type of Weaver and Fitzpatrick (1934). Conard (1952) briefly described a *Scirpus fluviatilis* association which is equivalent to the center of the Stinson prairie pothole community, and both Conard (1952) and Weaver and Fitzpatrick (1934) described a *Spartina pectinata* type, which is like the swales of Stinson Prairie.

Vegetation types are abstractions of the basically continuous structure of vegetation (Whittaker, 1956, 1967; Curtis, 1959). The vegetation continuum that follows an environmental gradient is termed a

coenocline (Whittaker, 1967). Stinson Prairie exhibits this form of vegetation structure, a fine example being found along the moisture gradient at the western end (Fig. 2). Within 100 m, a complete natural coenocline from dry ridge (needle grass-little bluestem-pasque flower) to pothole (river bulrush) can be found.

COMPARISON OF STINSON, KALSOW AND SHEEDER PRAIRIES

Environmentally and biologically, Stinson, Kalsow and Sheeder Prairies are all examples of the tall-grass prairie formation. However, there are a number of differences between these prairies, which shows the variety of aspects the tall-grass prairie can present. Similarities and differences between these preserves are discussed here to show the degree of ecological diversification within a major vegetation formation. The vegetation of Kalsow Prairie was discussed by Brotherson (1969) and Richards (1970). Kennedy (1969) reported on Sheeder Prairie.

Environments. Geographically, Stinson Prairie is the northernmost of the three, Sheeder Prairie is the southernmost, and Kalsow is in-between. Temperatures are somewhat cooler to the north, but differences of growing season and precipitation probably are not significant. Since 1964, Stinson Prairie has been burned once. Kalsow Prairie has been burned several times. Sheeder was hayed until 1965, and burned since, but no burn occurred between 1945 and 1965.

Stinson and Kalsow Prairies were glaciated by the recent Wisconsin glaciation. Sheeder, being farther south, escaped this ice sheet, and the surface of the land in that area is therefore much older. As a consequence, it is dissected and rolling. For similar reasons, the soil association of the Sheeder Prairie region (Shelby-Sharpsburg-Mackburg association) differs from that of the other two prairies, both of which share the same soil association (Clarion-Nicollet-Webster association). Kalsow and Stinson are also similar in that both have potholes. However, Stinson, because the land is on a moraine, has a rolling topography more like Sheeder than Kalsow, which presents a flat appearance.

With respect to disturbance, Stinson Prairie suffered little except for some cutting for hay. Sheeder, in addition to haying, also contains a small plowed border, and was lightly grazed. Kalsow was also cut for hay, and a portion of the preserve was heavily grazed. Even after 30 years this grazed area has yet to show the diversity of the original prairie. In addition, Kalsow is unique in that it contains a number of mima mounds, small (2-4 m diameter) bumps of unknown origin in the land surface, which show a characteristic disturbance vegetation (Brotherson 1969, Richards 1970).

Floristics. Of the three prairies, Kalsow has the most species, well over 200. Stinson and Sheeder, both smaller areas, have roughly equal numbers of species, around 180. Many species are shared by all three prairies, as indicated by coefficients of community (Sørensen 1948) of 57.1 (100 maximum) between Stinson and Sheeder, and 69.8 between Stinson and Kalsow. However, the dominant or most abundant species are different from site-to-site, as shown in Table 1. One difference of note is the abundance of prairie dropseed (*Sporobolus heterolepis*). This species, very dominant on Kalsow Prairie, is found in moderate amounts on Sheeder, and very sparsely on Stinson.

Sheeder Prairie has several important species not found on the other areas: rosin-weed (*Silphium intergrifolium*), upland willow (*Salix humilis*), and redroot (*Ceanothus ovatus*), all species of dry grasslands. Two unusual species found only on Stinson Prairie are the small white lady-slipper (*Cypripedium candidum*), a rare species in Iowa, and the buttercup (*Ranunculus rhomboideus*). The pothole species of Kalsow are very similar to those of Stinson, which is likely the reason for the higher coefficient of community for those two areas than for Stinson and Sheeder.

STINSON PRAIRIE VEGETATION

Table 1. Most common species in upland prairie communities in three Iowa Prairie Preserves.

Stinson Prairie (Kossuth Co.)	Kalsow Prairie ¹ (Pocahontas Co.)	Sheeder Prairie ² (Guthrie Co.)
Needle-grass (<i>Stipa spartea</i>)	Prairie dropseed (<i>Sporobolus heterolepis</i>)	Rosette panic-grass (<i>Panicum leibergii</i>)
Big blue-stem (<i>Andropogon gerardii</i>)	Big blue-stem (<i>Andropogon gerardii</i>)	Needle-grass (<i>Stipa spartea</i>)
Little blue stem (<i>Andropogon scoparius</i>)	Ky. blue-grass (<i>Poa pratensis</i>)	Little blue-stem (<i>Andropogon scoparius</i>)
Leadplant (<i>Amorpha canescens</i>)	Rosette panic-grass (<i>Panicum leibergii</i>)	Leadplant (<i>Amorpha canescens</i>)
Pasque-flower (<i>Anemone patens</i>)		Prairie phlox (<i>Phlox pilosa</i>)
Switch grass (<i>Panicum virgatum</i>)		Golden Alexanders (<i>Zizia aurea</i>)
Golden Alexander (<i>Zizia aurea</i>)		Flowering spurge (<i>Euphorbia corollata</i>)

¹Brotherson (1969), Richards (1970)

²Kennedy (1969)

In all three prairies, the same three plant families are the most common (the families having the greatest number of species present), and in the same order: composite family (Compositae), grass family (Gramineae) and legume family (Leguminosae). This ranking is common to the whole tall-grass prairie formation. The families ranking below these are different, however. On Stinson Prairie, the next most frequent families are the rose family (Rosaceae) and the dock and mint families (Polygonaceae and Labiatae). The sedge family (Cyperaceae) and dock family are next, after the legumes, on Kalsow. Sheeder Prairie has the rose family and the carrot family (Umbelliferae) after the legumes.

Vegetation Structure. Part of the reason that the three preserves show floristic differences is that Stinson Prairie shows a greater range of dry prairie to mesic prairie vegetation. Therefore, dominant species for the full range of upland prairie vegetation are demonstrated. On the other hand, Kalsow is primarily a mesic prairie, and Sheeder is primarily a dry prairie, and the dominant species in each reflect this environmental difference. In all three areas, the upland vegetation follows the continuum theory of vegetation structure (Ramensky, 1924; Gleason, 1926; Whittaker, 1956, 1975; Curtis, 1959) in that the various parts of the uplands merge imperceptibly rather than forming discrete groups (Brotherson, 1969; Kennedy, 1969; the present report).

In the potholes of Kalsow Prairie, Brotherson (1969) and Richards (1970) found discrete "zones". The actual distribution of pothole species on Stinson Prairie indicate that the continuum theory holds in the potholes as well as on the uplands, but the low number of species and distinct appearances of some of the species give the visual impression of zonation. The border between the potholes and the uplands, however, shows rapid changes in species composition and structure, and appears as a sharp transition between otherwise continual vegetation.

On Stinson Prairie, weed communities due to disturbance occur mainly in the swales. On Kalsow, weed stands are found along the west and south edges where plowed soil from adjacent fields has been

blown, and on the mima mounds. Sheeder Prairie has weed stands in the plowed area, old hay-stack positions, and drainage-ways. Thus Stinson Prairie is probably as weed-free, or more so, than the other two areas. Sheeder Prairie has a well-wooded drainage-way near the south boundary, containing mostly box-elder (*Acer negundo*), plum (*Prunus americanus*), and black willow (*Salix nigra*). Kalsow and Stinson Prairies contain very little woody vegetation.

APPENDIX

Species List
Stinson Prairie

(Nomenclature follows Gleason (1952) except where noted)

Non-flowering Plants

Equisetaceae — horsetail family

- Equisetum arvense* — common horsetail
- E. kansanum* — horsetail

Monocotyledenous Plants

Amaryllidaceae — amaryllis family

- Hypoxis hirsuta* — yellow star-grass

Commelinaceae — spiderwort family

- Tradescantia virginiana* — spiderwort

Cyperaceae — sedge family. (Follows Gilly, 1946).

- Carex atherodes* — sedge
- Carex* spp. — sedges (At least two species, but they are un-identifiable from the collected material.)
- Scirpus atrovirens* — bulrush
- S. fluviatilis* — river bulrush

Gramineae — grass family. (Follows Pohl, 1966).

- Agropyron repens* — quack grass
- A. trachycaulum* — slender wheatgrass
- Agrostis alba* — redtop
- Andropogon gerardii* — big bluestem
- A. scoparius* — little bluestem
- Bouteloua curtipendula* — side-oats grama
- Bromus inermis* — smooth brome
- Calamagrostis canadensis* — bluejoint
- C. inexpansa*
- Elymus canadensis* — Canada wildrye
- E. virginicus* — Virginia wildrye
- Hordeum jubatum* — squirreltail
- Koeleria cristata* — June grass
- Muhlenbergia racemosa*
- Panicum leibergii*
- P. scribnerianum*
- P. virgatum* — switch grass
- Phleum pratense* — timothy
- Poa compressa* — Canadian blue-grass
- P. pratensis* — Ky. blue-grass
- Sorghastrum nutans* — Indian grass
- Spartina pectinata* — slough grass
- Sporobolus heterolepis* — prairie dropseed
- Stipa spartea* — needle grass

Iridaceae — iris family

- Iris versicolor* — blue flag
- Sisyrinchium campestre* — blue-eyed grass

Liliaceae — lily family

- Allium stellatum* — wild onion

- Lilium michiganese* — Michigan lily
L. philadelphicum — wood lily
Zygadenus elegans — death camas
- Orchidaceae
Cypripedium candidum — small white ladyslipper
- Dicotyledenous Plants
- Apocynaceae — dogbane family
Apocynum sibiricum — Indian hemp
- Asclepidaceae — milkweed family
Asclepias incarnata — swamp milkweed
A. sullivantii — prairie milkweed
A. syriaca — common milkweed
A. tuberosa — butterfly weed
A. verticillata — whorled milkweed
A. viridiflora — green milkweed
- Boraginaceae — borage family
Lithospermum canescens — puccoon
Onosmodium occidentale — false gromwell
- Campanulaceae — bellflower family
Campanula aparinoides — marsh bellflower
Lobelia spicata — pale-spike lobelia
- Caprifoliaceae — honeysuckle family
Sambucus canadensis — elderberry
- Chenopodiaceae — goosefoot family
Chenopodium album — lamb's quarters
- Compositae — composite family
Achillea millefolium — yarrow
Agoceris glauca
Ambrosia artemisifolia — little ragweed
A. trifida — giant ragweed
Antennaria neglecta — pussy-toes
Artemisia ludoviciana — mugwort
Aster ericoides — many-flowered aster
A. laevis — smooth aster
A. prenanthoides
A. sericeus — silky aster
A. simplex — simple aster
Bidens sp. — beggar-ticks
Cacalia tuberosa — Indian plantain-root
Cirsium altissimum — tall thistle
C. arvense — Canada thistle
C. discolor — field thistle
Coreopsis palmata — tickseed
Echinacea pallida — purple coneflower
Erigeron strigosus — daisy fleabane
Helenium autumnale — sneezeweed
Helianthus grosseserratus — saw-toothed sunflower
H. laetiflorus — showy sunflower
Heliopsis helianthoides — ox-eye
Lactuca ludoviciana — wild lettuce
Liatris aspera — blazing star
L. pycnostachya — blazing star
Ratibida pinnata — yellow coneflower
Rudbeckia hirta — brown-eyed Susan
Senecio pauperculus — groundsel
Silphium laciniatum — compass plant
Solidago canadensis — Canada goldenrod
S. missouriensis — Missouri goldenrod
S. nemoralis — grey goldenrod
S. rigida — rigid goldenrod
- Sonchus uliginosus* — sow thistle
Taraxacum officinale — dandelion
Tragopogon dubius — goat's beard
- Convolvulaceae — morning-glory family
Convolvulus sepium — hedge bindweed
Ipomoea purpurea — morning glory
- Cruciferae — mustard family
Arabis lyrata — rock cress
Cardamine bulbosa — spring-cress
- Gentianaceae — gentian family
Gentiana puberula — gentian
- Labiatae — mint family
Lycopus americanus — water horehound
Mentha arvensis — mint
Monarda fistulosa — horse mint
Pycnanthemum virginianum — mountain mint
Stachys hispida — hedge nettle
S. palustris — woundwort
Teucrium canadense — germander
- Leguminosae — legume family
Amorpha canescens — leadplant
Amphicarpa bracteata — hog-peanut
Astragalus canadensis — milk-vetch
A. crassicaulis — ground plum
Baptisia leucophea — false indigo
Desmodium canadense — tick-trefoil
Lathyrus palustris — vetchling
L. venosus — vetchling
Lepidiza capitata — bush clover
Melilotus alba — white sweet clover
M. officinale — yellow sweet clover
Petalostemum candidum — white prairie clover
P. purpureum — purple prairie clover
Psoralea argophylla — silver-leaf scurfpea
P. esculenta
Trifolium pratense — red clover
Vicia americana — vetch
- Linaceae — flax family
Linum sulcatum — flax
- Lythraceae — loosestrife family
Lythrum alatum — purple loosestrife
- Onagraceae — evening-primrose family
Epilobium adenocaulon — willow herb
Oenothera biennis — evening primrose
O. serrulata
- Oxalidaceae — wood-sorrel family
Oxalis stricta — wood-sorrel
O. violacea — violet wood-sorrel
- Polemoniaceae — phlox family
Phlox maculata — sweet william
P. pilosa — prairie phlox
- Polygonaceae — buckwheat family
Polygonum coccineum — devil's shoestring
P. convolvulus — black bindweed
P. pennsylvanicum — pinkweed
P. persicaria — lady's thumb
Rumex crispus — curly dock
R. mexicanus
R. patens — patience dock

- Primulaceae — primrose family
Lysimachia ciliata — fringed loosestrife
L. quadriflora — prairie loosestrife
L. thyrsoiflora — tufted loosestrife
- Ranunculaceae — buttercup family
Anemone canadensis — Canada anemone
A. cylindrica — thimbleweed
A. patens — pasque-flower
Delphinium virescens — larkspur
Ranunculus rhomboideus
R. septentrionalis — swamp buttercup
Thalictrum dasycarpum — meadow rue
- Rhamnaceae — buckthorn family
Ceanothus americanus — New Jersey tea
- Rosaceae — rose family
Fragaria virginiana — wild strawberry
Geum laciniatum — avens
Potentilla arguta — tall cinquefoil
P. norvegica — rough cinquefoil
Prunus americana — wild plum
P. serotina — black cherry
Rose carolina — rose
R. suffolta — prairie rose
- Rubiaceae — madder family
Galium obtusum — bedstraw
- Salicaceae — willow family
Salix interior — sandbar willow
- Santalaceae — sandalwood family
Commandra umbellata — bastard toadflax
- Saxifragaceae — saxifrage family
Heuchera richardsonii — alum root
Parnassia glauca — grass-of-Parnassis
Ribes americana — black currant
- Scrophulariaceae — figwort family
Pedicularis canadensis — wood betony
Veronicastrum virginianum — Culver's root
- Solanaceae — nightshade family
Physalis heterophylla — ground cherry
P. virginiana — ground cherry
- Ulmaceae — elm family
Ulmus americana — American elm
- Umbelliferae — parsley family
Cicuta maculata — water hemlock
Eryngium yuccifolium — rattlesnake master
Oxypolis rigidior — cowbane
Zizia aptera — golden Alexanders
Z. aurea — golden Alexanders
- Verbenaceae — vervain family
Verbena hastata — blue vervain
V. stricta — hoary vervain
- Violaceae — violet family
Viola papilionacea — violet
V. pedadifida — prairie violet

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