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## The Remnant Prairie Flora in Northeast Iowa

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## The Remnant Prairie Flora in Northeast Iowa<sup>1</sup>

LAWRENCE J. EILERS<sup>2</sup>

*Abstract.* A list of 360 species of vascular plants inhabiting prairie remnants in northeast Iowa is presented. Descriptions and locations of the prairie remnants are also included.

Recently, the writer completed a survey of the vascular plants of an area of northeastern Iowa which was covered by the Iowan lobe of the Wisconsin glaciation (1). The original vegetation of this region was, in large part, tall grass prairie, interrupted by strips of woodland along the streams and along the adjacent highlands. All that remains of this prairie biome are a few remnants in state or county parks or preserves, along unsprayed railroads or highways, and on private land unsuitable for cultivation. This paper lists the species of vascular plants collected and observed in these prairie remnants during the floristic survey, and indicates the native prairie species which still persist and also the introduced species which have become naturalized.

Prairies are generally defined as open regions dominated by grasses; yet within prairie regions there is a vegetational continuum from the dry upland grass-dominated knolls to the moist low sedge meadows, or swales. In this report I have included all species inhabiting this prairie continuum, excluding only plants inhabiting disturbed areas and the marsh and aquatic plants.

The list of species was compiled from collections and observations made in the field during the growing seasons of 1962 and 1963, and collections in the herbaria of the University of Iowa at Iowa City, Iowa State University at Ames, and the State College of Iowa at Cedar Falls. No literature citations are included in this list unless substantiating specimens were seen.

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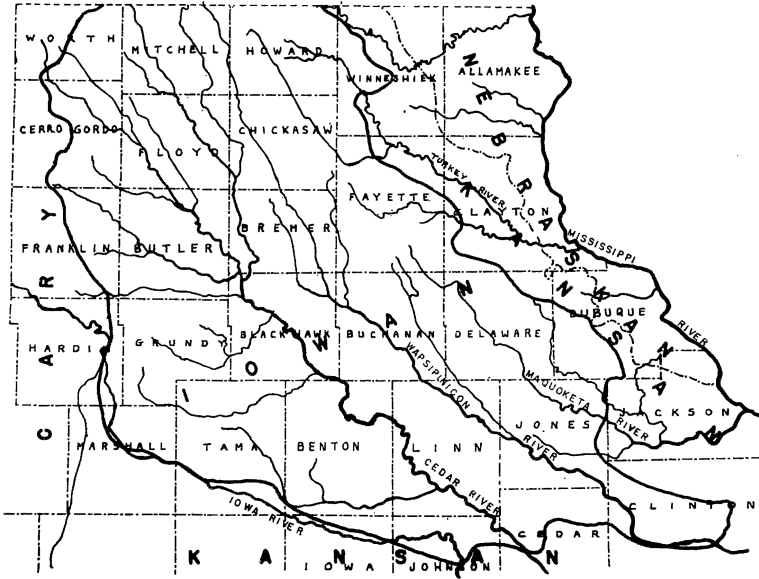


Fig. 1. The Iowan lobe.

To simplify the format, the names of the higher taxonomic categories are not given, but the “pteridophytes” are followed by the monocots and then by the dicots. Within these categories the families, genera and species are arranged alphabetically. The nomenclature used generally follows that of the three most recent manuals of this region, Gleason and Cronquist, Jones, and Fernald. Other regional monographs and revisions were used as references for various taxa. Intraspecific names are not used except for a few generally-recognized varieties.

An asterisk preceding a binomial indicates a naturalized or introduced plant. Following the author’s name, an indication of the type of habitat occupied by each species is given. The abbreviations used are as follows:

- up – upland prairies. This category includes well-drained railroad waysides, roadsides, openings in upland woods, as well as the more extensive areas found in state parks and preserves.
- sl – steep slopes and bluffs.
- al – open alluvial terraces and flats.
- sw – swales. Included in this category are all areas with moist soil, whether low depressions in upland prairies, roadside ditches, or low meadows.

The letter “s” preceding any of the above four abbreviations indicates sandy soil; the letter “l” indicates a limestone or calcareous substratum. If there is neither an “s” nor an “l”, the

Table 1. Some little-disturbed prairie remnants visited during the growing seasons of 1962 and 1963.

County	Habitat	Location	Township, range & section
Benton	Sandy opening on top of wooded limestone bluff	Wildcat Bluff Co. Park	85-9-10
Benton	Sandy alluvial terrace of Cedar R.	E. of Vinton	85-9-15
Benton	Upland RR wayside	N. of Vinton	85-10-17
Black Hawk	Sandy alluvial terrace of Cedar R.	George Wyth St. Park	89-13-7, 8 & 16
Bremer	Swale in alluvial terrace of Wapsipinicon R.	Sweet Marsh Area	92-12-1
Buchanan	Upland RR wayside	NW. of Walker	87-8-33
Buchanan	Upland RR wayside	S. of Hazelton	90-9-22
Buchanan	Sandy alluvial flat along Wapsipinicon R.	Troy Mills Fish & Game Area	87-8-25
Delaware	Sandy RR wayside with low swales	NW of Delhi	88-4-18
Delaware	Sandy alluvial flat along Maquoketa R.	Milo Twp. Co. Park	88-5-9
Fayette	Sandy upland RR wayside with moist swales	N. of Maynard	92-9-3
Floyd	Sandy-loam upland RR wayside	N. of Charles City	96-16-23
Grundy	Upland highway wayside	E. of Grundy Center	87-16-15
Howard	Native prairie, upland & swales	Hayden Prairie	100-13-33
Howard	Xeric south-facing limestone slope	Turkey River Access	98-11-2
Johnson	Native lowland prairie, mostly swale (5)	N. of Oxford	80-8-5
Linn	Sandy alluvial terrace	NW of Cedar Rapids	83-8-1
Mitchell	Sandy upland cemetery	Brownville	98-15-6

reader may assume that the soil is of a loamy nature. A "+" sign designates that a species has been found in several different types of habitat.

A semicolon separates the habitat abbreviation from the letter indicating the relative frequency of occurrence. This frequency indication is based on the total of the number of personal collections and field observations plus the number of collections of the species in the University of Iowa herbarium, referred to the following arbitrary scale:

- c (common) — 16 or more occurrences
- f (frequent) — 11 to 15 occurrences
- i (infrequent) — 6 to 10 occurrences
- r (rare) — 1 to 5 occurrences.

A more detailed and complete description of the species, habitats, and collection sites can be found in Eilers (1). Also all the data from personal collections, herbarium specimens and

field observation were recorded on individual species distribution maps. These maps will be deposited in the herbarium at the University of Iowa.

LIST OF VASCULAR PLANTS

SELAGINELLACEAE

*Selaginella rupestris* (L.) Spring. sup;r.

EQUISETACEAE

*Equisetum arvense* L. sw+;c.

*Equisetum laevigatum* A. Br. ssw+;c.

ASPIDIACEAE

*Onoclea sensibilis* L. sw+;c.

*Thelypteris palustris* Schott. sw;i.

AMARYLLIDACEAE

*Allium canadense* L. up+;f.

*Hypoxis hirsuta* (L.) Coville. up;c.

COMMELINACEAE

*Tradescantia bracteata* Small. sup;f.

*Tradescantia ohiensis* Raf. sup;c.

CYPERACEAE

*Carex annectens* (Bickn.) Bickn. incl. *Carex brachyglossa* Mack. ssw;i.

*Carex bebbii* Olney. sw;i.

*Carex bicknellii* Britt. up+;f.

*Carex brevior* (Dew.) Mack. sup;f.

*Carex buxbaumii* Wahl. sw;i.

*Carex cephalophora* Muhl. up+;f.

*Carex comosa* Boott. sw;r.

*Carex conoidea* Schkuhr. sw;r.

*Carex cristatella* Britt. sw;f.

*Carex festucacea* Schkuhr. sup;r.

*Carex gravida* Bailey. up+;f.

*Carex haydenii* Dew. sw;i.

*Carex hystricina* Muhl. ssw+;i.

*Carex interior* Bailey. sw;i.

*Carex lanuginosa* Michx. sw;f.

*Carex meadii* Dew. sw;r.

*Carex molesta* Mack. sw;i.

*Carex muhlenbergii* Schkuhr. sup;r.

*Carex normalis* Mack. up;f.

*Carex praegracilis* Boott. sw;r.

*Carex projecta* Mack. sw;r.

*Carex rostrata* Stokes. sw;r.

*Carex sartwellii* Dew. sw;r.

*Carex scoparia* Schkuhr. sw;c.

*Carex stipata* Muhl. sw;i.

*Carex stricta* Lam. sw;i.

*Carex suberecta* (Olney) Britt. sw;r.

*Carex tetanica* Schkuhr. sw;r.

*Carex tribuloides* Wahl. sw;r.

*Carex vulpinoidea* Michx. sw;c.

*Cyperus filiculmis* Vahl. sup;i.

*Cyperus schweinitzii* Torr. sup;i.

*Cyperus strigosus* L. ssw;f.

*Eleocharis compressa* Sull. sw;r.

*Eleocharis engelmanni* Steud. ssw;r.

*Eleocharis tenuis* (Willd.) Schultes. sw;r.  
*Scirpus lineatus* Michx. sw;r.

## GRAMINEAE

*Agropyron repens* (L.) Beauv. up;c.  
*Agropyron smithii* Rydb. sal;i.  
*Agropyron trachycaulum* (Link.) Steud. up;i.  
*Agrostis alba* L. up+;c.  
*Agrostis hyemalis* (Walt.) BSP. sal:f.  
*Agrostis scabra* Willd. up;r.  
*Andropogon gerardi* Vitman. up;c.  
*Andropogon scoparius* Michx. up;c.  
*Aristida basiramea* Engelm. sup;r.  
*Aristida oligantha* Michx. up;r.  
*Bouteloua curtipendula* (Michx.) Torr. up:f.  
*Bouteloua hirsuta* Lag. sup;r.  
 \**Bromus inermis* Leyss. sup+;f.  
*Bromus kalmii* Gray. up;r.  
*Calamagrostis canadensis* (Michx.) Beauv. sw;c.  
*Cenchrus longispinus* (Hackel.) Fern. sup;i.  
*Elymus canadensis* L. up+;c.  
*Eragrostis capillaris* (L.) Nees. up;r.  
*Eragrostis spectabilis* (Pursh) Steud. sup;i.  
*Festuca octoflora* Walt. sup;i.  
*Festuca paradoxa* Desv. sw;r.  
*Hierochloe odorata* (L.) Beauv. sw;r.  
*Koeleria cristata* (L.) Pers. up:f.  
*Muhlenbergia cuspidata* (Torr.) Rydb. lsl;r.  
*Muhlenbergia glomerata* (Willd.) Trin. sw;r.  
*Panicum implicatum* Scribn. sup+;f.  
*Panicum leibergii* (Vasey) Scribn. up;i.  
*Panicum praecocius* Hitch. & Chase. up;r.  
*Panicum scribnerianum* Nash. sup+;c.  
*Panicum virgatum* L. up:f.  
*Paspalum setaceum* Michx. var. *stramineum*  
 (Nash) Banks. sup;i.  
 \**Phleum pratense* L. up+;i.  
 \**Poa compressa* L. up+;c.  
*Poa palustris* L. sw;i.  
 \**Poa pratensis* L. up+;c.  
*Sorghastrum nutans* (L.) Nash. up;c.  
*Spartina pectinata* Link. sw:f.  
*Sporobolus cryptandrus* (Torr.) Gray. sup;r.  
*Sporobolus heterolepis* Gray. up;i.  
*Sporobolus neglectus* Nash. up;r.  
*Stipa spartea* Trin. sup+;c.

## IRIDACEAE

*Sisyrinchium campestre* Bickn. sup+;f.

## JUNCACEAE

*Juncus dudleyi* Wieg. sw:f.  
*Juncus greenii* Oakes & Tuckerm. up+;r.  
*Juncus nodosus* L. sw;r.  
*Luzula campestris* (L.) DC. up;r.

## LILIACEAE

*Lilium michiganense* Farw. sw;c.  
*Lilium philadelphicum* L. up;i.  
*Veratrum virginicum* (L.) Ait. f. sw;i.

*Zygadenus elegans* Pursh. up;r.  
*Zygadenus glaucus* Nutt. ls;r.

ORCHIDACEAE

*Calopogon pulchellus* (Salisb.) R. Br. sw;r.  
*Cypripedium candidum* Muhl. sw;r.  
*Habenaria flava* (L.) R. Br. sw;r.  
*Habenaria leucophaea* (Nutt.) Gray. sw;r.  
*Spiranthes cernua* (L.) Rich. sw;i.

ACANTHACEAE

*Ruellia humilis* Nutt. sal;i.

AMARANTHACEAE

*Froelichia floridana* (Nutt.) Moq. sal;r.

APOCYNACEAE

*Apocynum sibiricum* Jacq. sw+;i.

ASCLEPIADACEAE

*Asclepias amplexicaulis* J. E. Smith. sal;r.  
*Asclepias hirtella* (Pennell) Woodson. up+;i.  
*Asclepias incarnata* L. sw+;c.  
*Asclepias ovalifolia* Dcne. sw;r.  
*Asclepias sullivantii* Engelm. sw;r.  
*Asclepias syriaca* L. up+;c.  
*Asclepias tuberosa* L. sup+;i.  
*Asclepias verticillata* L. sal+;c.  
*Asclepias viridiflora* Raf. up;i.

BORAGINACEAE

*Lithospermum canescens* (Michx.) Lehm. up;c.  
*Lithospermum caroliniense* (Walt.) MacM. sal;i.  
*Lithospermum incisum* Lehm. sal;f.  
*Myosotis verna* Nutt. sal;r.  
*Onosmodium molle* Michx. var. *occidentale*  
 (Mack.) Johnst. sal;r.

CAMPANULACEAE

*Campanula aparinoides* Pursh. incl. *Campanula uliginosa*  
 Rydb. sw;f.  
*Lobelia siphilitica* L. ssw;f.  
*Lobelia spicata* Lam. up+;c.  
*Triodanis perfoliata* (L.) Nieuwl. sal;r.

CAPPARIDACEAE

*Polanisia dodecandra* (L.) DC. sup;r.

CAPRIFOLIACEAE

*Symphoricarpos occidentalis* Hook. up+;r.

CARYOPHYLLACEAE

*Silene antirrhina* L. sup+;f.

CHENOPODIACEAE

*Cycloloma atriplicifolia* (Spreng.) Coult. sup;r.  
*Chenopodium pratericola* Rydb. sup;r.

CISTACEAE

*Helianthemum bicknellii* Fern. sup;i.  
*Helianthemum canadense* (L.) Michx. sup;i.  
*Lechea stricta* Leggett. sup;i.

COMPOSITAE

\**Achillea millefolium* L. up+;c.  
*Agoseris cuspidata* (Pursh.) Raf. up;r.  
*Ambrosia psilostachya* DC. sup;r.  
*Antennaria neglecta* Greene. incl. *Antennaria*  
*neodioica* Greene. up;c.

- Antennaria plantaginifolia* (L.) Richards. up;c.  
*Artemisia caudata* Michx. sal;i.  
*Artemisia dracunculus* L. sup;r.  
*Artemisia ludoviciana* Nutt. incl. *Artemisia gnaphalodes* Nutt. sup+;c.  
*Aster azureus* Lindl. up+;f.  
*Aster ericoides* L. up;c.  
*Aster laevis* L. up;f.  
*Aster lateriflorus* (L.) Britt. sw;i.  
*Aster novae-angliae* L. sw+;c.  
*Aster oblongifolius* Nutt. up;i.  
*Aster parviceps* (Burgess) Mack. & Bush. up;r.  
*Aster pilosus* Willd. up+;r.  
*Aster puniceus* L. incl. *Aster lucidulus* (Gray) Wieg. sw;i.  
*Aster sericeus* Vent. up;i.  
*Aster simplex* Willd. sw;i.  
*Aster umbellatus* Mill. sw+;i.  
*Bidens vulgata* Greene. sw;i.  
*Boltonia asteroides* (L.) L'Her. sw;i.  
*Cacalia tuberosa* Nutt. sw;r.  
*Cirsium discolor* (Muhl.) Spreng. sw+;f.  
*Cirsium flodmanii* (Rydb.) Arthur. sw;r.  
*Cirsium hillii* (Canby) Fern. up;i.  
*Conyza canadensis* (L.) Cronq. sup+;c.  
*Coreopsis palmata* Nutt. up;f.  
*Echinacea pallida* Nutt. up;i.  
*Erigeron philadelphicus* L. up+;i.  
*Erigeron strigosus* Muhl. up;c.  
*Eupatorium altissimum* L. up+;i.  
*Eupatorium maculatum* L. incl. *Eupatorium bruneri* Gray. sw;f.  
*Eupatorium perfoliatum* L. ssw;f.  
*Gnaphalium obtusifolium* L. sup+;i.  
*Helenium autumnale* L. sw;i.  
*Helianthus grosseserratus* Martens. sw;f.  
*Helianthus maximiliani* Schrad. up+;r.  
*Helianthus occidentalis* Riddell. sup+;i.  
*Helianthus rigidus* (Cass.) Desf. incl. *Helianthus laetiflorus* Pers. up+;i.  
*Helianthus tuberosus* L. up+;f.  
*Helopsis helianthoides* (L.) Sweet. incl. *Helopsis scabra* Dunal. sw+;c.  
*Hieracium umbellatum* L. incl. var. *canadense* (Michx.) Breitung. up+;i.  
*Krigia biflora* (Walt.) Blake. sal+;f.  
*Kuhnia eupatorioides* L. sal+;i.  
*Lactuca canadensis* L. sal+;c.  
*Liatris aspera* Michx. up+;i.  
*Liatris cylindracea* Michx. up;r.  
*Liatris ligulistylis* (Nels.) K. Schum. up+;r.  
*Liatris pycnostachya*. Michx. up+;f.  
*Parthenium integrifolium* L. up;i.  
*Prenanthes aspera* Michx. up;r.  
*Prenanthes racemosa* Michx. up;i.  
*Ratibida columnifera* (Nutt.) Wooton & Standl. up;r.  
*Ratibida pinnata* (Vent.) Barb. up+;c.



*Rudbeckia hirta* L. up;c.  
*Rudbeckia subtomentosa* Pursh. ssw;i.  
*Senecio aureus* L. up;r.  
*Senecio pauperculus* Michx. up;r.  
*Senecio plattensis* Nutt. sal+;c.  
*Silphium integrifolium* Michx. up;i.  
*Silphium laciniatum* L. up;i.  
*Solidago canadensis* L. incl. *Solidago altissima* L.  
 and *Solidago pruinosa* Greene. up+;c.  
*Solidago gigantea* Ait. sw+;c.  
*Solidago graminifolia* (L.) Salisb. sw+;i.  
*Solidago missouriensis* Nutt. up;i.  
*Solidago nemoralis* Ait. up+;f.  
*Solidago riddellii* Frank. sw;r.  
*Solidago rigida* L. sw+;c.  
*Solidago speciosa* Nutt. up+;i.  
*Vernonia fasciculata* Michx. sal;c.

CORNACEAE

*Cornus obliqua* Raf. sw+;c.

CRUCIFERAE

*Arabis glabra* (L.) Bernh. up;r.  
*Cardamine bulbosa* (Schreb.) BSP. sw;i.  
*Cardamine parviflora* L. var. *arenicola* (Britt.)  
 Schultz. sal;r.  
*Descurainia pinnata* (Walt.) Britt. sup;i.  
*Draba reptans* (Lam.) Fern. sal;i.  
 \**Lepidium densiflorum* Schrad. sup+;f.

EUPHORBIACEAE

*Acalypha rhomboidea* Raf. ssw;i.  
*Croton glandulosus* L. sal;r.  
*Euphorbia corollata* L. sup;c.  
*Euphorbia dentata* Michx. up+;r.  
*Euphorbia glyptosperma* Engelm. sup+;i.  
*Euphorbia hexagona* Nutt. sal;r.  
*Euphorbia maculata* L. sal;i.  
*Euphorbia supina* Raf. sal+;i.

GENTIANACEAE

*Gentiana andrewsii* (Small) Griseb. sw;f.  
*Gentiana crinita* Froel. ssw;r.  
*Gentiana flavida* Gray. up+;r.  
*Gentiana puberula* Michx. up;r.

GERANIACEAE

*Geranium carolinianum* L. sal;r.

GUTTIFERAE

*Hypericum majus* (Gray) Britt. ssw;i.  
*Hypericum punctatum* Lam. up+;f.  
*Hypericum sphaerocarpum* Michx. sal+;f.  
*Triadenum fraseri* (Spach.) Gl. sw;r.

LABIATAE

*Hedeoma hispida* Pursh. sup+;f.  
*Monarda fistulosa* L. inc. var. *mollis* (L.)  
 Benth. up+;c.  
*Monarda punctata* L. sal;r.  
*Prunella vulgaris* L. sal+;c.

- Pycnanthemum flexuosum* (Walt.) BSP. sup+;r.  
*Pycnanthemum virginianum* (L.) Durand & Jackson. sw+;c.  
*Scutellaria parvula* Michx. incl. *Scutellaria*  
*Leonardi* Epling. up+;f.  
*Stachys hispida* Pursh. sal+;i.  
*Stachys palustris* L. sw;f.  
*Teucrium canadense* L. incl. *Teucrium occidentale*  
 Gray. sal+;c.  
*Trichostema brachiatum* L. sal+;i.

## LEGUMINOSAE

- Amorpha canescens* Pursh. sup+;f.  
*Apios americana* Medic. sw;r.  
*Astragalus canadensis* L. up;f.  
*Astragalus crassicaarpus* Nutt. lsl+;r.  
*Astragalus distortus* T&G. sal;r.  
*Baptisia leucantha* T&G. up+;f.  
*Baptisia leucophaea* Nutt. up;f.  
*Chamaecrista fasciculata* (Michx.) Greene. sw+;f.  
 \**Crotalaria sagittalis* L. up+;r.  
*Desmodium canadense* (L.) DC. up+;c.  
*Desmodium illinoense* Gray. up;r.  
*Lathyrus palustris* L. sw;i.  
*Lathyrus venosus* Muhl. up;i.  
*Lespedeza capitata* Michx. up;c.  
*Lespedeza leptostachya* Engelm. up;r.  
*Lespedeza violacea* (L.) Pers. lsl;r.  
 \**Medicago sativa* L. up;c.  
 \**Melilotus alba* Desr. up+;c.  
 \**Melilotus officinalis* (L.) Lam. up+;c.  
*Petalostemum candidum* (Willd.) Michx. up+;f.  
*Petalostemum purpureum* (Vent.) Rydb. up+;c.  
*Petalostemum villosum* Nutt. sal;r.  
*Psoralea argophylla* Pursh. up;r.  
*Strophostyles helvola* (L.) Ell. sal;i.  
*Strophostyles leiosperma* (T&G) Piper. sal;r.  
*Tephrosia virginiana* (L.) Pers. sup;r.  
 \**Trifolium hybridum* L. up+;c.  
 \**Trifolium pratense* L. up+;c.  
*Vicia americana* Muhl. up+;c.

## LINACEAE

- Linum sulcatum* Riddell. up;i.

## LYTHRACEAE

- Lythrum alatum* Pursh. sw+;f.

## NYCTAGINACEAE

- Mirabilis nyctaginea* (Michx.) MacM. sal+;c.

## ONAGRACEAE

- Epilobium leptophyllum* Raf. sw;r.  
*Ludwigia alternifolia* L. ssw;i.  
*Ludwigia polycarpa* Short & Peter. sw;i.  
*Oenothera biennis* L. up+;f.  
*Oenothera parviflora* L. sw;r.  
*Oenothera perennis* L. sw;r.  
*Oenothera rhombipetala* Nutt. sal;f.  
*Oenothera serrulata* Nutt. up+;r.  
*Oenothera strigosa* (Rydb.) Mack. & Bush. sal+;f.

OXALIDACEAE

- Oxalis dillenii* Jacq. sal+;i.  
*Oxalis violacea* L. up+;f.

PAPAVERACEAE

- Corydalis micrantha* (Engelm.) Gray. sal;i.

PLANTAGINACEAE

- Plantago aristata* Michx. sup;r.  
*Plantago purshii* R&S. sal;r.

POLEMONIACEAE

- Phlox bifida* Beck. sal;r.  
*Phlox maculata* L. sw;f.  
*Phlox pilosa* L. up;c.

POLYGALACEAE

- Polygala sanguinea* L. sw+;f.  
*Polygala senega* L. ls1+;f.  
*Polygala verticillata* L. up;i.

POLYGONACEAE

- \**Polygonum lapathifolium* L. sw+;f.  
*Polygonum pensylvanicum* L. sw;c.  
 \**Rumex acetosella* L. sup+;c.  
*Rumex altissimus* Wood. sal+;c.

PRIMULACEAE

- Androsace occidentalis* Pursh. sal;i.  
*Dodecatheon meadia* L. up;c.  
*Lysimachia quadriflora* Sims. sw;f.  
*Lysimachia terrestris* (L.) BSP. sw+;f.

RANUNCULACEAE

- Anemone canadensis* L. sw+;c.  
*Anemone caroliniana* Walt. sup;r.  
*Anemone cylindrica* Gray. up+;c.  
*Anemone patens* L. up;i.  
*Delphinium virescens* Nutt. up;f.  
*Myosurus minimus* L. sal;r.  
*Ranunculus fascicularis* Muhl. sup+;f.  
*Thalictrum dasycarpum* Fisch. & Lall. sw+;c.

RHAMNACEAE

- Ceanothus americanus* L. up;c.  
*Ceanothus ovatus* Desf. up;r.

ROSACEAE

- Fragaria virginiana* Duch. up+;c.  
*Geum aleppicum* Jacq. sw;r.  
*Geum triflorum* Pursh. sw+;i.  
 \**Potentilla argentea* L. sal;r.  
*Potentilla arguta* Pursh. up;f.  
*Potentilla simplex* Michx. up+;c.  
*Rosa blanda* Ait. up+;c.  
*Rosa carolina* L. up;c.  
*Rosa suffulta* Greene. up;f.  
*Rosa woodsii* Lindl. up;r.  
*Spiraea alba* DuRoi. sw+;c.

RUBIACEAE

- Galium boreale* L. up+;c.  
*Galium obtusum* Bigel. sw;c.  
*Houstonia minima* Beck. sal+;i.

## SALICACEAE

- Populus tremuloides* Michx. up+;c.  
*Salix bebbiana* Sarg. up+;i.  
*Salix discolor* Muhl. sw+;c.  
*Salix humilis* Marsh. up+;c.  
*Salix petiolaris* Sm. sw+;c.

## SANTALACEAE

- Comandra richardsiana* Fern. up;c.

## SAXIFRAGACEAE

- Heuchera richardsonii* R. Br. up+;c.  
*Saxifraga pensylvanica* L. sw;f.

## SCROPHULARIACEAE

- Castilleja coccinea* (L.) Spreng. sw+;f.  
*Castilleja sessiliflora* Pursh. up;r.  
*Gerardia aspera* Dougl. up;r.  
*Gerardia auriculata* Michx. up;r.  
*Gerardia purpurea* I. incl. *Gerardia paupercula*  
 Gray. sw;i.  
*Gerardia tenuifolia* Vahl. ssw+;i.  
*Gratiola neglecta* Torr. sw;i.  
*Pedicularis canadensis* L. up+;f.  
*Penstemon digitalis* Nutt. up+;r.  
*Penstemon grandiflorus* Nutt. sal;r.  
*Scrophularia lanceolata* Pursh. sup+;c.  
*Veronica peregrina* L. incl. *Veronica xalapensis*  
 HBK. sal+;f.  
*Veronicastrum virginicum* (L.) Farw. sw+;c.  
*Wulfenia bullii* (Eat.) Barnh. sal;r.

## SOLANACEAE

- Physalis heterophylla* Nees. sal+;c.  
*Physalis virginiana* Mill. sal+;f.

## UMBELLIFERAE

- Cicuta maculata* L. sw;f.  
*Eryngium yuccifolium* Michx. up;i.  
*Oxypolis rigidior* (L.) Raf. sw;i.  
*Polytaenia nuttallii* DC. sw;r.  
*Zizia aptera* (Gray) Fern. up;r.  
*Zizia aurea* (L.) Koch. up+;c.

## VALERIANACEAE

- Valeriana ciliata* T&G. up;r.

## VERBENACEAE

- Verbena bracteata* Lag.&Rodr. ssw+;i.  
*Verbena simplex* Lehm. sal;f.  
*Verbena stricta* Vent. sal+;c.

## VIOLACEAE

- Viola lanceolata* L. sal;r.  
*Viola nephrophylla* Greene. up+;i.  
*Viola pedata* L. sup+;f.  
*Viola pedatifida* G. Don. sup+;f.  
*Viola sagittata* Ait. sal+;f.

## SUMMARY

As is shown in Table 2, only 15 introduced species have become naturalized in the prairie remnants. It appears that even

Table 2. Statistical summary of information.

	Naturalized	Total	
A. Number of families	6	55	
Number of genera	12	182	
Number of species	15	360	
B. The total of 360 species observed in prairie remnants during the present study represent 32% of the total number of species of vascular plants (1123) known from the Iowan lobe.			
C. Largest families	No. spp. in Iowan lobe	No. of spp. in prairie remnants	% in prairie remnants
Compositae	132	71	54
Gramineae	116	41	35
Cyperaceae	94	37	38
Leguminosae	50	29	58
Rosaceae	46	11	24
Scrophulariaceae	31	14	45
Labiatae	30	11	37
Onagraceae	15	9	60
Asclepiadaceae	12	9	75

these small remnants remaining in the Iowan lobe form closed ecological communities if they are not subjected to frequent disturbance. Other species occur in disturbed areas within the prairies (old haystacks, sprayed areas etc.), but are not found in the undisturbed portions.

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