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 supplement 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

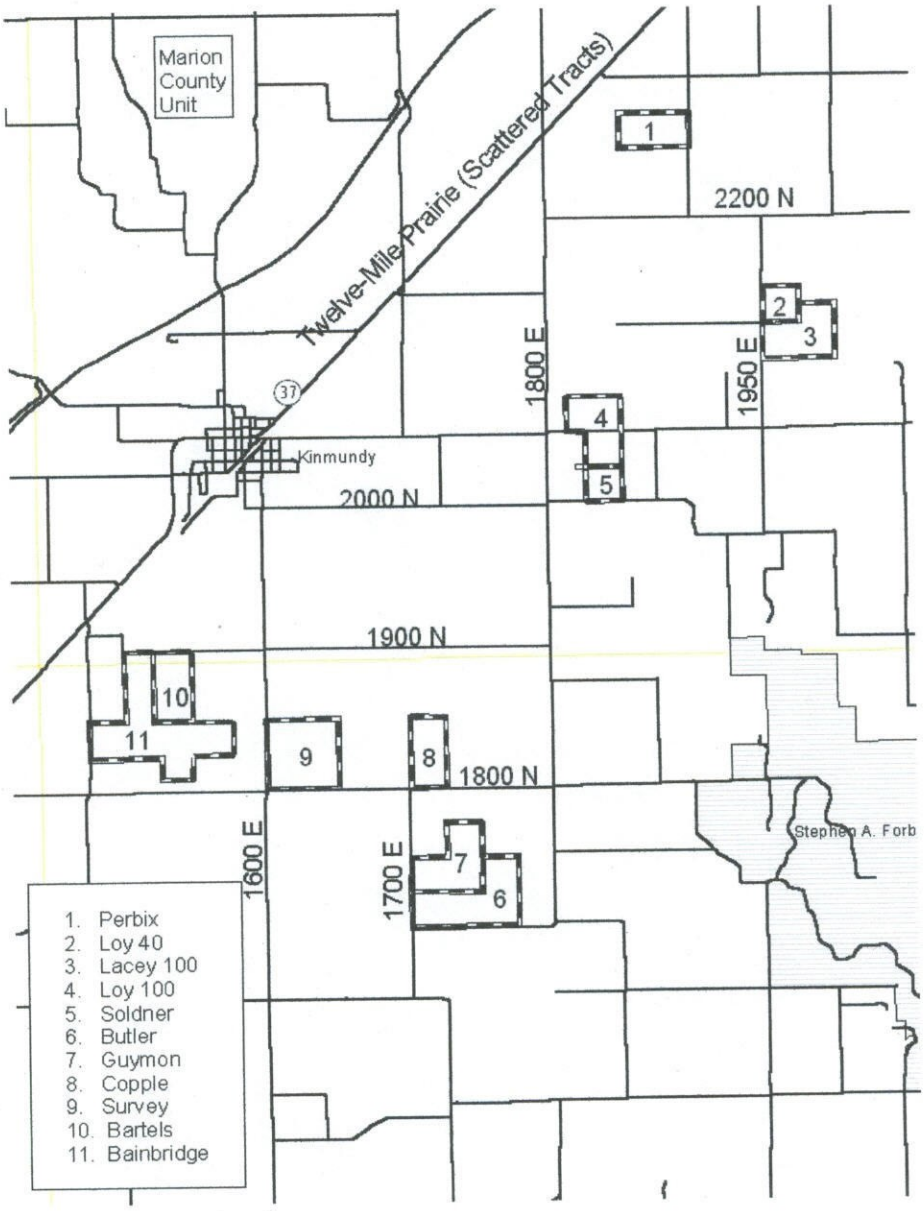
Pastured with cattle; tall fescue is dominant in most areas. There are several thickets of trees and shrubs. Most of the diversity is along the roadsides and fences. Conspicuous plants include a population of the non-native tree, *Populus alba*, white poplar.

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	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
exotic species in bold		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Abutilon theophrasti					*							
Acalypha gracilens	14952		*						*			
Acer saccharinum	obs.				*	*	*		*	*		
Achillea millefolium	14959	*				*			*		*	
Acorus calamus	15006						*					*
Agalinis tenuifolia	15173											*
Agrimonia parviflora	14915				*							*
Agrostis gigantea	15129		*		*	*	*		*	*	*	*
Alisma subcordatum	14942				*						*	
Allium vineale	obs.					*						*
Amaranthus rudis	15029										*	
Amaranthus hybridus	15004							*				
Ambrosia artemisifolia	obs.	*		*	*	*	*	*	*	*	*	*
Ambrosia bidentata	14890					*	*					*
Ambrosia trifida	obs.					*				*	*	*
Ammannia coccinea	15037										*	
Andropogon gerardii	14913	*			*	*	*		*	*	*	*
Andropogon virginicus	15189										*	
Antennaria plantaginifolia	obs.					*						
Apocynum cannabinum	15375				*			*	*		*	*
Aristida oligantha	15051	*									*	
Asclepias hirtella	14922	*	*		*	*			*			*
Asclepias incarnata	14910		*		*	*	*					*
Asclepias sullivantii	14957								*			
Asclepias syriaca	14921			*		*	*	*		*	*	*
Asparagus officinalis	15059					*						
Aster novae-angliae	15046										*	
Aster pilosus	15019				*				*		*	
Aster praealtus	15020										*	
Aster ericoides	15053					*						
Baptisia lactea	14916					*				*	*	*
Barbarea vulgaris	obs.					*						*
Bidens aristosa	15025										*	
Bidens cernua					*							

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Bidens frondosa	15178											*
Boehmeria cylindrica	15401				*							
Bromus inermis	15124	*	*	*	*			*		*	*	*
Bromus japonicus	15104										*	
Broussonetia papyrifera	14987						*					
Cacalia muehlenbergii	15364										*	
Bouteloua curtipendula	obs.											*
Campsis radicans	14979								*	*	*	
Carex annectens	15128										*	
Carex cristatella	14909							*				*
Carex frankii	14995		*				*		*			
Carex lurida	15380										*	
Carex squarrosa	15007											*
Carex tribuloides	14935										*	
Carex vulpinoidea	15121										*	
Carex sp.	15113										*	
Cassia marilandica	obs.					*				*		
Celtis laevigata	15391						*					
Cercis canadensis	obs.							*				
Chaenomeles japonica	15000			*		*	*			*		*
Chamaecrista fasciculata	14928				*				*			
Chamaesyce maculata	14955				*	*		*	*		*	*
Chamaesyce nutans	14893							*				*
Chamaesyce supina	14889										*	
Chenopodium album	15031	*				*				*	*	
Cichorium intybus	15366				*	*						*
Cicuta maculata	14906					*	*	*				*
Cirsium discolor	obs.		*					*				
Cirsium vulgare	14997							*				
Commelina communis	14999											
Conium maculatum	obs.	*									*	
Conoclinium coelestinum	15024											
Conyza canadensis		*	*	*		*	*	*	*		*	*

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Cornus drummondii			*								*	
Coreopsis palmata	15367									*		*
Coreopsis tripteris	15172	*			*							
Crataegus crusgalli	15061					*						
Crataegus sp	15060	*				*						
Croton glandulosus	15048										*	
Cyperus acuminatus	14899										*	*
Cyperus echinatus	15398					*						
Cyperus erythrorhizos	15030										*	
Cyperus odoratus	14944, 15123										*	
Cyperus strigosus	14903		*			*			*		*	*
Danthonia spicata	obs.					*						
Daucus carota	obs.	*		*	*							
Desmanthus illinoensis	14934										*	*
Desmodium paniculatum	15111										*	*
Dianthus armeria	15397					*			*			*
Dichanthelium sp.	15174											*
Digitaria ischaemum	15050										*	
Diodia teres	obs.					*						
Diospyros virginiana	14896				*	*						*
Echinacea purpurea	15180					*					*	
Echinochloa crusgalli	14905				*				*		*	*
Echinochloa muricata	15027										*	
Eclipta prostrata	14991				*	*	*					
Elaeagnus angustifolia	14918											*
Eleocharis obtusa	14941				*						*	
Eleocharis ovata	15033										*	
Eleocharis palustris	15386				*		*				*	
Eleocharis quadrangulata	14947										*	
Eleocharis wolfii	15117										*	
Eleusine indica	14980				*			*	*	*		
Elymus canadensis	15044					*			*		*	
Elymus virginicus	14996				*	*	*					
Eragrostis cilianensis	15043										*	

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
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 grossseserratus	15175											*
Heliopsis 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	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Juncus brevicaudatus	14898											*
Juncus dudleyi	14908	*										*
Juncus effusus	15118										*	
Juncus tenuis	14961		*				*	*	*		*	*
Juncus torreyi	14911				*		*		*			*
Juniperus virginiana	obs.									*		
Kummerowia stipulacea	obs.						*	*	*		*	*
Kummerowia striata	obs.										*	
Lactuca canadensis	14926	*	*		*	*			*			*
Lactuca saligna	15181										*	
Lactuca serriola	14914						*	*			*	*
Leersia oryzoides	15039				*	*	*	*			*	*
Lepidium virginicum	15105										*	
Leptochloa fascicularis	15187										*	
Lespedeza capitata	15395				*	*						
Lespedeza virginica	15396					*						
Liatris sp.	15371					*					*	
Lindernia dubia	14932										*	
Lobelia cardinalis	14933										*	
Lonicera japonica	14998	*				*		*		*	*	
Ludwigia alterniflora	14954					*			*		*	
Ludwigia peploides	14943										*	
Ludwigia palustris	14992						*					
Lycopus americanus	14953								*			
Lythrum alatum	14982						*					
Maclura pomifera	obs.					*						
Melilotus albus	obs.						*	*		*		
Melilotus officinalis	14938								*		*	*
Mimulus ringens	15376					*					*	
Monarda fistulosa	15368					*					*	
Morus alba	14927	*						*	*	*		*
Muhlenbergia glabriflora	15057					*						
Oenothera biennis	14900				*	*		*			*	*
Oligoneuron rigidum	15045					*					*	

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Oxalis stricta	14981	*			*						*	
Panicum columbianum	obs.	*					*					
Panicum dichotomiflorum	15032										*	
Panicum virgatum	14967	*	*		*	*	*			*		
Parthenium integrifolium	15374					*					*	
Parthenocissus quinquefolia	obs.	*								*		
Paspalum sp.	14962	*						*	*		*	
Pastinaca sativa	obs.										*	*
Penthorum sedoides	14994						*					
Phalaris arundinacea	obs.	*	*									
Phleum pratense	14904, 15130					*			*	*	*	*
Phyla lanceolata	14977									*		
Physostegia virginiana	15365										*	
Physalis heterophylla	obs.					*						*
Phytolacca americana	15041	*								*	*	*
Plantago aristata	obs.	*										
Plantago lanceolata	15387	*			*	*						
Plantago major	obs.											*
Plantago rugelii	14978, 15394								*	*		
Poa compressa	14960								*			
Poa pratensis	15126										*	
Polygala sp.	15389					*						
Polygonatum commutatum	obs.											*
Polygonum aviculare	15177											*
Polygonum amphibium	obs.				*							
Polygonum hydropiper	15196				*							
Polygonum hydropiperoides	15009											*
Polygonum pensylvanicum	15197		*		*							
Polygonum persicaria	14897											*
Populus alba	14965									*		
Populus deltoides	14917		*		*					*		*
Potamogeton foliosus	14940, 15381										*	
Potamogeton illinoensis	15115										*	
Potentilla arguta	15373	*									*	

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Prunella vulgaris	15390	*				*						
Prunus americana	14975	*				*						*
Prunus serotina	obs.	*			*	*						*
Pycnanthemum tenuifolium	14894	*		*	*	*	*					
Pyrrhopappus carolinianus	15003							*	*		*	
Quercus imbricaria	15055		*			*						
Quercus marilandica	15399					*						
Quercus palustris	obs.		*				*					
Quercus stellata	15054					*						
Ratibida pinnata	15049					*					*	
Rhus glabra	obs.	*	*		*	*						*
Robinia pseudoacacia						*						
Rosa carolina	14964					*				*		
Rosa multiflora					*	*						*
Rotala ramosior	14945										*	
Rubus allegheniensis	obs.	*	*		*		*	*	*	*	*	
Rubus flagellaris	obs.					*						*
Rubus pensylvanicus	15109		*							*	*	*
Rudbeckia hirta	14950, 15127		*						*		*	*
Rudbeckia subtomentosa	15370										*	
Ruellia humilis	14989					*	*					
Ruellia strepens	14966									*		
Rumex acetosella	obs.				*							
Rumex obtusifolius	obs.							*				
Sagittaria latifolia	15400				*							
Sagittaria calycina	obs.										*	
Salix interior	obs.		*									
Salix nigra	15179										*	
Sambucus canadensis	14990						*					
Sassafras albidum	14892		*				*					*
Schizachyrium scoparium	obs.	*				*					*	*
Schoenoplectus mucronatus	14936										*	
Schoenoplectus tabernaemontani	obs.										*	
Scirpus cyperinus	15377										*	

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Scirpus georgianus	14912, 15122		*		*	*	*	*			*	*
Scirpus pendulus	15379										*	
Setaria pumila	15016		*				*	*			*	
Setaria viridis	15026	*							*		*	*
Sida spinosa	14956				*				*			
Silphium integrifolium var.deamii	14986					*	*					
Silphium integrifolium var. integrifolium	14888	*			*	*	*	*	*	*	*	*
Silphium laciniatum	14985					*	*					
Silphium perfoliatum	15369					*					*	*
Silphium terebinthinaceum	obs.					*				*		
Solanum carolinianum	14937					*					*	*
Solidago canadensis	14931	*	*	*	*	*	*	*	*	*	*	*
Solidago gigantea	14984						*					
Solidago juncea	obs.	*				*	*			*		
Sonchus asper	15183										*	
Sorghastrum nutans	15022					*			*	*	*	*
Sparganium eurycarpum	15193				*							
Spartina pectinata	14976				*	*	*		*		*	
Sporobolus heterolepis	obs.					*						
Sporobolus asper	15052					*						
Strophostyles leiosperma	15191										*	*
Symphoricarpus albus	14920	*				*	*			*	*	*
Taraxacum officinale	obs.										*	
Teucrium canadense	15114				*	*		*			*	
Torilis japonica	15388					*						
Thlaspi perfoliata	15108										*	
Toxicodendron radicans		*	*		*	*	*	*		*		*
Tradescantia ohiensis	15372					*					*	
Tridens flavus	15047						*	*			*	*
Trifolium pratense	14895							*	*			*
Typha latifolia	15384				*		*				*	
Ulmus americana	14925	*				*				*		*
Ulmus rubra	obs.					*						

Species	Voucher	Tract 1	Tract 2	Tract3	Tract4	Tract 5	Tract 6	Tract7	Tract 8	Tract 9	Tract 10	Tract 11
		Perbix	Loy40	Lacey100	Loy100	Soldner	Butler	Guymon	Copple	Survey	Bartels	Bainbridge
Verbascum blattaria	obs.				*	*						
Verbascum thapsus	obs.						*					
Verbena hastata	14929				*				*		*	*
Verbena urticifolia	15392					*						
Vernonia missurica	14924	*	*	*	*	*	*	*	*		*	*
Veronica arvensis	15110										*	
Vitis cinerea	14923						*					*
Xanthium strumarium	15028				*							