

Vascular Flora of The Red Hills State Park, Lawrence County, Illinois

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ABSTRACT

The vascular flora of Red Hills State Park, Lawrence County, Illinois, was studied during the growing seasons of 1997-1999. A total of 537 taxa in 308 genera and 105 families were observed, 23 fern, fern allies, and Gymnospermae, 142 monocots, and 372 dicots. The families with the largest number of taxa included the Asteraceae (71 taxa), the Poaceae (65), the Cyperaceae (32), the Rosaceae (20), the Lamiaceae (18), and the Fabaceae (18). The genera with the largest number of species included *Carex* (21 taxa), *Polygonum* (10), *Quercus* (10), *Aster* (9), and *Dichanthelium* (8). The overstory of two dry-mesic upland forest communities was surveyed, and the density (stems/ha), basal area (m²/ha), relative density, relative dominance, importance value, and average diameter determined for each species. The forest in Red Hills Woods Nature Preserve was dominated by white oak with an importance value (IV) of 111.7 (200 possible), with sassafras, green ash, shagbark hickory, and black oak being marginally important. The forest in the Red Hills State Park was dominated by white oak with an IV of 65.3, with red oak and black oak as subdominants.

INTRODUCTION

Red Hills State Park (RHSP) is located in west-central Lawrence County, east-central Illinois approximately 13 km west of Lawrenceville. The 384 ha (948-acre) RHSP was established in 1943 with an initial purchase of approximately 400 acres. Periodic acquisitions continued until 1953 when a 140 acre tract was acquired to serve as a drainage basin supply for a 40 acre lake completed in 1953 (Scherer 1993). Red Hills Woods Nature Preserve (RHWNP) is located the south-central portion of RHSP while Red Hills Seep Springs Land and Water Reserve is located in the north-central portion (McFall and Karnes 1995). The RHSP was developed to provide camping, fishing, hunting, and other recreational opportunities for the public. Although most of RHSP has been subjected to agricultural production, timber harvest, and grazing in the past, the site has retained a relatively high diversity of plant and animal life, serving as an important reserve for plant and animal communities and threatened and endangered taxa. The present study was undertaken to document the vascular flora of the nature preserve, registered land and water reserve, and the state park, and to determine the composition and structure of the plant communities present.

METHODS

Following a preliminary visit in 1996, 9 visits were made in 1997, 15 in 1998, and 5 in 1999. Plant collections were made from June 1997 to September 1999. During each visit, voucher specimens were collected, abundance values determined, the plant communities delineated, and the status of endangered or threatened species monitored. Six taxa were not collected due to rarity or threatened or endangered status. The material collected was identified and deposited in the Stover-Ebinger Herbarium of Eastern Illinois University (EIU). Criteria for determining native and non-native taxa followed Fernald (1950), Mohlenbrock (1986), and Gleason and Cronquist (1991). Nomenclature follows Mohlenbrock (1986).

Abundance values were used to indicate the abundance of each taxon within the habitats that it was observed. When a taxon occurred in more than one habitat, the first habitat type listed was used to determine the abundance value. Abundance values were: 1) rare, species known from 5 or fewer populations; 2) infrequent, 6 - 10 populations; 3) occasional, species evenly distributed throughout the community in small numbers; 4) common, species found throughout the community in moderate numbers; 5) abundant, species found throughout the community in large numbers.

During the summer of 1998 one-ha (100 x 100 m) areas were randomly located in two upland forest communities and were divided into 16 quadrats 25 m on a side. In each quadrat, all living, and dead-standing woody individuals 10 cm dbh and above were identified and their diameters recorded. From these data of the living stems, density (stems/ha), the basal area (m^2/ha), relative density, relative dominance, importance value (IV), and average diameter (cm) were calculated for each species. Determination of the IV follows the procedure used by McIntosh (1957) and is the sum of the relative density and relative dominance of a given species.

The densities (stems/ha) of the woody understory species were determined using 20 nested circular plots 0.0001, 0.001, and 0.01 ha in size randomly located along line transects through each study area. Four additional 0.0001 ha circular plots were located 6 m from each center in each of the cardinal compass directions. In the 0.0001 ha plots, the tree seedlings (<50 cm tall) and all shrubs were counted, in the 0.001 ha circular plots small saplings (>50 cm tall and < 2.5 cm dbh) were recorded, and in the 0.01 ha circular plots large saplings (2.5-9.9 cm dbh) were tallied.

DESCRIPTION OF THE STUDY AREA

The RHSP is located in the Mt. Vernon Hill Country Section of the Southern Till Plain Natural Division (Schwegman 1973). Located on the Illinoian till plain, the RHSP is characterized by rugged topography with leached soils overlain with loess on the upland areas and silty alluvial deposits in the terrace areas (Fehrenbacher and Odell 1956). Upland soils include Bluford silt loam, Ava silt loam, and Hickory loam-Ava silt loam complex. Elevation of the RHSP ranges from 142 to 194 m above mean sea level.

An old Indian boundary line lies in a southwest to northeast orientation through the site. General Land Office surveys were conducted east of the boundary line in 1805 and west of the line in 1818. Surveyors described the area that is now the south portion of RHSP as a dry, rolling barrens with white oak, black oak, and hickory timber and a dense understory of white oak, black oak, hickory, hazelnut, and blackjack oak. The north portion of the park was described as rolling, first- and second-rate land timbered with white oak, black oak, hickory, and poplar with an understory of white oak, black oak, and redbud.

Land uses surrounding RHSP are primarily agricultural with scattered forested tracts. The landscape of RHSP is comprised of upland forest which occupies approximately 188 ha, cultural areas (99 ha), successional areas (57 ha), mesic terrace forest (18 ha), open lake and intermittent streams (16 ha), a prairie restoration (4 ha), and forested seeps (2 ha).

The 32-acre (13 ha) RHWNP was dedicated as an Illinois nature preserve in 1985. Situated on level to gently-rolling uplands, an intermittent stream is located in the extreme south part of the preserve. The preserve was grazed prior to acquisition by the Illinois Department of Natural Resources. Prescribed burning was conducted in the spring of 1997 and the fall of 1998.

The upland forest surveyed in the RHSP is located in the north portion of the park and is characterized by narrow ridges and moderate to steep slopes. The forest is young to mature second-growth timber containing a number of coppice individuals. No prescribed burning has been conducted in this portion of the park.

The climate of east-central Illinois is continental with cool winters, hot summers, (Page 1949, Schwegman 1973) and little or no water deficit at any season of the year (Fehrenbacher et al. 1967). In Lawrence County, Illinois, the average precipitation is 102 cm, with the month of May having the highest rainfall. The hottest month is July (average of 25.5° C), and the coldest January (average of 0.5° C). The average number of frost-free days is 186.

RESULTS AND DISCUSSION

Vascular Plant Species Present

The flora of RHSP consists of 537 species and subspecific taxa in 308 genera and 105 families. Of these taxa, 103 (19.2%) are not native to Illinois. The Gymnospermae are poorly represented at the RHSP, accounting for only 7 taxa (1.3% of all species) while the Pteridophyta accounted for 16 taxa (3.0%) in 6 families. Among the Angiosperms, monocots accounted for 142 taxa in 61 genera and 15 families (26.4% of all species), while dicots accounted for 372 taxa in 229 genera and 81 families (69.3% of all species). The families with the highest representation of species and subspecific taxa were Asteraceae (71), Poaceae (65), Cyperaceae (32), Rosaceae (20), Lamiaceae (18), Fabaceae (18), Scrophulariaceae (15), and the Polygonaceae (14). The genera with the highest number of species and subspecific taxa were *Carex* (21), *Polygonum* (10), *Quercus* (10), *Aster* (9), *Dichanthelium* (8), *Juncus* (8), *Solidago* (7), *Asclepias* (5), *Eupatorium* (5), and *Galium* (5). See Appendix I for a listing of all vascular species encountered.

Habitat Types Present

The plant communities were designated using the community classes of White and Mandany (1978). These communities have been influenced in the past by management activities, fire suppression, grazing, and wildlife activity. The following is a description of the plant communities encountered at RHSP with indicator species.

Dry-mesic upland forests dominate most of the RHSP and the RHWNP. These second growth forests are characterized by a diverse assemblage of overstory and understory trees and shrubs and a rich herbaceous layer. All have been selectively logged within the past 75 years, and some were clear cut just prior to acquisition for the state park. These woods were also grazed, some heavily, prior to acquisition.

The 36-ha (90-acre) dry-mesic upland forest examined in the RHSP is located on a gently sloping, south-facing ridge with steep east and west sides. Seventeen tree species occurred in the study area with 317 stems/ha and a basal area of 33.05 m²/ha (Table 1). *Quercus alba* (white oak) dominated, occurred in all diameter classes, being most common in the 20-29 and 30-39 cm classes, had an average diameter of 39.2 cm, and an IV 65.3. *Quercus rubra* (red oak) and *Quercus velutina* (black oak) ranked second and third in IV respectively, being most common in the larger diameter classes. *Acer saccharum* (sugar maple) dominated in the smallest diameter tree class (10-19 cm) with 29 stems/ha, had an average diameter 18.9 cm, and ranked fourth with an IV of 16.6. *Ulmus rubra* (slippery elm) dominated the seedling (10,300 stems/ha), and sapling (2,635 stems/ha) layers, but rarely occurred in the overstory. Other common understory species were *Prunus serotina* (black cherry), *Fraxinus pennsylvanica* (green ash), *Sassafras albidum* (sassafras), white oak (Table 2), with black cherry and white oak absent from the sapling layer. Dead-standing individuals averaged 22 stems/ha with a basal area of 1.501 m²/ha, the oaks accounting for most of this total.

The dry-mesic upland forest of the RHWNP occurred on nearly level to gently-sloping ground with the change in elevation not exceeding 4 m. Seventeen tree species occurred in the study area with 277 stems/ha and a basal area of 27.94 m²/ha (Table 1). White oak dominated the larger diameter classes, had an average diameter of 50.8 cm, and was the leading dominant with an IV of 111.7. *Carya ovata* (shagbark hickory), black oak, and *Carya tomentosa* (mockernut hickory) were most common in the 10-20 cm diameter class. Green ash, sassafras, *Cornus florida* (flowering dogwood), slippery elm, and *Morus rubra* (red mulberry) were fairly common, indicating a relatively open canopy forest that suggests some selective logging and grazing just prior to being purchased for the state park. The seedling and sapling layers were dominated by green ash, sassafras, slippery elm, and black cherry which together accounted for more than two-thirds of all individuals present (Table 2). Dead-standing individuals averaged 27 stems/ha with a basal area of 2.941 m²/ha. White oak accounted for nearly all of the basal area and averaged 17 stems/ha.

The structure of the two forests studied indicates a relatively open woodland during the first half of the century when cutting and grazing probably occurred. Presently the forests have a stratified structure with many oaks in the canopy. The understory, along with the species in the smaller diameter classes, suggests that the forests are becoming more mesic with an increase of shade-tolerant, fire-sensitive species. These shade-tolerant

species, which are associated with closed canopy forests, will increase in importance as the veteran oaks die (Ebinger 1986, Ebinger and McClain 1991).

Common herbaceous species in the dry-mesic forests were *Adiantum pedatum*, *Arisaema dracontinum*, *A. triphyllum*, *Aster shortii*, *Bromus commutatus*, *Claytonia virginica*, *Danthonia spicata*, *Delphinium tricornis*, *Erythronium albidum*, *E. americanum*, *Frasera carolinensis*, *Podophyllum pedatum*, *Polygonatum commutatum*, *Smilacina racemosa*, *Trillium recurvatum*, and *Uvularia grandiflora*.

Mesic terrace forests were characterized by moderately well-drained soils with a diverse assemblage of understory shrubs and herbaceous species. Overstory species included *Acer saccharinum*, *A. saccharum*, *Betula nigra*, *Carya cordiformis*, *Fraxinus pennsylvanica*, *Juglans nigra*, *Platanus occidentalis*, *Populus deltoides*, *Prunus serotina*, *Quercus palustris* and *Q. rubra*. *Lindera benzoin* was the dominant shrub. Herbaceous species included *Agrimonia parviflora*, *Asplenium platyneuron*, *Boehmeria cylindrica*, *Cinna arundinacea*, *Cryptotaenia canadensis*, *Elymus villosus*, *Impatiens capensis*, *Laportea canadensis*, *Leersia virginica*, *Onoclea sensibilis*, *Platanthera peramoena*, *Polystichum acrostichoides*, *Teucrium canadense*, and *Tradescantia subaspera*.

Forested seeps are found in five locations in the north part of the RHSP. The seeps were characterized by saturated muck soils with *Hydrangea arborescens*, *Lindera benzoin*, and *Rosa palustris* being the associated shrub species. Herbaceous species included *Athyrium thelypteroides*, *Chelone glabra*, *Dryopteris carthusiana*, *Equisetum arvense*, *Impatiens capensis*, *Lobelia siphilitica*, *Polystichum acrostichoides*, and *Saururus cernuus*. The state-endangered *Polygonum arifolium* (halberd-leaved tearthumb), the state-threatened *Carex prasina* (drooping sedge) and state-threatened *Hemidactylum scutatum* (four-toed salamander) were also encountered in the forested seeps (Herkert 1991a & b).

Prairie restoration was characterized by dense grasses with a sparse forb component. Grasses included *Andropogon gerardii*, *Panicum virgatum*, and *Sorghastrum nutans* while *Eupatorium perfoliatum*, *Ludwigia alternifolia*, *Pycnanthemum tenuifolium*, *Solidago canadensis*, *Vernonia gigantea*, and *Rubus* spp. were the most common forb and woody species.

Open lake and ponds were permanently flooded areas with *Cephalanthus occidentalis* and *Cornus drummondii* occasionally present near the shore. Frequent shoreline species included *Carex frankii*, *Ludwigia peploides*, *Polygonum hydropiperoides*, *Polygonum punctatum*, *Typha angustifolia*, and *T. latifolia*. Common aquatic taxa included *Lemna* spp., *Nuphar luteum*, *Potamogeton crispus*, and *P. nodosus*.

Successional areas were abandoned pastures or cropfields that had been set aside to provide cover and foraging areas for wildlife and were found primarily in the south portion of the RHSP. Some of these areas contained small, relatively open areas that may resemble the barrens described by the GLO surveyors. Herbaceous species included *Andropogon gerardii*, *Schizachyrium scoparium*, *Crotalaria sagittalis*, *Euphorbia corollata*, *Fragaria virginiana*, *Hieracium longipilum*, *Liatris squarrosa*, *Lespedeza virginica*, *Polygala sanguinea*, *P. verticillata*, *Pycnanthemum tenuifolium*, and *Veronicastrum virginiana*. The remaining successional areas were composed of dense stands of young

trees or shrub thickets that exclude most herbaceous species. The dominant trees were *Acer rubrum*, *Diospyros virginiana*, *Fraxinus* spp., *Juniperus virginiana*, *Pinus* spp., *Prunus serotina*, *Quercus imbricaria*, *Robinia pseudoacacia*, *Sassafras albidum*, and *Ulmus rubra*. The most common shrub and woody-vine species included *Elaeagnus umbellata*, *Ilex decidua*, *Lonicera japonica*, *Rosa multiflora*, *Rubus* spp., and *Toxicodendron radicans*. Herbaceous species included *Andropogon virginicus*, *Asplenium platyneuron*, *Eupatorium perfoliatum*, and *Verbena urticifolia*.

Cultural areas created and maintained through human influences, were found. These included campsites, recreational areas, agricultural fields, food plots, pine plantations, roadsides, lawns and other developed areas. Species richness of non-native and weedy species was high in these areas of low natural quality.

Endangered or threatened plant species

Carex prasina (drooping sedge) is a cespitose sedge having pistillate spikes borne on long peduncles and inhabiting forested seeps and moist or wet woods (Gleason and Cronquist 1991). At the RHSP, *C. prasina* is found in one wooded seep area. Forty two tufts were observed with each tuft having between 2 and 15 culms per tuft.

Lycopodium clavatum (running pine) was probably introduced into the RHSP with the pine plantations and was confined to a single population in a successional area dominated by *Elaeagnus umbellata* and *Lonicera japonica*. During the course of the study, the population appeared to be diminishing, possibly due to shading and/or competition from other species. The species was not observed during three search attempts in 1999 and may be extirpated from RHSP.

Polygonum arifolium (halberd-leaved tearthumb) a slender branching herb with reflexed prickles and hastate leaves, is found in two of the five seep areas. One population is located in a seep along the extreme north end of the park and receives strong indirect light. The plants are robust with branches reaching a length of 75 cm. The population located in an area with a more closed forest canopy is less vigorous, the plants rare exceeding 25 cm in height. Increased light from a more open canopy would probably increase the vigor of the population and encourage more flowering and seed production.

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Table 1. Densities (stems/ha), diameter classes (cm), basal area (m²/ha), relative values, importance values, and average diameters (cm) of the woody species in two dry-mesic upland forests at the Red Hills State park, Lawrence County, Illinois.

Species	Diameter Classes (cm)					Total #/ha	Area m2/ha	Rel. Den.	Rel. Dom.	I.V.	Diam. (cm)
	10-19	20-29	30-39	40-49	50+						
dry-mesic upland forest, Red Hills State Park											
<i>Quercus alba</i>	4	28	23	14	19	88	12.40	27.8	37.5	65.3	39.2
<i>Quercus rubra</i>	--	5	28	14	7	54	6.98	17.0	21.1	38.1	39.6
<i>Quercus velutina</i>	--	--	14	17	10	41	7.14	12.9	21.6	34.5	46.0
<i>Acer saccharum</i>	29	6	3	2	--	40	1.33	12.6	4.0	16.6	18.9
<i>Fraxinus pennsylvanica</i>	6	14	7	3	1	31	2.20	9.8	6.7	16.5	28.7
<i>Carya glabra</i>	19	3	4	2	1	29	1.36	9.2	4.1	13.3	21.1
<i>Cornus florida</i>	11	--	--	--	--	11	0.12	3.5	0.4	3.9	11.4
<i>Liriodendron tulipifera</i>	--	--	--	--	2	2	0.73	0.6	2.2	2.8	67.7
<i>Prunus serotina</i>	--	1	3	--	--	4	0.36	1.3	1.1	2.4	33.3
<i>Carya ovata</i>	3	2	--	--	--	5	0.12	1.6	0.4	2.0	16.8
<i>Carya tomentosa</i>	3	--	1	--	--	4	0.15	1.3	0.4	1.7	20.2
Others (6 species)	7	1	--	--	--	8	0.16	2.4	0.5	2.9	--
Totals	82	60	83	52	40	317	33.05	100.0	100.0	200.0	
dry-mesic upland forest, Red Hills Woods Nature Preserve											
<i>Quercus alba</i>	3	5	13	22	55	98	21.30	35.4	76.3	111.7	50.8
<i>Sassafras albidum</i>	44	1	--	--	--	45	0.66	16.2	2.3	18.5	13.3
<i>Fraxinus pennsylvanica</i>	21	4	1	--	--	26	0.60	9.4	2.1	11.5	16.2
<i>Carya ovata</i>	14	6	4	--	--	24	0.77	8.7	2.8	11.5	16.2
<i>Quercus velutina</i>	5	3	--	3	2	13	1.23	4.7	4.4	9.1	29.6
<i>Carya tomentosa</i>	11	2	--	2	1	16	0.73	5.8	2.6	8.4	20.2
<i>Cornus florida</i>	20	--	--	--	--	20	0.20	7.2	0.7	7.9	11.2
<i>Quercus stellata</i>	--	--	--	2	3	5	1.07	1.8	3.8	5.6	51.7
<i>Ulmus rubra</i>	8	--	--	--	--	8	0.11	2.9	0.4	3.3	12.7
<i>Quercus rubra</i>	--	--	--	2	1	3	0.55	1.1	2.0	3.1	47.6
<i>Nyssa sylvatica</i>	--	--	4	--	--	4	0.42	1.4	1.5	2.9	36.6
<i>Morus rubra</i>	5	--	--	--	--	5	0.07	1.8	0.2	2.0	13.1
Others (5 species)	9	--	1	--	--	10	0.23	3.6	0.9	4.5	--
Totals	140	21	23	31	62	277	27.94	100.0	100.0	200.0	

Table 2. Densities (stems/ha) of the woody seedlings (<50 cm tall), small saplings (>50 cm tall, <2.5 cm dbh), and large saplings (2.5-9.9 cm dbh) in two dry-mesic upland forest communities at the Red Hills State Park, Lawrence County, Illinois.

Species	Seedlings	Small Saplings	Large Saplings
dry-mesic upland forest, Red Hills State Park			
<i>Ulmus rubra</i>	10300	2550	85
<i>Prunus serotina</i>	3200	--	--
<i>Fraxinus pennsylvanica</i>	2600	500	--
<i>Quercus alba</i>	2200	--	--
<i>Sassafras albidum</i>	1200	50	25
<i>Carya glabra</i>	900	100	35
<i>Acer saccharum</i>	800	300	135
<i>Nyssa sylvatica</i>	700	50	10
<i>Quercus rubra</i>	600	--	--
<i>Celtis occidentalis</i>	500	--	--
<i>Cercis canadensis</i>	400	--	--
<i>Cornus florida</i>	300	--	335
<i>Liriodendron tulipifera</i>	300	50	5
<i>Asimina triloba</i>	200	--	--
Others	400	200	5
Totals	24600	3800	635
dry-mesic upland forest, Red Hills Woods Nature Preserve			
<i>Fraxinus pennsylvanica</i>	3000	550	90
<i>Sassafras albidum</i>	3000	1250	115
<i>Ulmus rubra</i>	1100	450	185
<i>Prunus serotina</i>	900	50	--
<i>Nyssa sylvatica</i>	500	100	--
<i>Ulmus americana</i>	300	200	40
<i>Symphoricarpos orbiculatus</i>	300	--	--
<i>Carya tomentosa</i>	200	50	70
<i>Rosa multiflora</i>	200	--	--
<i>Quercus alba</i>	200	--	--
<i>Carya ovata</i>	100	200	85
<i>Viburnum prunifolium</i>	100	--	--
<i>Cornus florida</i>	--	--	170
<i>Acer rubrum</i>	--	--	40
<i>Amelanchier arborea</i>	--	--	25
Others	--	--	25
Totals	9900	2850	845

APPENDIX 1

The vascular flora of RHSP is arranged alphabetically within each taxonomic group. Introduced species are indicated by an asterisk (*). After the binomial and authority, a list of communities where the taxon most often occurs is given (UF = dry-mesic upland forest, TF = mesic terrace forest, FS = forested seep, OL = open lake or ponds, PR = prairie restoration, SU = successional area, CU = cultural areas), followed by an abundance statement (1 = Rare, 2 = Infrequent, 3 = Occasional, 4 = Common, 5 = Abundant), and collection numbers.

PTERIDOPHYTA	* <i>Pinus strobus</i> L.; CU; 2; E723
	* <i>Pinus sylvestris</i> L.; CU; 2; E2014
ADIANTACEAE	* <i>Pinus nigra</i> Arnold; CU; 2
<i>Adiantum pedatum</i> L.; UF, FS; 3; E888	TAXODIACEAE
ASPLENIACEAE	<i>Taxodium distichum</i> (L.) Rich.; TF; 1; E832
<i>Asplenium platyneuron</i> (L.) Oakes; UF, TF, SU; 3; E098	SPERMATOPHYTA: ANGIOSPERMAE
<i>Athyrium angustum</i> (Willd.) Presl.; FS; 2; E603	MONOCOTYLEDONEAE
<i>Athyrium thelypteroides</i> (Michx.) Desv.; FS; 2; E800	ALISMACEAE
<i>Cystopteris protrusa</i> (Weatherby) Blasd.; UF, FS; 3; E684	<i>Alisma plantago-aquatica</i> L. var. <i>americana</i> Roem. & Schultes; OL; 2; E696
<i>Dryopteris carthusiana</i> (Villars) H.P. Fuchs; FS; 2; E794	<i>Sagittaria calycina</i> Engelm.; OL; 3; E3104
<i>Onoclea sensibilis</i> L.; FS, TF; 2; E044	ARACEAE
<i>Polystichum acrostichoides</i> (Michx.) Schott; UF, TF, FS; 4; E820	<i>Arisaema dracontium</i> (L.) Schott.; UF; 3; E958
EQUISETACEAE	<i>Arisaema triphyllum</i> (L.) Schott.; UF; 3; E873
<i>Equisetum arvense</i> L.; FS; 1; E886	COMMELINACEAE
LYCOPODIACEAE	* <i>Commelina communis</i> L.; SU, CU; 2; E981
<i>Lycopodium clavatum</i> L.; SU; 1; E002	<i>Tradescantia virginiana</i> L.; UF; 2; E096
<i>Lycopodium digitatum</i> A. Br.; UF; 1; E011, E860	<i>Tradescantia subaspera</i> Ker.; TF; 2; E685
OPHIOGLOSSACEAE	CYPERACEAE
<i>Botrychium dissectum</i> Spreng.; UF; 1; E792	<i>Carex albursina</i> Sheldon; UF; 1; E955, E957
<i>Botrychium dissectum</i> Spreng. var. <i>obliquum</i> (Muhl.) Clute; UF, TF, SU; 3; E859	<i>Carex annectens</i> Bickn.; 2; TF, SU; E607
<i>Botrychium virginianum</i> (L.) Sw.; UF, TF, SU; 3; E904	<i>Carex annectens</i> Bickn. var. <i>xanthocarpa</i> (Bickn.) Wieg.; UF; 2; E916
<i>Ophioglossum vulgatum</i> L. var. <i>pycnostichum</i> Fern.; TF; 1	<i>Carex blanda</i> Dewey; UF; 3; E898
THELYPTERIDACEAE	<i>Carex bushii</i> Mack.; UF; 3; E3188
<i>Phegopteris hexagonoptera</i> (Michx.) Fee.; UF, FS; 2; E887	<i>Carex caroliniana</i> Schwein.; SU; 3; E918
SPERMATOPHYTA: GYMNOSPERMAE	<i>Carex frankii</i> Kunth.; TF; 3; E741
CUPRESSACEAE	<i>Carex granularis</i> Willd.; TF; 2; E917
<i>Juniperus virginiana</i> L.; SU, CU, UF; 3; E629	<i>Carex grisea</i> Wahlenb.; UF; 2; E3185
PINACEAE	<i>Carex hirsutella</i> Mack.; UF; 2; E3192
* <i>Pinus banksiana</i> Lamb.; CU; 2; E2018	<i>Carex jamesii</i> Schwein.; UF, SU; 2; E2087
* <i>Pinus resinosa</i> Ait.; CU; 2; E960	<i>Carex laxiflora</i> Lam.; UF; 2; E919
	<i>Carex lurida</i> Wahlenb.; TF; 2; E740
	<i>Carex pensylvanica</i> Lam.; UF; 2; E2026
	<i>Carex prasina</i> Wahlenb.; FS; 2; E551
	<i>Carex projecta</i> Mack.; TF; 2; E965
	<i>Carex rosea</i> Willd.; UF, SU; 2; E2091
	<i>Carex shortiana</i> Dewey; UF, SU; 2; E3184
	<i>Carex stipata</i> Muhl.; UF; 2; E900
	<i>Carex tenera</i> Dewey; SU; 2

Carex vulpinoidea Michx.; UF; 3; E3183
Cyperus densicaespitosus Mattf. & Kuenth.; CU;
 2
Cyperus esculentus L.; CU; 1
Cyperus erythrorhizos Muhl.; TF; 2; E3101
Cyperus ovularis (Michx.) Torr.; SU, CU; 2;
 E668
Cyperus strigosus L.; CU, PR; 2; E856
Eleocharis elliptica Kunth; TF; 2; E857
Eleocharis obtusa (Willd.) Schult.; CU, SU, PR;
 3; E1034
Eleocharis verrucosa (Svens.) Harms.; SU, PR; 2;
 E925
Scirpus atrovirens Willd.; TF; 2; E763
Scirpus cyperinus (L.) Kunth.; SU; 1; E1039
Scirpus georgianus Harper; CU, SU; 2; E855

DIOSCOREACEAE

**Dioscorea batatas* Dcne.; CU; 1
Dioscorea quaternata Walt. J.F. Gmel.; UF, CU;
 1; E814
Dioscorea villosa L.; UF; 1; E827

IRIDACEAE

Sisyrinchium angustifolium Mill.; TF; 1

JUNCACEAE

Juncus acuminatus Michx.; SU, TF; 2; E728a
Juncus biflorus Ell.; UF, SU, CU; E729, E1005
Juncus brachycarpus Engelm.; SU, PR; 2; E998
Juncus diffusissimus Buckl.; TF, CU; 2; E3110
Juncus dudleyi Wieg.; UF, SU, CU; 2; E953
Juncus effusus L. var. *solutus* Fern. & Wieg.; UF,
 SU; 2; E768
Juncus interior Wieg.; UF, SU, CU, PR; 3; E971,
 E1003
Juncus tenuis Willd.; UF, SU; 3; E680, E999

LEMNACEAE

Lemna obscura (Austin) Daubs; OL; 5
Spirodela polyrrhiza (L.) Schleiden; OL; 2

LILIACEAE

Allium canadense L.; CU; 1; E649
 **Allium vineale* L.; CU, SU; 1; E649
 **Asparagus officinalis* L.; CU; 1
Erythronium albidum Nutt.; TF, UF; 2
Erythronium americanum Ker.; TF; 1; E874
 **Hemerocallis fulva* (L.) L.; CU, SU; 1
 **Ornithogalum umbellatum* L.; CU; 2; E2086
Polygonatum commutatum (Schult.) A. Dietr.;
 UF; 3
Smilacina racemosa (L.) Desf.; UF; 3; E704
Trillium recurvatum Beck; UF; 3; E025, E875
Uvularia grandiflora Sm.; UF; 3; E023, E897

NAJADACEAE

Najas quadralupensis (Spreng.) Magnus; OL; 3;
 E1036

ORCHIDACEAE

Aplectrum hyemale (Willd.) Nutt.; UF; 2

Galearis spectabilis (L.) Raf.; UF; 1
Liparis lilifolia (L.) Rich.; UF; 1; E954
Platanthera peramoena (Gray) Gray; UF, TF; 1
Spiranthes cernua (L.) Rich.; SU; 1; E2006

POACEAE

Agrostis alba L.; SU; 3; E681
Agrostis hyemalis (Walt.) BSP.; PR, CU, SU, 2;
 E677a
Agrostis perennans (Walt.) Tuckerm.; PR; 2;
 E812
Alopecurus carolinianus Walt.; CU; 2; E911
Andropogon elliotii Chapm.; SU; 1; E2023
Andropogon gerardii Vitman; PR, SU; 5; E1081
Andropogon virginicus L.; SU, CU; 3; E2008
Aristida oligantha Michx.; CU; 2; E1093
 **Bromus commutatus* Schrad.; UF; 2; E677
Bromus pubescens Muhl.; UF; 2; E709
 **Bromus tectorum* L.; UF; 2; E913
Cinna arundinacea L.; TF, UF, SU; 3; E774
 **Dactylis glomerata* L.; CU; 3; E615
Danthonia spicata (L.) Roem. and Schultes; CU,
 UF; 5; E974
Dichanthelium acuminatum (Sw.) Gould & Clark
 var. *lindheimeri* (Nash) Gould & Clark; CU,
 SU; 2; E633
Dichanthelium boscii (Poir.) Gould & Clark; UF;
 3; E815
Dichanthelium clandestinum (L.) Gould; TF, CU;
 3; E824
Dichanthelium jooi (Vasey) Mohlenbr.; TF; 1;
 E825
Dichanthelium latifolium (L.) Gould & Clark; UF,
 SU; 2; E789
Dicanthelium microcarpon (Muhl.) Mohlenbr.;
 TF; 2; E947
Dichanthelium scoparium (Lam.) Gould; TF; 1;
 E734
Dicanthelium villosissimum (Nash) Freckmn. var.
praecocius (Hitchc. & Chase) Freckmn.; CU; 2
 **Digitaria ciliaris* (Retz.) Koel; CU; 3
Digitaria filiformis (L.) Koel; CU; 2
 **Digitaria ischaemum* (Schreb.) Muhl.; CU; 3;
 E806
 **Digitaria sanguinalis* (L.) Scop.; CU; 3; E1017
 **Echinochloa crus-galli* (L.) Beauv.; CU; 3;
 E1088
 **Eleusine indica* (L.) Gaertn.; CU; 3; E741
Elymus canadensis L.; SU, UF; 3; E706
Elymus hystrix L.; UF; 2; E59
Elymus villosus Muhl.; TF; 2; E706
Elymus virginicus L.; SU, UF; 2; E823
Eragrostis pectinacea (Michx.) Nees; CU; 3;
 E3124
Eragrostis spectabilis (Pursh) Steud.; PR, CU,
 SU; 2; E848
Festuca obtusa Biehler; CU; 2; E931
 **Festuca pratensis* Huds.; CU; 3; E939
Festuca rubra L.; CU; 2; E974
Glyceria striata (Lam.) Hitchc.; TF, FS; 3; E973,
 E992
Hordeum pusillum Nutt.; CU; 2; E936

Leersia lenticularis Michx.; CU, TF; 2; E078
Leersia oryzoides (L.) Swartz; CU, TF; 2; E852
Leersia virginica Willd.; TF, SU; 3; E817
Leptoloma cognatum (Schult.) Chase; CU; 2
Muhlenbergia frondosa (Poir.) Fern.; CU, SU, TF; 3; E2016
Muhlenbergia schreberi J.F. Gmel.; CU, SU; 3; E2015
Muhlenbergia sobolifera (Muhl.) Trin.; UF; 2; E3033
Muhlenbergia sylvatica (Torr.) Torr.; UF; 2; E1042
Panicum anceps Michx.; TF; 3; E2004
Panicum virgatum L.; PR; 4; E1091
Paspalum laeve Michx.; CU; 2; E037
Paspalum ciliatifolium (Michx.) var. *muhlenbergii* (Nash) Fern.; CU, SU; 2; E1027
**Phleum pratense* L.; CU; 2; E658
**Poa annua* L.; CU, SU; 4; E3180
**Poa compressa* L.; CU; 4; E952
**Poa pratensis* L.; CU, SU, UF; 5; E907, E951
Poa sylvestris Gray; TF; 4; E3181
Schizachyrium scoparium (Michx.) Nash; SU; 1; E850
**Setaria faberi* Herrm.; CU; 4; E669
Setaria glauca (L.) Beauv.; CU, SU; 3; E780
**Sorghum bicolor* (L.) Moench.; CU; 3; E1082
Sorghastrum nutans (L.) Nash; PR; 5; E842
Tridens flavus (L.) Hitchcock; CU, SU; 3; E747
**Triticum aestivum* L.; CU; 3; E941
**Zea mays* L.; CU; 4

POTAMOGETONACEAE

**Potamogeton crispus* L.; OL; 3; E914
Potamogeton nodosus Poir.; OL; 3; E963

SMILACACEAE

Smilax ecirrhata Kunth; UF; 1; E827
Smilax hispida Muhl.; SU, TF, UF; 3; E837
Smilax lasioneuron Hooker; UF; 1; E2095
Smilax pulverulenta Michx.; UF; 1; E1012

TYPHACEAE

Typha angustifolia L.; OL; 1; E961
Typha latifolia L.; OL; 3

SPERMATOPHYTA: ANGIOSPERMAE

DICOTYLENDONEAE

ACANTHACEAE

Ruellia strepens L.; TF; 2; E816

ACERACEAE

Acer negundo L.; TF; SU; 2; E1077
Acer rubrum L.; CU, SU, TF; 3; E2083
Acer saccharinum L.; TF, CU, SU; 2; E2081
Acer saccharum Marsh.; UF, SU, CU; 3

ANACARDIACEAE

Rhus glabra L.; SU; 2; E619

Toxicodendron radicans (L.) Kuntze; UF, TF, CU, SU, PR; 4; E628

ANNONACEAE

Asimina triloba (L.) Dunal; UF, TF; 2; E686

APIACEAE

Chaerophyllum procumbens (L.) Crantz.; TF; 2; E2077
Cicuta maculata L.; CU; 2; E749
Cryptotaenia canadensis (L.) DC.; TF, SU; 2; E602
**Daucus carota* L.; CU; 3; E611
Erigenia bulbosa (Michx.) Nutt.; TF, UF; 2; E863
Osmorhiza longistylis (Torr.) DC.; UF, TF, SU; 3; E889
Sanicula canadensis L.; UF, SU; 3; E776
Sanicula gregaria Bickn.; UF, SU; 2; E2001
Sanicula trifoliata Bickn.; TF; 2; E996

APOCYNACEAE

Apocynum cannabinum L.; CU, SU, PR; 2; E621

AQUIFOLIACEAE

Ilex decidua Walt.; TF, SU; 1; E985
Ilex opaca Ait.; SU; 2; E882

ARALIACEAE

Panax quinquefolius L.; UF; 1

ARISTOLOCHIACEAE

Asarum canadense L. var. *reflexum* (Bickn.) Robins; TF; 2; E868
Aristolochia serpentaria L.; TF; 1; E956

ASCLEPIADACEAE

Asclepias hirtella (Pennell) Woodson; SU, CU; 1; E777
Asclepias incarnata L.; OL, CU, PR; 2; E750
Asclepias syriaca L.; CU; 2
Asclepias tuberosa L. spp. *interior* Woodson; SU; 1; E620
Asclepias verticillata L.; CU, SU; 1; E738

ASTERACEAE

**Achillea millefolium* L.; CU, SU, PR; 3; E618
Ambrosia artemisiifolia L.; CU, SU, UF; 3; E639
Ambrosia bidentata Michx.; CU, SU; 2; E841
Antennaria neglecta Greene; CU, SU, UF; 4; E014, E940
Antennaria plantaginifolia (L.) Richards; CU; 2; E114
**Artemisia annua* L.; CU; 1; E3043
Aster ericoides L. var. *prostratus* (Ktze.) Blake; CU, SU; 2
Aster lateriflorus (L.) Britt.; TF, SU, CU; 3; E851
Aster novae-angliae L.; SU; 1; E547
Aster ontarionis Wieg.; TF, CU; 2; E2017
Aster patens Ait.; UF; 1; E805
Aster pilosus Willd.; CU, SU; 4; E843, E858
Aster x sagittifolius Wedem.; UF; 2; E2000
Aster shortii Lindl.; UF; 2; E804

Aster vimineus Lam.; UF; 2; E1087
Bidens aristosa (Michx.) Britt.; CU, SU, TF; 4; E853
Bidens frondosa L.; TF; 2; E3103
Bidens tripartita L.; TF; 2; E3108
Boltonia asteroides (L.) L'Her; CU, PR; 2; E840
Cacalia atriplicifolia L.; UF, SU; 1; E790
**Cichorium intybus* L.; CU; 1
Cirsium discolor (Muhl.) Spreng.; CU, SU; 2; E849
Cirsium altissimum (L.) Spreng.; SU, UF; 2; E3105
Conyza canadensis (L.) Cronq.; CU; 4; E782
Coreopsis lanceolata ; CU; 1; E663
Echinacea pallida Nutt.; CU; 1; E662
Eclipta prostrata (L.) L.; CU, TF; 3; E3113
Elephantopus carolinianus Raeusch; UF, CU; 2; E1046
Erechtites hieracifolia (L.) Raf.; TF, CU, SU; 2; E810
Erigeron annuus (L.) Pers.; CU, SU, UF; 3; E651
Erigeron philadelphicus L.; TF; 2; E905
Erigeron strigosus Muhl.; CU, SU; 3; E934
Eupatorium fistulosum Barratt; CU, SU; 2; E784, E1037
Eupatorium perfoliatum L.; SU, CU, PR; 2; E847
Eupatorium purpureum L.; CU, SU; 2; E1038
Eupatorium rugosum Houtt.; UF, SU, CU; 3; E775, E788
Eupatorium serotinum Michx.; SU, CU; 3; E845
Euthamia graminifolia (L.) Salisb.; CU, SU, PR; 2; E835
Gnaphalium obtusifolium L.; CU; 2; E846
Gnaphalium purpureum L.; SU; 2; E940
Helenium flexuosum Raf.; CU; 2; E666
Helianthus divaricatus L.; UF; 2; E772
Heliopsis helianthoides (L.) Sweet; UF; 1; E766
Hieracium gronovii L.; SU, CU, UF; 3; E1001
Hieracium longipilum Torrey; SU, CU; 2; E745, E982
Hieracium scabrum Michx.; SU; 2; E831
Krigia dandelion (L.) Nutt.; CU; 3; E2097
**Leucanthemum vulgare* Lam.; CU, SU; 2; E95, E634
Lactuca canadensis L.; CU, SU, UF; 3; E771, E1000
Lactuca floridana (L.) Gaertn.; CU, SU, UF; 2; E1029
**Lactuca serriola* L.; CU, SU; 2; E979
Liatris aspera Michx.; UF, SU; 2; E3100
Liatris scabra (Greene) K. Schum.; SU; 1; E829
Liatris squarrosa (L.) Michx.; SU, CU; 2; E719, E994
Liatris pycnostachya Michx.; CU; 1
Prenanthes altissima L.; UF; 1; E833
Pyrrhopappus carolinianus (Walt.) DC.; SU; 2; E978
Rudbeckia hirta L.; CU, SU, PR; 2; E625
Senecio glabellus Poir.; CU, TF; 3; E908
Solidago caesia L.; TF, UF; 2; E801, E1098
Solidago canadensis L.; CU, SU, PR; 3; E844
Solidago missouriensis Nutt.; PR; 1; E787

Solidago nemoralis Ait.; CU, SU; 2
Solidago juncea Ait.; CU, SU, UF; 2; E770
Solidago rugosa Mill.; TF; 1
Solidago ulmifolia Muhl.; UF, SU; 2; E807
**Sonchus asper* (L.) Hill.; CU; 2; E778
**Taraxacum officinale* Weber; CU, SU, UF, PR; 4; E861
**Tragopogon pratensis* L.; CU; 2; E987
Verbesina helianthoides Michx.; UF; 1
Vernonia gigantea (Walt.) Trel.; PR; 1; E773

BALSAMINACEAE

Impatiens capensis Meerb.; FS, TF, CU, UF; 3; E1019a

BERBERIDACEAE

**Berberis thunbergii* DC.; UF; 1; E3172
Podophyllum peltatum L.; UF; 4

BETULACEAE

Betula nigra L.; TF, CU; 3; E616

BIGNONIACEAE

Campsis radicans (L.) Seem.; SU, CU, PR; 2; E702
Catalpa speciosa (Warder.) Englem.; CU; 2

BORAGINACEAE

**Buglossoides arvensis* (L.) I.M. Johnston; CU; 4; E885
Cynoglossum virginianum L.; UF; 2; E600
Hackelia virginiana (L.) I.M. Johnston; UF, TF, SU; 3; E708
Mertensia virginica (L.) Pers.; UF; 3; E2025
Myosotis verna Nutt.; CU, SU; 4; E910

BRASSICACEAE

**Barbarea vulgaris* R. Br. var. *arcuata* (Opiz) Fries.; CU; 3; E883
**Berteroa incana* (L.) DC.; CU; 2; E933
**Capsella bursa-pastoris* (L.) Medic.; CU; 3; E870
Cardamine bulbosa (Schreb.) BSP.; TF, UF; 3; E890
**Cardamine hirsuta* L.; CU, TF; 3; E866
Cardamine pensylvanica Muhl.; CU, TF; 3; E2079
**Eriophila verna* (L.) Chev. spp. *praecox* (Stevens) S.M. Walters; CU; 5; E865
Dentaria laciniata Muhl.; UF; 4; E862
**Lepidium densiflorum* Schrad.; CU; 3; E937
**Lepidium virginicum* L.; CU; 4; E700
**Thlaspi arvense* L.; CU; 3; E670

CAESALPINIACEAE

Cassia fasciculata Michx.; CU, SU, PR; 2; E733
Cercis canadensis L.; UF, TF, SU, CU; 3; E687
Gleditsia triacanthos L.; TF, CU; 2; E1080

CALLITRICHACEAE

Callitriche terrestris Raf.; CU; 3; E3022

CAMPANULACEAE

- Campanula americana* L.; SU, CU, UF, TF; 2; E683
Lobelia cardinalis L.; OL, CU; 1; E1022
Lobelia inflata L.; SU, CU, UF; 2; E657
Lobelia siphilitica L.; SU, CU, TF, FS; 1; E793
Triodanis perfoliata (L.) Nieuwl.; CU; 2; E097

CAPRIFOLIACEAE

- **Lonicera japonica* Thunb.; SU, CU, UF, TF; 5; E688
 **Lonicera maackii* (Rupr.) Maxim.; SU, CU, UF, TF; 5; E906
 **Lonicera sempervirens* L.; CU; 1; E927
Sambucus canadensis L.; SU, CU, UF, TF; 2; E962
Symphoricarpos orbiculatus Moench.; UF, CU, SU; 3
 **Virburnum opulus* L.; TF, UF; 1; E818
Virburnum prunifolium L.; UF; 2; E987
Virburnum recognitum Fern.; TF, UF; 1; E1032

CARYOPHYLLACEAE

- **Arenaria serpyllifolia* L.; CU; 4; E3175
 **Cerastium glomeratum* Thuill.; CU; 4; E3179
 **Cerastium vulgatum* L.; CU; 4; E3171
 **Dianthus armeria* L.; CU, SU, PR; 2; E654
 **Holosteum umbellatum* L.; CU; 2; E3174
 **Saponaria officinalis* L.; CU; 1
Silene antirrhina L.; CU, SU; 5; E3173
Silene stellata (L.) Ait.; UF, SU; 3; E758
 **Stellaria media* (L.) Vill.; TF, SU; 3; E864

CELASTRACEAE

- Celastrus scandens* L.; UF, SU, CU; 2; E1013
 **Euonymus alata* (Thunb.) Sieb.; UF, TF; 1; E715
 **Euonymus fortunei* (Turcz.) Hand.-Maz.; CU, UF; 2; E984
Euonymus obovata Nutt.; UF; 1; E1015

CHENOPODIACEAE

- Chenopodium album* L.; CU; 1

CONVOLVULACEAE

- Calystegia sepium* (L.) R. Br. spp. *americana* (Sims) Brummitt; CU, SU; 2; E730
Ipomoea hederacea (L.) Jacq.; CU, SU; 2; E1083
Ipomoea lacunosa L.; CU, SU; 2; E1085
Ipomoea pandurata (L.) G.F.W. Mey; CU, SU; 2; E785, E977

CORNACEAE

- Cornus florida* L.; UF, SU, CU; 3; E891
Cornus drummondii C. A. Mey.; TF, SU; 2; E655

CORYLACEAE

- Carpinus caroliniana* Walt.; UF, TF; 3
Corylus americana Walt.; SU; 2; E2076
Ostrya virginiana (Mill.) K. Koch; UF; 3

CUSCUTACEAE

- Cuscuta gronovii* Willd.; CU, SU, TF; 3; E3028

EBENACEAE

- Diospyros virginiana* L.; SU, CU, UF; 3

ELAEAGNACEAE

- **Elaeagnus umbellata* Thunb.; SU, CU, UF, TF; 5; E617

EUPHORBIACEAE

- Acalypha rhomboidea* Raf.; CU, SU; 3; E698
Acalypha virginica L.; CU, SU; 3; E698a
Chamaesyce maculata (L.) Small; CU; 3; E809
Chamaesyce supina (Raf.) Moldenke; CU; 3; E3025
Croton capitatus Michx.; SU; 1; E728
Euphorbia corollata L.; SU, PR; 3; E640

FABACEAE

- Amorpha canescens* Pursh.; CU; 1; E652
Apios americana Medic.; TF, CU; 1
 **Coronilla varia* L.; CU; 1; E943
Crotalaria sagittalis L.; SU; 1; E735
Desmodium nudiflorum (L.) DC.; UF; 3; E692
Desmodium paniculatum (L.) DC.; SU; 1; E1048
Desmodium pauciflorum (Nutt.) DC.; UF; 1; E1047
 **Kummerowia striata* (Thunb.) Schindler; CU; 5; E1025
 **Lespedeza cuneata* (Dum.-Cors.) G. Don.; CU; 2; E795
Lespedeza virginica (L.) Britt.; SU, CU, UF; 2; E2007
 **Medicago lupulina* L.; CU, SU; 3; E613
 **Medicago sativa* L.; CU; 1
 **Melilotus alba* Medikc.; CU, SU; 3; E638
 **Melilotus officinalis* (L.) Pallas; CU, SU; 2; E612
 **Robinia pseudoacacia* L.; CU, SU, UF; 2; E3004
 **Trifolium campestre* Schreb.; CU, SU; 3; E99, E604
 **Trifolium pratense* L.; CU; 3; E644
 **Trifolium repens* L.; CU, SU; 3; E643

FAGACEAE

- Quercus alba* L.; UF, TF, SU, CU, FS; 5
Quercus bicolor Willd.; TF; 1; E703
Quercus imbricaria Michx.; SU, CU, UF; 3; E641
Quercus macrocarpa Michx.; TF; 1
Quercus x bushii Sargent; UF; 1; E718
Quercus palustris Muenchh.; TF, SU; 2; E632
Quercus prinoides Willd. var. *acuminata* (Michx.) Gl.; UF; 2; E695
Quercus rubra L.; UF, TF; 3; E711
Quercus stellata Wagh.; UF; 2; E834
Quercus velutina Lam.; UF, SU, CU; 3

GENTIANACEAE

- Frasera caroliniensis* Walt.; UF; 3; E924
Sabatia angularis (L.) Pursh.; CU, SU; 3; E732

GERANIACEAE

- Geranium carolinianum* L.; CU, SU; 2; E944
Geranium maculatum L.; UF; 3; E892

HAMAMELIDACEAE

Liquidambar styraciflua L.; TF, CU, SU; 2; E626

HYDRANGEACEAE

Hydrangea arborescens L.; FS, UF; 3

HYPERICACEAE

Hypericum mutilum L.; UF; 1; E976a

**Hypericum perforatum* L.; CU, SU, PR; 3; E712

Hypericum punctatum Lam.; CU, SU, PR; 3; E645, E714

Hypericum prolificum L.; SU; 2; E731

JUGLANDACEAE

Carya cordiformis (Wang.) K. Koch; UF, SU, CU; 3; E1075

Carya glabra (Mill.) Sweet; UF, CU, SU; 4; E710

Carya ovata (Mill.) K. Koch; UF, CU, SU; 5

Carya tomentosa (Poir.) Nutt.; UF; 3; E598

Juglans nigra L.; TF, UF, SU, CU; 2; E682

LAMIACEAE

Agastache nepetoides (L.) Ktze.; SU, UF; 2; E802, E822

Blephilia ciliata (L.) Benth.; UF; 2

Hedeoma pulegioides (L.) Pers.; CU; 2; E3102

**Lamium amplexicaule* L.; CU; 3; E871

**Lamium purpureum* L.; CU, SU; 3; E2021

**Leonurus cardiaca* L.; CU; 2; E701

Lycopus americanus Muhl.; TF, CU; E854, E3111

Lycopus virginicus L.; TF, CU; 2; E3107

Monarda bradburiana Beck.; SU, UF, CU; 2; E599

**Prunella vulgaris* L. var. *elongata* Benth.; CU; 3; E650

Pycnanthemum incanum (L.) Michx.; SU; 2; E854

Pycnanthemum pilosum Nutt.; SU, CU; 2; E722, E760

Pycnanthemum tenuifolium Schrad.; SU, CU, PR; 3; E646

Scutellaria incana Biehler; UF; 2; E757

Scutellaria lateriflora L.; TF; 3; E756

Scutellaria ovata Hill; UF; 3; E1024

Stachys tenuifolia Willd.; TF, UF, SU; 2; E743

Teucrium canadense L. var. *virginicum* (L.) Eat.; TF, SU, CU; 3; E755

LAURACEAE

Lindera benzoin (L.) Blume; FS, TF, SU; 3; E689

Sassafras albidum (Nutt.) Nees; UF, SU, CU, PR; 3; E614

LINACEAE

Linum medium (Planch.) Britt. var. *texanum* (Planch.) Fern.; SU, CU; 2; E717

LYTHRACEAE

Ammannia coccinea Rottb.; TF; 2

MAGNOLIACEAE

Liriodendron tulipifera L.; UF, TF; 3; E690

MALVACEAE

**Abutilon theophrastii* Medic.; CU; 2; E3120

**Sida spinosa* L.; CU; 2; E3123

MENISPERMACEAE

Menispermum canadense L.; UF, SU; 2; E1008

MOLLUGINACEAE

**Mollugo verticillatus* L.; TF, CU; 3; E3125

MORACEAE

Humulus lupulus L.; UF; 1; E993

**Maclura pomifera* (Raf.) Schneider; SU; 1

**Morus alba* L.; SU, CU; 1; E2080

Morus rubra L.; SU, CU; 2; E635

NELUMBONACEAE

Nelumbo lutea (Willd.) Pers.; OL; 1; E3115

NYMPHAEACEAE

Nuphar luteum (L.) Sibth. & Smith spp. *macrophyllum* (Dur.) Beal; OL; 2; E2096

NYSSACEAE

Nyssa sylvatica Marsh.; UF, TF; 3

OLEACEAE

**Forsythia suspensa* (Thunb.) Vahl.; UF; 2

Fraxinus americana L.; UF, TF, CU; 3; E3117

Fraxinus pennsylvanica Marsh.; UF, TF, SU, CU; 3; E691

ONAGRACEAE

Circaea lutetiana Aschers. & Magnus spp.

canadensis (L.) Aschers & Magnus; UF, TF, SU; 3; E656

Ludwigia alternifolia L.; SU, CU, PR; 3; E995

Ludwigia peploides (HBK.) Raven spp. *glabrescens* (Ktze.) Raven; OL; 3; E697

Oenothera biennis L. var. *canescens* Torr. & Gray; CU, SU; 3; E781

OXALIDACEAE

Oxalis dillenii Jacq.; CU, SU, UF, TF; 3; E671

Oxalis stricta L.; CU, SU, UF, TF; 3; E725

Oxalis violacea L.; UF; 3; E892

PAPAVERACEAE

Dicentra cucullaria (L.) Bernh.; UF; 4; E013

Sanguinaria canadensis L.; UF; 3; E879

PASSIFLORACEAE

Passiflora lutea L. var. *glabriflora* Fern.; UF, SU; 2; E736

PHYRMACEAE

Phryma leptostachya L.; UF; 3; E627

PHYTOLACCACEAE

Phytolacca americana L.; CU, SU, UF, TF; 2; E637

PLANTAGINACEAE

- Plantago aristata* Michx.; CU; 1; E727
 **Plantago lanceolata* L.; CU, SU; 3; E647, E1019
 **Plantago rugelii* Dcne.; CU, SU; 3; E623, E726
Plantago virginica L.; CU, SU; 3; E928

PLATANACEAE

- Platanus occidentalis* L.; TF, CU, SU, UF; 2;
 E693

POLEMONIACEAE

- Phlox divaricata* L. spp. *laphamii* (Wood)
 Wherry; UF; E021
Phlox paniculata L.; TF; 2; E983
Polemonium reptans L.; UF, TF; 2

POLYGALACEAE

- Polygala sanguinea* L.; SU, CU, PR; 2; E659
Polygala verticillata L.; SU; 1; E673

POLYGONACEAE

- **Fagopyrum esculentum* Moench.; CU; 3; E966
Polygonum arifolium L. var. *pubescens* (Keller)
 Fern.; FS; 3
 **Polygonum aviculare* L.; TF; 2; E3027
 **Polygonum cespitosum* Blum. var. *longisetum*
 (DeBruyn) Stewart; OL, CU; 2; E3121
Polygonum hydropiperoides Michx.; TF, CU; 2;
 E765
 **Polygonum persicaria* L.; TF; 3; E3121
Polygonum punctatum Ell.; TF, CU; 3; E796
Polygonum scandens L.; CU, SU, UF; 2; E2011
Polygonum setaceum Baldw. var. *interjectum*
 Fern.; CU; 3; E1031
Polygonum sagittatum L.; OL; 3; E746
Polygonum virginianum L.; UF, SU, CU; 3;
 E2002
 **Rumex acetosella* L.; CU; 5; E672
Rumex altissimus Wood.; TF, CU; 2; E945
 **Rumex crispus* L.; CU, SU; 3; E674

PORTULACACEAE

- Claytonia virginica* L.; UF, TF, SU, CU; 5; E005
 **Portulaca oleracea* L.; CU; 3; E3031

PRIMULACEAE

- **Lysimachia nummularia* L.; TF; 3; E739
Samolus valerandii L.; TF; 2; E819

PYROLACEAE

- Monotropa uniflora* L.; UF; 1

RANUNCULACEAE

- Actaea pachypoda* Ell.; UF, TF; 2; E694
Anemone virginiana L.; UF; 2; E767, E1095
Delphinium tricornis Michx.; UF; 4; E022
Isopyrum biternatum (Raff.) Torr. & Gray; TF; 3;
 E877
Ranunculus abortivus L.; TF, CU, SU; 2; E881
Ranunculus recurvatus Poir.; TF; 1; E895
Ranunculus sceleratus L.; TF, SU, CU; 2; E3001

- Ranunculus septentrionalis* Poir.; TF, FS; 2
Thalictrum dioicum L.; UF; 2; E872

ROSACEAE

- Agrimonia parviflora* Ait.; TF, SU, CU; 3; E753
Agrimonia rostellata Wallr.; UF, SU, CU; 3;
 E752, E791
Amelanchier arborea (Michx. f.) Fern.; UF, SU;
 2; E012
Fragaria virginiana Duchesne; SU, CU, PR; 2
Geum canadense Jacq.; UF, TF, SU, CU; 2; E631,
 E751
Geum laciniatum Murr. var. *trichocarpum* Fern.;
 SU, CU; 2
Geum vernum (Raf.) Torr. & Gray; SU, CU, UF;
 2; E899
Porteranthus stipulatus (Muhl.) Britt.; UF, SU,
 CU; 3; E737
Potentilla simplex Michx.; SU, CU, UF, PR; 3;
 E903
 **Prunus mahaleb* L.; CU; 1; E900
Prunus mexicana S. Wats.; SU; 1; E3038
Prunus serotina Ehrh.; UF, SU, CU; 3; E642
 **Rosa multiflora* Thunb.; SU, CU, UF, TF; 4;
 E3005
Rosa palustris Marsh.; FS, TF; 2; E665, E716
Rosa setigera Michx.; TF; 1; E964
Rubus allegheniensis Porter; CU, SU, PR; 3; E915
Rubus flagellaris Willd.; SU, CU, PR, UF; 3;
 E901
Rubus frondosus Bigel.; CU, SU; 2
Rubus occidentalis L.; SU, CU, UF; 2; E636
Rubus pensylvanicus Poir.; SU, CU; 2; E661

RUBIACEAE

- Cephalanthus occidentalis* L.; OL; 2; E748
Diodia teres Walt.; CU, SU; 2; E1014
Galium aparine L.; UF, TF, SU, CU; 3; E705
Galium asprellum Michx.; UF, CU, FF; 3; E3112
Galium circaeans Michx.; UF; 4; E707
Galium concinnum Torrey & Gray; UF, SU; 2;
 E1040
Galium triflorum Michx.; TF; 2; E1041
Hedyotis caerulea (L.) Hook.; CU; 3; E883a
Hedyotis crassifolia Raf.; CU, SU; 2; E2019

SALICACEAE

- Populus deltoides* Marsh.; TF; 2
Salix humilis Marsh.; SU; 1; E660
Salix nigra Marsh.; TF, OL; 2

SAURURACEAE

- Saururus cernuus* L.; FS, TF; 2; E1096

SAXIFRAGACEAE

- Heuchera americana* L. var. *hirsuticaulis*
 (Wheelock & Rosend.) Butt. & Lak.;
 SU, CU, UF; 3; E3126
Penthorum sedoides L.; CU, TF, SU; 2; E754

SCROPHULARIACEAE

- Agalinis paupercula* (Gray) Brigg.; CU; 1; E1079

Agalinis purpurea (L.) Pennell; SU, PR, CU; 3; E1079
Chelone glabra L.; FS; 1; E799
Dasistoma macrophylla (Nutt.) Raf.; SU; 1; E1011
Gratiola neglecta Torr.; OL; 2
Mimulus alatus Ait.; TF, SU; 1; E744
Penstemon digitalis Nutt.; SU, CU, UF; 2; E610
Scrophularia marilandica L.; SU; 1; E828
**Verbascum blattaria* L.; CU; 1
**Verbascum thapsus* L.; CU; 2; E667
**Veronica arvensis* L.; CU, SU; 3; E932
Veronica peregrina L.; CU, SU; 3; E909
**Veronica persica* Poir.; CU, 3; E3170
**Veronica polita* Fries; CU; 4; E3170
Veronicastrum virginicum (L.) Farw.; UF, SU; 1; E836

SIMAROUBACEAE

**Ailanthus altissima* (Mill.) Swingle; CU, UF; 1

SOLANACEAE

**Datura stramonium* L.; CU; 2; E3116
Physalis heterophylla Nees; CU; 1; E1007
Solanum carolinense L.; CU; 3; E950
Solanum ptycanthum Dunal.; CU, SU; 2; E3035

STAPHYLEACEAE

Staphylea trifolia L.; FS, TF, UF; 2

ULMACEAE

Celtis occidentalis L.; TF, UF, SU, CU; 2
Ulmus americana L.; UF, TF, SU, CU; 2
Ulmus rubra Muhl.; UF, TF, SU, CU; 4; E821

URTICACEAE

Boehmeria cylindrica (L.) Sw.; TF, SU; 2; E762, E991
Parietaria pensylvanica Muhl.; TF, SU, UF; 2; E675, E698
Pilea pumila (L.) Gray; TF, UF, CU; 3; E803
Laportea canadensis (L.) Wedd.; TF; 3

VERBENACEAE

Phyla lanceolata (Michx.) Greene; TF, CU; 3; E1006
Verbena hastata L.; CU, SU, PR; 3; E724
Verbena urticifolia L.; SU, CU; 2; E648, E980

VIOLACEAE

Viola pratensis Greene; UF; 3
Viola pubescens Ait. var. *eriocarpa* (Schwein.) Russell; UF, TF; 3; E024, E880
**Viola rafinesquii* Greene; CU; 3; E884

VITACEAE

Ampelopsis cordata Michx.; TF; 2
Parthenocissus quinquefolia (L.) Planch.; UF, TF, SU; 3; E636
Vitis aestivalis Michx.; UF, TF, SU, CU; 2; E653, E721
