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The Remnant Prairie Flora in Northeast Iowa¹

LAWRENCE J. EILERS²

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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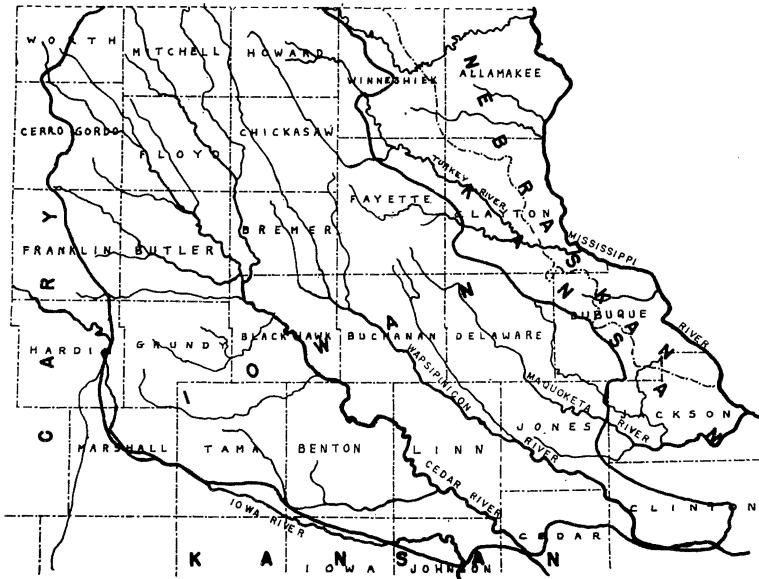


Fig. 1. The Iowan lobe.

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.) Barh. 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 pennsylvanica 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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