

Botanical Inventory the Marion County Unit of Prairie Ridge State Natural Area

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Bainbridge Tract. Cool season grassland dominated by *Agrostis gigantea*, *Helianthus mollis* and *Juniperus virginiana* in the foreground; woods are in background, bordering IDNR property.

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Introduction: Prairie Ridge consists of two units in two counties; the Jasper County unit has been the object of numerous studies of both animal and plant life (Simpson, 1998; Edgin & Ebinger 2000; Kessler, Tucker & Ebinger 2001; Tucker et al., 2006). Prairie Ridge is well known for supporting the only population of Greater Prairie chickens in the state, as well as regional significance for breeding and migratory birds. However, the Marion County unit has received much less attention.

Significance: The site comprises 1207 acres in the Southern Till Plain Natural Division. Of this, 160 acres have been set aside as dedicated nature preserve; the remainder is land and water reserves. Prairie Ridge is included in the Illinois Natural Areas Inventory and is rated as one of the 5 most significant grassland habitat complexes in Illinois (Simpson & Esker, 1997). Most of the property is cool season grasses, with some wetlands. There are a few scattered thickets and isolated trees near roads, but essentially all the landscape is open. This study is a complement to the long-term botanical inventory of the Jasper County Unit, supported by two DNR grants, and completed (and soon to be published) by the present authors and their collaborators (Kessler et al. 2001; Tucker et al 2006).

Methods:

- a. to document the vascular plant species diversity at Prairie Ridge by collecting representative specimens (vouchers) of all taxa of vascular plants found at the site.
 - b. to gather data on the distribution of plant species in natural communities that exist at the site.
 - c. to document the presence of high quality (grade A & B) natural communities at Prairie Ridge.
- 1) The site was visited 12 times during the growing season, for one-day or half-day trips, during 2006, 2007, and 2008.
 - 2) Field work covered the growing season from May through October. A list of all plant taxa was generated. Specimens have been identified, and labeled, and are being accessioned into the Stover-Ebinger Herbarium of Eastern Illinois University. Many duplicates were collected, and these have been deposited at the Illinois Natural History Survey, and at the Missouri Botanical Garden Herbarium.
 - 3) A GPS unit (provided by EIU Biology Dept.) was used to precisely locate each collecting site.
 - 4) During the search, any threatened or endangered species will be noted as to population size and exact location, and the appropriate DNR personnel informed promptly.

Results:

Plant Diversity: A complete list of species, showing their occurrence at each tract, is attached as an appendix to this report. We found a total of 277 species of vascular plants at the 11 tracts in Marion County. Of these 56 species are exotics (not native to Illinois); this is a total of 20.2%. the fewest at any site was 44 at Tract 1 (Perbix), a cool season grassland dominated by *Agrostis gigantea*. The Soldner Preserve (Tract 5) supported 101 species. The greatest number of species was found at Tract 10 (Bartels), with 140 species. As a comparison, the Jasper county Unit has 508 species, of which 19.8% are exotics (Tucker et al 2006). The ratio of natives and exotics thus is almost identical between the two separate units. The greater number in Jasper County Unit can be attributed to it larger size, additional habitats (forest, shoreline), and possibly the greater age of many of its prairie restorations.

State-Listed species: No state listed species (E & T species) were found at any of the tracts.



Soldner Preserve, 15 Aug. 2008

Exotic species: These are sometimes a problem in grassland, forest, and wetlands, and in site management plans. Exact inventory and identification will allow for appropriate measures for any that might need to be removed, controlled, or managed.

The major concern with exotics exists in the Soldner Preserve, particularly around the SW side of the broad gully that runs across the tract. There is a large monotypic stand of exotic day-lily; this should be removed and the area reseeded with native species. Other tracts have scattered exotics, such as autumn olive or multiflora rose in cool season grasslands. Current mowing practices may need to be supplemented with hand spraying of individuals, especially where clumps or thickets might form.

The introduced bulrush, *Schoenoplectus mucronatus* is abundant at the large wetland at Tract 10. In spite of its abundance, there are still considerable numbers and diversity of native wetland plants there. Also, the bulrush provides a valuable food source for waterfowl.

Management Concerns: Plant species diversity is important for management. Many species contribute to food sources for waterfowl, especially sedges and grasses. However, many of these species are under collected and often misidentified or simply overlooked in natural area surveys. A complete list, with voucher specimens, will greatly benefit long-term management and conservation plans.

Descriptions of the Tracts

1. Perbix
Dominated by *Agrostis gigantea*; lowest diversity of any tract.
2. Loy 40
Cool season grassland.
3. Lacey 100
Cool season grassland, with some wet areas with sedges.



Bartels Tract, Wetland Restoration, 15 Aug. 2008; the dominant water plant is *Ludwigia peploides*; trees in the background are along the railroad and highway margins

4. Loy 100

Includes wetland restoration, dominated by *Sparganium eurycarpum* and *Polygonum amphibium*. Excellent habitat for migratory birds, especially ducks. However, fairly low diversity but this should quickly increase as new species are brought in by birds.

5. Soldner

Prairie remnant and prairie preserve. A total of 101 species was found here. This and tract 10 have the highest diversity.

6. Butler

Includes thickets and an old house site. Two unusual exotic plant species were found here. *Chaenomeles japonica*, flowering quince, forms a small thicket in the roadside ditch (this species has only been documented once previously in Illinois). *Broussonetia papyrifera*, paper-mulberry, persists among red cedars at an old house site. Neither is likely to become a problem for management.

7. Guymon

Damp and mowed grassland. Moderate diversity

8. Copple

Mowed grassland, with both cool and warm season grasses. Rather damp soil and poor drainage; rather high diversity of herbs and graminoids

9. Survey

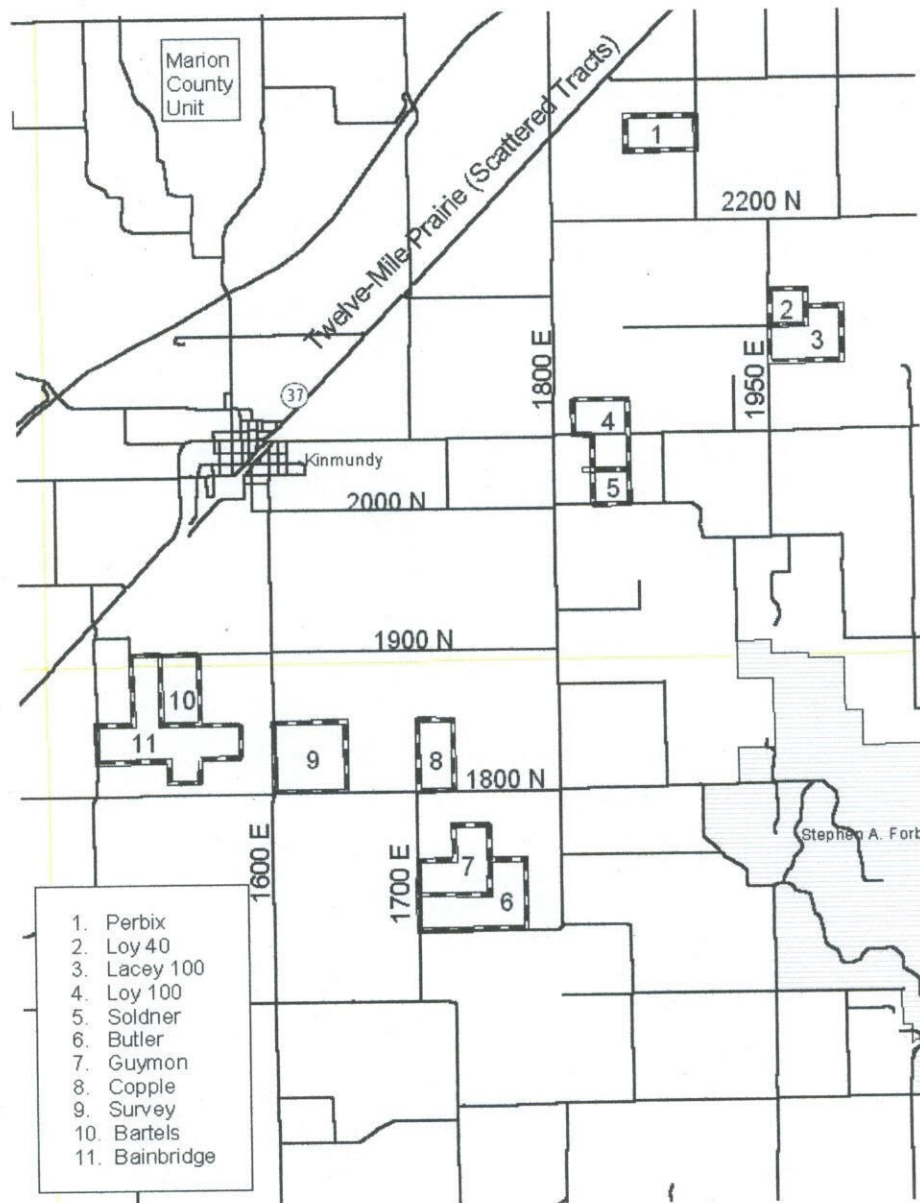
Pastured with cattle; tall fescue is dominant in most areas. There are several thickets of trees and shrubs. Most of the diversity is along the roadsides and fences. Conspicuous plants include a population of the non-native tree, *Populus alba*, white poplar.

10. Bartels

This is by far the most tract, includes two wetland restorations, as well as gently rolling upland and diverse tallgrass prairie.

11. Bainbridge

Cool season grassland, mowed annually; some moist sedge dominated areas in the south.



Prairie Ridge State Natural Area (Marion County Unit) showing tract numbers and locations

Further Studies: During the 2009 field season, we plan additional field work, to enlarge this report and make it suitable for publication. Additional visits will be made to all tracts, especially in April and early May, to adequately sample the spring flora. In mid to late summer, standard 25 m transects (Bailey & Poulton 1968) will be made at Soldner Preserve and Bartels Tract, to quantitatively sample the high quality prairie vegetation. Overall data from the floristic study and transects will be compared to our previously compiled data on the Jasper County unit (Kessler et al. 2001; Tucker et al 2006).

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Species	Voucher	Tract 1 Perbix	Tract 2 Loy40	Tract 3 Lacey100	Tract 4 Loy100	Tract 5 Soldner	Tract 6 Butler	Tract 7 Guymon	Tract 8 Coppie	Tract 9 Survey	Tract 10 Bartels	Tract 11 Bainbridge
<i>Bidens frondosa</i>	15178											*
<i>Boehmeria cylindrica</i>	15401				*							
<i>Bromus inermis</i>	15124	*	*	*	*			*		*	*	*
<i>Bromus japonicus</i>	15104											
<i>Broussonetia papyrifera</i>	14987						*				*	
<i>Cacalia muhlenbergii</i>	15364											*
<i>Bouteloua curtipendula</i>	obs.								*	*	*	*
<i>Campsis radicans</i>	14979									*	*	
<i>Carex annectens</i>	15128							*				*
<i>Carex cristatella</i>	14909								*			
<i>Carex frankii</i>	14995		*				*				*	
<i>Carex lurida</i>	15380											*
<i>Carex squarrosa</i>	15007										*	
<i>Carex tribuloides</i>	14935										*	
<i>Carex vulpinoidea</i>	15121										*	
<i>Carex sp.</i>	15113										*	
<i>Cassia maritima</i>	obs.									*		
<i>Celtis laevigata</i>	15391					*	*					
<i>Cercis canadensis</i>	obs.											
<i>Chaenomeles japonica</i>	15000							*		*		*
<i>Chamaecrista fasciculata</i>	14928			*		*	*		*	*		*
<i>Chamaesyce maculata</i>	14955				*	*	*	*	*	*	*	*
<i>Chamaesyce nutans</i>	14893				*	*	*	*	*	*	*	*
<i>Chamaesyce supina</i>	14889							*			*	*
<i>Chenopodium album</i>	15031	*				*				*	*	*
<i>Cichorium intybus</i>	15366				*	*					*	*
<i>Cicuta maculata</i>	14906					*	*	*				*
<i>Cirsium discolor</i>	obs.		*			*	*	*				*
<i>Cirsium vulgare</i>	14997							*				
<i>Commelina communis</i>	14999							*				
<i>Conium maculatum</i>	obs.	*									*	
<i>Conoclinium coelestinum</i>	15024		*	*	*	*	*	*	*		*	*
<i>Conyza canadensis</i>		*	*	*	*	*	*	*	*		*	*

Species	Voucher	Tract 1 Perbix	Tract 2 Loy40	Tract 3 Lacey100	Tract 4 Loy100	Tract 5 Soldner	Tract 6 Butler	Tract 7 Guymon	Tract 8 Coppie	Tract 9 Survey	Tract 10 Bartels	Tract 11 Bairbridge
Eragrostis minor	15188					*					*	*
Eragrostis spectabilis	15008	*							*		*	*
Erechtites hieracifolia	obs.		*								*	*
Erigeron annuus	14939										*	*
Erigeron strigosus	15112							*		*		*
Eryngium yuccifolium	15056					*			*	*	*	*
Eupatorium perfoliatum	14919					*			*	*	*	*
Eupatorium serotinum	15182		*		*	*	*		*	*	*	*
Euphorbia corollata	14930		*		*	*	*		*	*	*	*
Euthamia graminifolia	15042				*	*			*	*	*	*
Festuca arundinacea	15106		*		*	*			*	*	*	*
Fraxinus lanceolata	14902									*		*
Galium obtusum	14983						*			*	*	*
Gaura biennis	14958		*			*	*		*	*	*	*
Geranium carolinianum	15107					*					*	*
Geum canadense	15393					*				*		*
Gleditsia triacanthos	obs.		*								*	*
Gnaphalium obtusifolium	15018	*									*	*
Helenium autumnale	15116						*				*	*
Helianthus mollis	14901			*								*
Helianthus grosseserratus	15175										*	*
Heliosis helianthoides	obs.										*	*
Hemerocallis fulva	obs.					*					*	*
Hibiscus palustris	15378								*		*	*
Humulus lupulus	obs.								*		*	*
Hypericum drummondii	14949								*		*	*
Hypericum gentianoides	15186								*		*	*
Hypericum mutilum	14946						*	*	*		*	*
Hypericum sphaerocarpum	14988					*	*	*	*		*	*
Ipomoea hederacea	14907				*	*		*	*		*	*
Ipomoea purpurea	15034				*	*		*	*		*	*
Juglans nigra	14891					*						*

Species	Voucher	Tract 1 Perbix	Tract 2 Loy40	Tract 3 Lacey100	Tract 4 Loy100	Tract 5 Soldner	Tract 6 Butler	Tract 7 Guymon	Tract 8 Coppie	Tract 9 Survey	Tract 10 Bartels	Tract 11 Bainbridge
<i>Juncus brevicaudatus</i>	14898											*
<i>Juncus dudleyi</i>	14908	*									*	*
<i>Juncus effusus</i>	15118										*	*
<i>Juncus tenuis</i>	14961		*				*	*	*			*
<i>Juncus torreyi</i>	14911				*		*		*	*		*
<i>Juniperus virginiana</i>	obs.						*	*	*		*	*
<i>Kummerowia stipulacea</i>	obs.								*		*	*
<i>Kummerowia strata</i>	obs.								*			*
<i>Lactuca canadensis</i>	14926	*	*			*					*	*
<i>Lactuca saligna</i>	15181						*	*			*	*
<i>Lactuca serriola</i>	14914						*	*			*	*
<i>Leersia oryzoides</i>	15039				*	*					*	*
<i>Lepidium virginicum</i>	15105										*	*
<i>Lepidochloa fascicularis</i>	15187					*					*	*
<i>Lespedeza capitata</i>	15395				*	*					*	*
<i>Lespedeza virginica</i>	15396					*					*	*
<i>Liatris sp.</i>	15371					*					*	*
<i>Lindernia dubia</i>	14932										*	*
<i>Lobelia cardinalis</i>	14933					*		*			*	*
<i>Lonicera japonica</i>	14998	*				*			*		*	*
<i>Ludwigia alterniflora</i>	14954					*			*		*	*
<i>Ludwigia peploides</i>	14943						*				*	*
<i>Ludwigia palustris</i>	14992								*			
<i>Lycopus americanus</i>	14953						*					
<i>Lythrum alatum</i>	14982						*					
<i>Maclura pomifera</i>	obs.					*	*	*	*	*	*	*
<i>Melilotus albus</i>	obs.						*	*	*	*	*	*
<i>Melilotus officinalis</i>	14938						*	*	*	*	*	*
<i>Mimulus ringens</i>	15376					*	*	*	*	*	*	*
<i>Monarda fistulosa</i>	15368					*	*	*	*	*	*	*
<i>Monarda fistulosa</i>	14927	*				*	*	*	*	*	*	*
<i>Morus alba</i>	15057					*	*	*	*	*	*	*
<i>Muhlenbergia glabriflora</i>	14900				*	*	*	*	*	*	*	*
<i>Oenothera biennis</i>	14900					*	*	*	*	*	*	*
<i>Oligoneuron rigidum</i>	15045					*	*	*	*	*	*	*

Species	Voucher	Tract 1	Tract 2	Tract 3	Tract 4	Tract 5	Tract 6	Tract 7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Barrels	Bainbridge
<i>Scirpus georgianus</i>	14912, 15122		*		*	*	*	*			*	*
<i>Scirpus pendulus</i>	15379										*	
<i>Setaria pumilla</i>	15016		*				*	*			*	
<i>Setaria viridis</i>	15026	*							*		*	*
<i>Sida spinosa</i>	14956				*				*			
<i>Silphium integrifolium</i> var. <i>dearii</i>	14986				*	*	*	*	*	*	*	*
<i>Silphium integrifolium</i> var. <i>integrifolium</i>	14888	*			*	*	*	*	*	*	*	*
<i>Silphium laciniatum</i>	14985					*	*				*	*
<i>Silphium perfoliatum</i>	15369					*	*			*	*	*
<i>Silphium terebinthaceum</i>	obs.					*	*			*	*	*
<i>Solanum carolinianum</i>	14937					*	*			*	*	*
<i>Solidago canadensis</i>	14931	*	*	*	*	*	*	*	*	*	*	*
<i>Solidago gigantea</i>	14984					*	*			*	*	*
<i>Solidago juncea</i>	obs.	*				*	*			*	*	*
<i>Sonchus asper</i>	15183					*				*	*	*
<i>Sorghastrum nutans</i>	15022				*	*				*	*	*
<i>Sparganium eurycarpum</i>	15193				*	*	*		*		*	*
<i>Spartina pectinata</i>	14976				*	*	*		*		*	*
<i>Sporobolus heterolepis</i>	obs.					*	*					
<i>Sporobolus asper</i>	15052					*					*	*
<i>Strophostyles leiosperma</i>	15191					*				*	*	*
<i>Symphoricarpos albus</i>	14920	*				*	*		*	*	*	*
<i>Taraxacum officinale</i>	obs.					*		*			*	*
<i>Teucrium canadense</i>	15114				*	*		*			*	*
<i>Torilis japonica</i>	15388					*					*	*
<i>Thlaspi perfoliata</i>	15108					*	*	*		*	*	*
<i>Toxicodendron radicans</i>		*	*		*	*	*	*		*	*	*
<i>Tradescantia ohioensis</i>	15372					*					*	*
<i>Tridens flavus</i>	15047					*	*	*			*	*
<i>Trifolium pratense</i>	14895							*	*		*	*
<i>Typha latifolia</i>	15384				*	*	*			*	*	*
<i>Ulmus americana</i>	14925	*				*	*			*	*	*
<i>Ulmus rubra</i>	obs.					*	*					

