

Vascular Flora of Patton Woods, Kerr Township, Champaign County, Illinois

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ABSTRACT

The vascular flora at Patton Woods has been surveyed intermittently since the area became a managed Nature Conservancy preserve in 1976. The preserve is 5.8 hectares and is located in Kerr Township, Champaign, County Illinois (NE1/4NE1/4S1T22 NR11E). A total of 193 taxa, representing 140 genera and 66 families, have been identified within or immediately adjacent to the preserve. Eighty-seven percent of these taxa were native. Two taxa are Champaign County records. The quality of this site as a natural area was also assessed using quantitative methods based on floral composition and diversity. The site was found to have a mean C value (\bar{C}) of 3.57, a modal C value of 4 and a floristic quality index (FQI) rating of 46.41. Additionally, the site was found to have a mean *Wetness* classification of +1.76 indicating a largely Faculative Upland+ flora with oak (*Quercus alba* L., IV=82) and hickory (*Carya ovata* (Mill.) K.Koch), IV=43) the dominant woody vegetation. Although a relatively small area, it has been largely free of invasion by exotics or sugar maple (*Acer saccharum* Marsh.).

INTRODUCTION

Patton Woods is located near the northeast corner of Champaign County where it borders Ford County to the north and Vermilion County 3 miles to the east (087° 59.394' Lat. 40° 23.853' Long.). Originally a Nature Conservancy (TNC) project in the early 1970's, the woods was deeded to the Champaign County Forest Preserve District (CCFPD) in 1995. Currently the preserve is managed through the joint efforts of Parkland College (Champaign, IL), TNC and the CCFPD. Patton Woods was once contiguous with the forests of the Middle Fork of the Vermilion River. This area was named for the venerable pioneer, "Grandma" Jane Patton (1824-1921), who preserved the woods for her heirs. The original site of her house and grave are located near the timber. Much of the history of this area is chronicled in her book, Remembrances of a Pioneer (Patton 1904). In 1973, the heirs of Jane Patton donated 5.8 hectares of this oak-hickory forest to TNC. The privately owned wooded areas adjacent to the preserve expands the total area of this study site to 8.9 hectares. Although a relatively small area, it has been largely free of invasion by exotics or sugar maple (*Acer saccharum* Marsh.).

Patton Woods has a relatively level topography with gradual increases in elevation (about 5 meters) toward the center of the site. There is also a low-lying area on the northeast corner which remains wet during much of the year. Immediately to the north is the Chatsworth Moraine where the elevation rises about 15 meters. A self guiding nature trail with accompanying guide booklets (Parkland College 1991a-d) with 24 numbered stations forms approximately a ½ mile loop through the preserve. In 1998, the area became an Illinois ForestWatch site (FW Site ID# FO 801901), a program currently administered by the Illinois Department of Natural Resources (IDNR 1998).

In 1976, with the assistance of Dr. Almut Jones, former Curator of the Herbarium at the University of Illinois, an attempt was made to determine all of the vascular plant species occurring on the preserve. Since that time, many trips were made to the area and all additional species found were recorded. All species found are listed in Appendix 1. Nomenclature follows Mohlenbrock (2002). Several voucher specimens by A. Jones are deposited in the Herbarium of the University of Illinois (ILL). Additionally, a few specimens are in the herbarium collection of the Natural Sciences Department at Parkland College.

The objectives of this study are to document the vascular flora of Patton Woods and describe the flora in terms of floristic quality, wetness classification, physiognomy and dominant vegetation.

METHODS

Patton Woods is located 2 miles east and 6 miles north of Gifford, Illinois in Kerr Township, Champaign County (NE1/4 NE1/4 S1 T22N R11E). The Middle Fork of the Vermilion River is located approximately ½ mile to the south and to the west of the woods. Currently, the woods is functionally a white oak (*Quercus alba* L.) dominated forest island surrounded on two sides by cropland and bordered by County Roads 2500E and 3600N. The woods is fragmented from the rest of the CCFPD Middle Fork River forest.

From the list of species (Appendix 1), the floristic quality index (FQI) of the site was determined using the procedure developed by Swink and Wilhelm (1994) and Taft, et al. (1997). The FQI was determined by using the coefficient of conservatism (CC) assigned to each species by Taft, et al. (1997). The CC for each taxon was determined by assigning each an integer from 0 to 10 based on the species' tolerance to disturbance and its fidelity to habitat integrity. The mean coefficient of conservatism (\bar{C}) is calculated by summing all coefficients in an inventory unit and dividing by the number of species (N), or $\bar{C} = \Sigma C/N$. Non-native species were not included when calculating the FQI for a natural area.

In order to further characterize the site and its flora, the wetness of Patton Woods was assessed based on the National Wetland Category for Region 3 of the United States Fish and Wildlife Service (Reed 1988). Plants are designated as Obligate Wetland, Faculative Wetland, Faculative, Faculative Upland, and Upland. These classes are further ranked by "+" and "-" values for the three facultative classes, thereby providing further resolution. Mean wetness is an average derived from all wetness (ordinate) values in a floristic inventory unit; it provides an index that characterizes the plant community in terms of hydrological characteristics (Taft, et al. 1997). For Patton Woods, the mean wetness was calculated using the wetness values for each species as described in Taft, et al. (1997)

where Σ/N = mean wetness of the flora. Σ = sum of all wetness values of all species in the study area divided by the total species present (N).

The physiognomy includes plant habit (architectural characteristics), life history, and certain taxonomic classes. Physiognomic classes assigned to each taxon in the Illinois flora are Fern (including fern allies), Annual Forb, Biennial Forb, Perennial Forb, Annual Grass, Perennial Grass, Annual Sedge, Perennial Sedge, Herbaceous Vine, Woody Vine, Shrub, and Tree. Tracking physiognomic classes can be an important component of Floristic Quality Assessment (FQA), since it is theoretically possible for dramatic changes in community structure to occur without changes in the FQI (Taft, et al. 1997).

Finally, the Importance Value (IV) was assessed among the trees in order to provide an indication of which woody plants were most significant throughout Patton Woods. Using three transects 100 m long and 20 m apart, all woody species ≥ 5 cm dbh (diameter at breast height or 1.3 m above ground) were identified within 5 m of each transect. The Importance Value (IV) is the sum of the % Relative Abundance (number of individuals of a given species divided by the total number of individuals of all species) + % Relative Coverage (coverage of a given species as measured in m^2 divided by the coverage for all species) of the species ($IV = RA + RC$) as described in the Illinois ForestWatch Monitoring Manual (IDNR 1998). In the future, the Illinois ForestWatch program should provide information on any changes in the plant community of Patton Woods. The Illinois ForestWatch monitoring has included recording the presence or absence of common native and non-native plants.

RESULTS

A total of 66 families, 140 genera and 193 species were located growing in Patton Woods or in the adjacent wooded extensions of the forest (see Appendix 1 for a list of all 193 taxa). No Illinois endangered or threatened species were located. Four families had ten or more taxa and these were as follows: Asteraceae (32), Rosaceae (15), Poaceae (14), and Fabaceae (10). Thirty-eight families were represented by only one species and 14 families by only two species. Native plants comprised 88% ($n = 169$) of the 193 taxa identified. Two taxa are Champaign County records: bracted green orchid (*Coeloglossum viride* (L.) Hartm.) and rattlesnake-root (*Prenanthes alba* L.). The mean C value (\bar{C}) for native plants was 3.57 ($n = 169$) and the mode was 4 (see Figure 1). The plant with the highest C value was *Coeloglossum viride* (L.) Hartm. at 8. The floristic quality index (FQI) was calculated to be 46.41 ($n = 169$).

The wetness classification of the Patton Woods flora was determined to be Facultative Upland+ (mean wetness = +1.76 where $n = 193$). The mode was +3 (Facultative Upland) and was represented by 47 of the 193 species (Table 2). Among the different physiognomic classes, 109 species (out of 193 total) representing 56 % of all plants were Perennial Forbs. The next highest category were Trees, where there were 23 species accounting for 12 % of the total flora (Table 3). When the Importance Value was assessed during an Illinois ForestWatch monitoring session, *Quercus alba* L. was clearly the dominate tree in Patton Woods with an $IV = 82.1$ (where the total number of trees, $n = 97$). *Carya ovata* (Mill.) K.Koch was the second most important species of tree with $IV = 43.2$.

Considering Patton Woods in a larger context, the Natural Division for this site would be in the Grand Prairie Section of the Grand Prairie Division of the Natural Divisions of Illinois (Schwegmann 1973). Further, using the classification system developed for the Illinois Natural Areas Inventory (White and Madany 1978), Patton Woods could best be described as a “dry-mesic upland forest.” This is based on the abundance of white oaks (*Quercus alba* L.). The dominant canopy species of a dry-mesic upland forest are white oak (*Quercus alba* L.), black oak (*Quercus velutina* Lam. f.), shagbark hickory (*Carya ovata* (Mill.)K.Koch) where the forest composition has been altered by logging or a history of grazing (Illinois Department of Natural Resources 1999). No doubt this woodland, like others in central Illinois, has suffered from past disturbances and absence of fire for many years prior to any protection and management program. For comparison, other natural areas in central Illinois are classified as follows: Brownfield Woods (Champaign County) – mesic upland forest, Trelease Woods (Champaign County) – dry-mesic upland forest, Robert Allerton Park (Piatt County) – mesic upland forest, wet-mesic and wet floodplain forest, Funk Forest (McLean County) – mesic upland forest (Meyer 1987).

Patton Woods is likely a remnant of Sugar Grove, a prairie grove in far northern Kerr Township (Champaign County) and part of the Middle Fork River timber. Prior to European settlement, Sugar Grove was a widening of the forest belt at a point where the larger Middle Fork stream is joined by Sugar Branch (McCollum 2000). Today, the Middle Fork River Forest Preserve includes Sugar Creek, which runs behind preserve headquarters. Now a fragment of the original Middle Fork River timber, Patton Woods is located less than one mile from the river and about two miles north and east of Sugar Creek. In the early prairie landscape of Illinois, prairie groves were most prevalent on the east side of water-courses; features that acted as firebreaks (Jeffords, et al. 1995). Certainly the Middle Fork River timber, including the Patton Woods fragment, could have represented an early Illinois prairie grove.

The floristic quality index (FQI) rating of 46.41 clearly illustrates that Patton Woods and its adjacent forested areas represent a natural area of significant quality that merits preservation. Swink and Wilhelm (1994, p.14) indicate that “Generally, if the \bar{C} value for the site is 3.5 or higher or has an FQI value of 35 or more, one can be fairly confident that the site has sufficient floristic quality to be at least of marginal natural area quality. If the \bar{C} value is 4.5 or higher, or has an FQI of 45 or more, then it is almost certain that the remnant has natural area potential.”

Furthermore, in the survey area of the three transects, no invasive species such as garlic mustard (*Alliaria petiolata* (Bieb.) Cavara & Grande.), Japanese honeysuckle (*Lonicera japonica* Thunb.), non-native buckthorn (*Frangula* spp.), high-bush cranberry (*Viburnum opulus* L.), autumn olive (*Elaeagnus umbellata* Thunb.), multiflora rose (*Rosa multiflora* Thunb.) or gooseberry (*Ribes missouriense* Nutt.) were recorded. No doubt its isolation from the more extensively forested areas along the Middle Fork River have helped slow the movement of exotics into Patton Woods. Of the 24 species of exotics in the site, nearly all are restricted to the forest edge and do not occur in the forest interior. *Rosa multiflora* Thunb. is perhaps the most abundant exotic, being found in a few locations along the periphery of the woods.

Finally, even though there are some moist areas along the north border of the woods where water frequently collects in the spring, there is minimal invasion of sugar maples (*Acer saccharum* Marsh.). This fire sensitive species seems to have otherwise overtaken the understory of the more mesic forest remnants in central Illinois. Both the minimal invasion of the exotics and near absence of sugar maples (*Acer saccharum* Marsh.) further illustrate the natural quality of this small but rather unique plant community.

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Table 1. Distribution of Conservatism Values (C) for plants found at or immediately adjacent to Patton Woods.

	Not Native	Native										
CC Value	*	0	1	2	3	4	5	6	7	8	9	10
# Taxa	24	9	16	32	12	47	33	7	12	1	0	0

N (total of native species) = 169

Total of all Taxa = 193

$\bar{C} = \sum C/N = 603/169 = 3.57$ Mode = 4

FQI (Floristic Quality Index) = $\bar{C}(\sqrt{N}) = (3.57)(\sqrt{169}) = (3.57)(13.0) = 46.41$

Table 2. Wetness distribution for plants found at or immediately adjacent to Patton Woods.

	← Wet					Dry →					
Wetness Classification	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
# Taxa	7	2	8	12	8	28	16	9	47	16	40

N (total of all species) = 193, $\sum = 340$

Mean Wetness = $\frac{\sum}{N} = \frac{340}{193} = +1.76$ (Facultative Upland+)

Mode = +3 (Facultative Upland)

Table 3. Physiognomy distribution for plants found at or immediately adjacent to Patton Woods.

Physiognomy	# Taxa	% of Total
fern	3	1.6
annual forb (A-forb)	14	7.3
biennial forb (B-forb)	6	3.1
perennial forb (P-forb)	107	55.4
annual grass (A-grass)	1	0.5
perennial grass (P-grass)	13	6.7
annual sedge (A-sedge)	0	0
perennial sedge (P-sedge)	2	1.0
herbaceous vine (H-vine)	4	2.1
woody vine (W-vine)	8	4.1
shrub	12	6.2
tree	23	11.9
Totals	193	99.9%

Table 4. Importance Values for trees found at or immediately adjacent to Patton Woods.

Tree Species	Abundance (A)	% Relative Abundance (RA)	Coverage (m ²)	% Relative Coverage (RC)	Importance Value (IV)
<i>Quercus alba</i>	15	15.5	2.5136	66.6	82.1
<i>Quercus rubra</i>	9	9.3	0.5615	14.9	24.2
<i>Ulmus rubra</i>	21	21.6	0.1988	5.3	26.9
<i>Fraxinus americana</i>	8	8.2	0.0751	2.0	10.2
<i>Carya ovata</i>	33	34	0.3482	9.2	43.2
<i>Celtis occidentalis</i>	1	1	0.0044	<0.1	1.0
<i>Prunus serotina</i>	10	10.3	0.0706	1.9	12.2
Totals	97	99.9%	3.7722 m ²	99.9%	199.8

Appendix 1.

Checklist of vascular flora for Patton Woods and its immediate surroundings. Plants are identified according to the taxonomic nomenclature used by R.H. Mohlenbrook (2002):

CC = Coefficient of Conservatism - an integer from 0 to 10 assigned to each taxon in the Illinois flora. Each value reflects an estimate of the plant's tendency to be restricted to "natural areas." Low values are more cosmopolitan taxa, higher values indicate increasing restrictiveness.

Wet = Wetness classification is based on The National Wetland Category for Region 3 of the U.S. Fish and Wildlife Service. Scale is from -5 (obligate Wetland species) to +5 (Upland species); 0 = Facultative species.

*Champaign County Record Total Taxa = 193

Physiognomy - Classes are assigned to each taxa in the Illinois flora:

Fern	A-sedge = annual sedge
A-forb = annual forb	P-sedge = perennial sedge
B-forb = biennial forb	H-vine = herbaceous vine
P-forb = perennial forb	W-vine = woody vine
A-grass = annual grass	shrub
P-grass = perennial grass	tree

FERNS and FERN ALLIES

Aspleniaceae - Spleenwort Family

Onoclea sensibilis L. -- sensitive fern (CC = 5; Wet = -3) fern

Dryopteridaceae - Shield Fern Family

Cystopteris protrusa (Weatherby) Blasd.-- fragile fern (CC = 4; Wet = 3) fern

Ophioglossaceae - Adder's-Tongue Family

Botrychium virginianum (L.) Sw.-- rattlesnake fern (CC = 4; Wet = 3) fern

GYMNOSPERMS

Cupressaceae - Cypress Family

Juniperus virginiana L.-- red cedar (CC = 1; Wet = 3) tree

ANGIOSPERMS

Aceraceae - Maple Family

Acer saccharum Marsh.-- sugar maple (CC = 4; Wet = 3) tree

Anacardiaceae - Sumac Family

Rhus glabra L.-- smooth sumac (CC = 1; Wet = 5) shrub

Toxicodendron radicans (L.) Kuntze.-- poison ivy (CC = 1; Wet = 3) W-vine

Apiaceae - Carrot Family

Daucus carota L. -- wild carrot; Queen Anne's lace (not native; Wet = 4) B-forb

Osmorhiza claytonii (Michx.) Clarke -- sweet Cicely (CC = 1; Wet = 4) P-forb

Pastinaca sativa L. -- wild parsnip (not native; Wet = 5) B-forb

Sanicula odorata (Raf.) K.M. Pryer & L.R. Phillippe -- clustered or common black snakeroot (CC = 2; Wet = -1) P-forb

Sium suave Walt. -- water parsnip (CC = 5; Wet = -5) P-forb

Taenidia integerrima (L.) Drude -- yellow pimpnel (CC = 7; Wet = 5) P-forb

Thaspium barbinode (Michx.) Nutt. -- hairy meadow parsnip (CC = 7; Wet = 5) P-forb

Apocynaceae - Dogbane Family

Apocynum cannabinum L.-- common dogbane; Indian hemp (CC = 2; Wet = 0) P-forb

Araceae - Arum Family

Arisaema triphyllum (L.) Schott -- Jack-in-the-pulpit (CC = 4; Wet = -2) P-forb

Asclepiadaceae - Milkweed Family

Asclepias syriaca L.-- common milkweed (CC = 0; Wet = 5) P-forb

Asclepias verticillata L.-- horsetail milkweed (CC = 1; Wet = 5) P-forb

Asteraceae - Aster Family

Achillea millefolium L. -- yarrow; common milfoil (not native; Wet = 3) P-forb

Ageratina altissima (L.) R.M. King & H. Robins. -- white snakeroot (CC = 2; Wet = 3) P-forb

Ambrosia artemisiifolia L. -- common ragweed (CC = 0; Wet = 3) A-forb

Ambrosia trifida L. -- giant ragweed (CC = 0; Wet = -1) A-forb

Antennaria plantaginifolia (L.) Hook.-- pussytoes (CC = 4; Wet = 5) P-forb

Aster drummondii Lindl. -- Drummond's aster (CC = 3; Wet = 3) P-forb

Aster lateriflorus (L.) Britt -- side-flowering aster (CC = 2; Wet = 5) P-forb

Aster ontarionis Wieg. -- Ontario aster (CC = 4; Wet = 0) P-forb

Aster pilosus Willd. -- hairy aster (CC = 0; Wet = 4) P-forb

Aster praealtus Poir. -- willow aster (CC = 4; Wet = -5) P-forb

Aster sagittifolius Willd. -- arrow-leaved aster (CC = 4; Wet = 5) P-forb

Aster shortii Lindl. -- Short's aster (CC = 6; Wet = 5) P-forb

Bidens cernua L. -- nodding bur marigold (CC = 2; Wet = -5) A-forb

Bidens vulgata Greene -- tall beggar's-ticks (CC = 0; Wet = -3) A-forb

Cichorium intybus L. -- chicory (not native; Wet = 5) P-forb

Cirsium altissimum (L.) Spreng. -- tall thistle (CC = 3; Wet = 5) P-forb

Cirsium arvense (L.) Scop. -- Canada thistle (not native; Wet = 3) P-forb

Coreopsis tripteris L. -- tall tickseed or tall coreopsis (CC = 4; Wet = 0) P-forb
Erigeron annus (L.) Pers. -- annual fleabane (CC = 1; Wet = 1) B-forb
Eupatoriadelphus purpureus L. -- purple Joe-pye weed (CC = 5; Wet = 0) P-forb
Helianthus grosseserratus Martens -- sawtooth sunflower (CC = 2; Wet = -2) P-forb
Helianthus hirsutus Raf. -- hispid sunflower (CC = 5; Wet = 5) P-forb
Lactuca floridana (L.) Gaertn. -- woodland lettuce (CC = 4; Wet = 1) B-forb
Prenanthes alba L.* -- white lettuce; rattlesnake-root (CC = 5; Wet = 3) P-forb
Rudbeckia hirta L. -- black-eyed Susan (CC = 2; Wet = 3) P-forb
Silphium terebinthinaceum Jacq. -- prairie dock (CC = 4; Wet = 1) P-forb
Solidago canadensis L. -- tall or Canada goldenrod (CC = 1; Wet = 3) P-forb
Solidago ulmifolia Muhl. -- elm-leaved goldenrod (CC = 5; Wet = 5) P-forb
Taraxacum officinale Weber -- common dandelion (not native; Wet = 3) P-forb
Tragopogon pratensis L. -- common goat's beard (not native; Wet = 5) B-forb
Verbesina alternifolia (L.) Britt. -- yellow ironweed (CC = 4; Wet = -3) P-forb
Vernonia missurica Raf. -- Missouri ironweed (CC = 5; Wet = -1) P-forb

Balsaminaceae - Jewelweed Family

Impatiens pallida Nutt.-- jewelweed; pale touch-me-not (CC = 4; Wet = -3) P-forb

Berberidaceae - Barberry Family

Podophyllum peltatum L. -- mayapple (CC = 4; Wet = 3) P-forb

Boraginaceae - Borage Family

Mertensia virginia (L.) Pers.-- bluebells; Virginia cowslip (CC = 5; Wet = -3) P-forb

Brassicaceae - Mustard Family

Dentaria laciniata Muhl. -- toothwort; pennywort (CC = 4; Wet = 4) P-forb

Lepidium virginicum L. -- common pepper-grass (CC = 0; Wet = 4) A-forb

Caesalpinaceae - Caesalpinia Family

Chamaechrista fasciculata (Michx.) Greene (*Cassia fasciculata* Michx.) -- partridge pea
(CC = 1; Wet = 4) A-forb

Ceris canadensis L. -- eastern redbud (CC = 3; Wet = 3) tree

Gleditsia triacanthos L. -- honey locust (CC = 2; Wet = 0) tree

Campanulaceae - Bellflower Family

Campanulastrum americanum (L.) Small (*Campanula americanum* (L.) Small) -- American bellflower (CC = 4; Wet = 0) P-forb

Caprifoliaceae - Honeysuckle Family

Sambucus canadensis L. var. *canadensis*. -- common elderberry (CC = 2; Wet = 4) shrub

Triosteum perfoliatum L. -- late horse gentian (CC = 5; Wet = 5) P-forb

Caryophyllaceae - Pink Family

Silene stellata (L.) -- starry campion (CC = 6; Wet = 5) P-forb

Celastraceae - Bittersweet Family

Celastrus scandens L. -- climbing bittersweet (CC = 2; Wet = 3) W-vine

Commelinaceae - Day-flower Family

Tradescantia subaspera Ker. var. *subaspera*. -- broad-leaved spiderwort (CC = 5; Wet = 5) P-forb

Tradescantia virginica L. -- Virginia spiderwort (CC = 7; Wet = 5) P-forb

Convolvulaceae - Morning-glory Family

Convolvulus arvensis L. -- field bindweed (not native; Wet = 5) P-forb

Cornaceae - Dogwood Family

Cornus racemosa Lam. -- gray dogwood (CC = 2; Wet = -2) shrub

Corylaceae - Hazelnut Family

Corylus americana Walt.-- hazelnut (CC = 4; Wet = 0) shrub

Ostrya virginiana (Mill.) K. Koch var. *virginiana* -- ironwood; hop hornbeam, (CC = 4; Wet = 4) tree

Cyperaceae - Sedge Family

Carex molesta Mack. -- field oval sedge (CC = 2; Wet = 0) P-sedge

Carex squarrosa L. -- narrow-leaved cattail sedge (CC = 5; Wet = -5) P-sedge

Dioscoreaceae - Yam Family

Dioscorea villosa L. -- wild yam (CC = 4; Wet = 1) H-Vine

Fabaceae - Pea Family

Amphicarpaea bracteata (L.) Fern. var. *bracteata* -- hog-peanut (CC = 4; Wet = 0) H-vine

Amphicarpaea bracteata (L.) Fern. var. *comosa* (L.) Fern. -- hog-peanut (CC = 4; Wet = 0) H-vine

Desmodium cuspidatum (Muhl.) Loud. var. *longifolium* (Torr. & Gray) B.G. Schub. -- tick trefoil (CC = 6; Wet = 5) P-forb

Desmodium glutinosum (Muhl.) A. Wood -- pointed tick trefoil (CC = 3; Wet = 5) P-forb

Desmodium paniculatum (L.) DC. -- panicked tick trefoil (CC = 2; Wet = 3) P-forb

Melilotus albus Medic. -- white sweet clover (not native; Wet = 3) B-forb

Melilotus officinalis (L.) Pallas. -- yellow sweet clover; Common Balm (not native; Wet = 5) P-forb

Trifolium campestre Schreb. -- low hop clover (not native; Wet = 5) A-forb

Trifolium pratense L. var. *pratense* -- red clover (not native; Wet = 2) P-forb

Trifolium repens L. -- white clover (not native; Wet = 2) P-forb

Fagaceae - Beech Family

Quercus alba L. -- white oak (CC = 5; Wet = 3) tree

Quercus imbricaria Michx. -- shingle oak (CC = 2; Wet = 1) tree

Quercus macrocarpa Michx. -- bur oak (CC = 5; Wet = 1) tree

Quercus rubra L. -- northern red oak (CC = 5; Wet = 3) tree

Quercus velutina Lam. f. *velutina* -- black oak (CC = 5; Wet = 5) tree

Fumariaceae - Fumitory Family

Dicentra cucullaria (L.) Bernh. -- Dutchman's breeches (CC = 5; Wet = 5) P-forb

Geraniaceae - Geranium Family

Geranium maculatum L. -- wild geranium (CC = 4; Wet = 3) P-forb

Grossulariaceae - Gooseberry Family

Ribes missouriense Nutt. -- common or Missouri gooseberry (CC = 2; Wet = 5) shrub

Hydrophyllaceae - Waterleaf Family

Ellisia nyctelea L. -- Aunt Lucy (CC = 1; Wet = -1) A-forb

Hypericaceae - St. John's-wort Family

Hypericum punctatum Lam. -- spotted St. John's-wort (CC = 3; Wet = -1) P-forb

Iridaceae - Iris Family

Sisyrinchium angustifolium Mill -- stout blue-eyed grass (CC = 5; Wet = -2) P-forb

Juglandaceae - Walnut Family

Carya cordiformis (Wang.) K. Koch -- bitternut hickory (CC = 4; Wet = 0) tree

Carya ovata (Mill.) K. Koch var. *ovata* -- shagbark hickory (CC = 4; Wet = 3) tree

Juglans nigra L. -- black walnut (CC = 4; Wet = 3) tree

Juncaceae - Rush Family

Juncus tenuis Willd -- path rush (CC = 0; Wet = 0) P-forb

Lamiaceae - Mint Family

Agastache nepetoides (L.) Kuntze -- yellow giant hyssop (CC = 4; Wet = 3) P-forb

Blephilia ciliata (L.) Benth. -- pagoda plant (CC = 6; Wet = 5) P-forb

Monarda fistulosa L. -- wild bergamot (CC = 4; Wet = 3) P-forb

Prunella vulgaris L. -- self-heal; heal-all (not native; Wet = 0) P-forb

Pycnanthemum tenuifolium Schrad -- slender mountain mint (c = 4; Wet = 0) P-forb

Lauraceae - Laurel Family

Sassafras albidum (Nutt.) Nees -- sassafras (CC = 2; Wet = 3) tree

Liliaceae - Lily Family

Allium canadense L. -- wild onion (CC = 2; Wet = 3) P-forb

Allium tricoccum L. -- wild leek; wild ramp (CC = 7; Wet = 2) P-forb

Erythronium albidum Nutt. -- white trout lily; white dog-tooth violet (CC = 4; Wet = 5)
P-forb

Polygonatum biflorum (Walt.) Ell. -- small Solomon's-seal (CC = 7; Wet = 3) P-forb

Polygonatum commutatum (Schultes) A. Dietr. -- great Solomon's-seal (CC = 4; Wet = 3)
P-forb

Smilacina racemosa (L.) Desf. -- false Solomon's-seal (CC = 4; Wet = 3) P-forb

Trillium recurvatum Beck f. *recurvatum* -- purple trillium; wake robin (CC = 5; Wet = 4)
P-forb

Uvularia grandiflora Sm. -- yellow bellwort (CC = 7; Wet = 5) P-forb

Malvaceae - Mallow Family

Abutilon theophrastii Medic. -- velvet-leaf; butter-print (not native; Wet = 4) A-forb

Menispermaceae - Moonseed Family

Menispermum canadense L. -- moonseed (CC = 4; Wet = -1) W-vine

Moraceae - Mulberry Family

Morus alba L. -- white mulberry (not native; Wet = 0) tree

Oleaceae - Ash Family

Fraxinus americana L. -- white ash (CC = 4; Wet = 3) tree

Onagraceae - Evening Primrose Family

Circaea lutetiana Aschers. & Magnus ssp. *canadensis* (L.) Archers. & Magnus. --
enchanter's nightshade (CC = 2; Wet = 3) P-forb

Orchidaceae - Orchid Family

Coeloglossum viride (L.) Hartm.* -- long-bracted orchid; frog orchid (CC = 8; Wet = 0)
P-forb

Liparis liliifolia (L.) Rich.- twayblade orchid (CC = 4; Wet = 4) P-forb

Oxalidaceae - Sorrel Family

Oxalis stricta L. -- yellow wood sorrel (CC = 0; Wet = 3) P-forb

Papaveraceae - Poppy family

Sanguinaria canadensis L. -- bloodroot (CC = 5; Wet = 4) P-forb

Plantaginaceae - Plantain Family

Plantago lanceolata L. -- buckthorn plantain (not native; Wet = 0) P-forb

Plantago rugelii Decne. -- Rugel's plantain (CC = 0; Wet = 0) A-forb

Poaceae - Grass Family

Bromus inermis Leyss -- awnless brome grass; smooth brome (not native; Wet = 5) P-
grass

Bromus latiglumis (Shear) Hitchc. -- nodding brome (CC=7; Wet = -2) P-grass

Cinna arundinacea L. -- stout wood reed (CC = 5; Wet = -3) P-grass

Dichanthelium acuminatum (Sw.) Gould & Clark var. *fasciculatum* (Torr.) Freckm. --
panic grass (CC = 2; Wet = 0) P-grass

Dichanthelium latifolium (L.) Gould & Clark-- broad-leaved panic grass (CC = 5; Wet =
3) P-grass

Elymus canadensis L. -- nodding wild rye (CC = 4; Wet = 1) P-grass

Elymus hystrix L. -- bottlebrush grass (CC = 5; Wet = 5) P-grass

Elymus villosus Muhl. f. *villosus* -- hairy wild rye (CC = 4; Wet = 3) P-grass

Elymus virginicus L. -- Virginia wild rye (CC = 4; Wet = -2) P-grass

Leersia virginica Willd. -- white grass (CC = 4; Wet = -3) P-grass

Panicum virgatum L. -- prairie switch grass (CC = 4; Wet = -1) P-grass
Phleum pratense L. -- Timothy grass (not native; Wet = 3) P-grass
Poa pratensis L. -- Kentucky blue grass (not native; Wet = 1) P-grass
Setaria faberi F. Herrm. -- Giant foxtail (not native; Wet = 2) A-grass

Polemoniaceae - Phlox Family

Phlox divaricata L. spp. *laphamii* (Wood) Wherry -- common phlox (CC = 5; Wet = 3)
 P-forb
Phlox pilosa L. -- downy phlox (CC = 7; Wet = 1) P-forb
Polemonium reptans L. -- Jacob's ladder (CC = 5; Wet = 0) P-forb

Polygonaceae - Smartweed Family

Antenoron virginianum (L.) Roberty & Vautier -- Virginia knotweed (CC = 3; Wet = 0)
 P-forb
Persicaria pensylvanica (L.) -- pink smartweed; pinkweed (CC = 1; Wet = -4) A-forb

Portulacaceae - Purslane Family

Claytonia virginica L. -- spring beauty (CC = 1; Wet = 3) P-forb

Primulaceae - Primrose Family

Lysimachia lanceolata Walt. -- lance-leaved loosestrife (CC = 6; Wet = 0) P-forb

Ranunculaceae - Buttercup Family

Actaea pachypoda Ell. -- white baneberry; doll's-eyes (CC = 7; Wet = 5) P-forb
Anemone virginiana L. -- tall anemone (CC = 4; Wet = 5) P-forb
Anemonella thalictroides (L.) Spach -- rue anemone (CC = 5; Wet = 5) P-forb
Enemion biternatum Raf. -- false rue anemone (CC = 5; Wet = 0) P-forb
Ranunculus abortivus L. -- small-flowered crowfoot (CC = 1; Wet = -2) A-forb
Ranunculus micranthus Torr. & Gray -- small-flowered buttercup (CC = 2; Wet = 1) P-forb
Thalictrum dioicum L. -- early meadow rue (CC = 5; Wet = 2) P-forb

Rosaceae - Rose Family

Agrimonia gryposepala Wallr. -- tall agrimony (CC = 3; Wet = 2) P-forb
Crataegus calpodendron (Ehrh.) Medic. -- sugar hawthorn (CC = 5; Wet = 5) tree
Crataegus mollis (Torr. & Gray) Scheele -- red haw (CC = 2; Wet = -2) tree
Fragaria virginiana Duch. -- wild strawberry (CC = 2; Wet = 1) P-forb
Geum canadense Jacq. var. *canadense* -- white avens (CC = 2; Wet = 0) P-forb
Geum vernum (Raf.) Torr. & Gray. -- spring avens (CC = 1; Wet = 1) P-forb
Porteranthus stipulatus (Muhl.) Britt. -- Indian physic (CC = 6; Wet = 5) P-forb
Potentilla simplex Michx. -- common cinquefoil (CC = 3; Wet = 4) P-forb
Prunus serotina Ehrh. -- wild black cherry (CC = 1; Wet = 3) tree
Rosa multiflora Thunb. -- multiflora rose; Japanese rose (not native; Wet = 3) shrub
Rosa setigera Michx. -- prairie rose (CC = 5; Wet = 2) shrub
Rubus allegheniensis Porter -- common blackberry (CC = 2; Wet = 2) shrub
Rubus argutus Link. -- high-bush blackberry (CC = 3; Wet = 1) shrub
Rubus flagellaris Willd. -- common dewberry (CC = 2; Wet = 4) shrub
Rubus occidentalis L. -- black raspberry (CC = 2; Wet = 3) shrub

Rubiaceae - Madder Family

- Diodia teres* Walt. -- rough buttonweed (CC = 2; Wet = 3) A-forb
Galium asprellum Michx. -- rough bedstraw (CC = 7; Wet = -5) P-forb
Galium circeazans Michx. -- wild licorice (CC = 4; Wet = 4) P-forb
Galium concinnum Torr. & Gray. -- shining bedstraw (CC = 4; Wet = 3) P-forb
Galium mollugo L. -- white bedstraw (not native; Wet = 5) P-forb
Galium obtusum Bigel. -- wild madder (CC = 5; Wet = -4) P-forb
Galium triflorum Michx. -- sweet-scented bedstraw (CC = 4; Wet = 2) P-forb

Rutaceae - Citrus Family

- Zanthoxylum americanum* Mill. -- prickly ash (CC = 4; Wet = 5) shrub

Salicaceae - Willow Family

- Populus deltoides* Marsh. -- eastern cottonwood (CC = 2; Wet = -1) tree

Saxifragaceae - Saxifrage Family

- Heuchera richardsonii* R. Br. var. *grayana* Rosand., Butt., & Lak. -- prairie alumroot
(CC = 7; Wet = 1) P-forb

Scrophulariaceae - Figwort Family

- Collinsia verna* Nutt. -- blue-eyed Mary (CC = 5; Wet = 3) A-forb
Penstemon calycosus Small -- smooth beardstongue (CC = 3; Wet = 3) P-forb
Penstemon digitalis Nutt. -- floxglove beardstongue (CC = 4; Wet = 1) P-forb
Veronicastrum virginicum (L.) Farwell -- Culver's-root (CC = 6; Wet = 0) P-forb

Smilacaceae - Greenbrier Family

- Smilax tamnoides* L. var. *hispida* (Muhl.) -- greenbrier; catbrier; (CC = 3; Wet = 0) W-vine
vine
Smilax lasioneura Hook. -- carrion flower (CC = 4; Wet = 5) H-vine

Tiliaceae - Basswood Family

- Tilia americana* L. var. *americana* -- basswood (CC = 5; Wet = 3) tree

Typhaceae - Cat-tail Family

- Typha angustifolia* L. -- narrow-leaved or common cat-tail (not native; Wet = -5) P-forb
Typha latifolia L. -- broad-leaved cat-tail (CC = 1; Wet = -5) P-forb

Ulmaceae - Elm Family

- Ulmus americana* L. -- American elm (CC = 5; Wet = -2) tree
Ulmus rubra Muhl. -- slippery or red elm (CC = 3; Wet = 0) tree

Urticaceae - Nettle Family

- Laportea canadensis* (L.) Wedd. -- wood nettle (CC = 2; Wet = -3) P-forb

Violaceae - Violet Family

- Viola pratincola* Greene. -- common blue violet (CC = 1; Wet = 0) P-forb

Viola pubescens Ait. var. *eriocarpa* Schw. -- downy yellow violet (CC = 7; Wet = 4) P-forb

Vitaceae - Grape Family

Parthenocissus quinquefolia (L.) Planch. -- Virginia creeper (CC = 2; Wet = 1) W-vine

Vitis cinerea (Engelm.) Engelm. -- winter grape (CC = 4; Wet = -2) W-vine

Vitis riparia Michx. var. *riparia* -- riverbank grape (CC = 2; Wet = -2) W-Vine

Vitis vulpina L. -- frost grape; fox grape (CC = 2; Wet = -2) W-Vine