

## THE VASCULAR FLORA AND VEGETATIONAL COMMUNITIES OF COFFMAN WOODS NATURE PRESERVE, WAYNE COUNTY, INDIANA

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**ABSTRACT.** Coffman Woods Nature Preserve (CWNP), owned by the Whitewater Valley Land Trust, Inc., was acquired in two steps. The first 18.2 ha (45 acres) was funded by from the Rocky Express Gas Pipeline (REX) grant program. The additional 27.9 ha (69 acres) was funded principally by the Indiana Bicentennial Nature Trust and partly by the Indiana Heritage Trust. The preserve is located along the east fork of the Whitewater River in south-central Wayne County, Indiana, in Abington Township. CWNP harbors significant regional plant diversity with 378 taxa representing 250 genera and 87 families. The twelve families containing ~59% of the documented species were the Asteraceae (49 spp.), Poaceae (39), Cyperaceae (19), Brassicaceae (18), Apiaceae (15), Fabaceae (14), Liliaceae (14), Lamiaceae (12), Polygonaceae (12), Ranunculaceae (11), Scrophulariaceae (10), and the Rosaceae (8). Of the 378 species documented, 282 [~75%], are native and 96 [~25%] are exotics, and 20 represented Wayne County Records. Although none of the plants documented at the site have state or federal status, two species are on the Indiana Watch List, i.e., *Prenanthes crepidinea* and *Veratrum woodii*. A detailed physiognomic analysis revealed that the native species consisted of 55 woody species, 183 herbaceous vines or forbs, 39 graminoids, and five ferns or fern allies. Of the 96 exotics, 11 were woody, 66 were herbaceous vines or forbs, and 19 were grasses. The major habitats occurring at CWNP are roadside and a roadside field, an old-field, steep-sloping mesic woods (the majority of the site), a small floodplain woods, a flat upland woods, a circumneutral hardwood forest seep, a small man-made pond, and the Whitewater River corridor including the riverbank, a sandy shoreline, and several sand-gravel shorelines and islands. Plants characteristics of each habitat are listed. Floristic Quality Index (FQI) for native species was 58.4 and a mean Coefficient of Conservatism (mean C) was 3.5. For all species FQI = 50.5 and the mean C = 2.6. These numbers indicate that CWNP is a site with high natural quality that is being compromised by exotics. The most invasive exotics were *Alliaria petiolata* and *Lonicera maackii* in the sloping woodland, *Poa trivialis* and *Ranunculus ficaria* var. *bulbifera* in the floodplain woods, and *Artemisia annua*, *Brassica nigra*, *Humulus japonicus* and *Phalaris arundinacea* along the Whitewater River corridor.

**Keywords:** Floristic Quality Index (FQI), flora – Indiana, circumneutral hardwood forest seep, floodplain woods, deciduous forest, old-field flora

### INTRODUCTION

In 2009 the Whitewater Valley Land Trust, Inc. (WVLT) received a Rocky Express Gas Pipeline (REX) Migratory Bird Mitigation grant to help purchase nine properties in the Whitewater River Watershed. (These lands are being conserved, in part, by funding and technical assistance made available as mitigation for impacts caused by the construction and maintenance of Rockies Express Pipeline, LLC in partnership with the U.S. Fish and Wildlife Service.) Coffman Woods Nature Preserve

(CWNP), which lies on the east side of the east fork of the Whitewater River just north of Abington, Indiana in southern Wayne County, was one of the properties purchased. Funding from the REX grant program reflects the value that U.S. Fish and Wildlife Service placed on this site as a nature preserve to serve as a permanent habitat for the native flora and fauna of this region.

Because it offered two major habitat-types not previously studied, e.g., a fairly steep-sloping mesic woodland and a river corridor, this study of CWNP was undertaken as part of our continuing effort to determine the flora and floral communities of east-central Indiana.

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There have been no formal published studies regarding the flora of CWNP. However, one of the requirements of the REX grant was to create a list of the vascular plants at each site. In 2011 in consultation with WVLT, Don Ruch compiled this list for Coffman Woods. The list was based on three forays into the site, i.e., late spring, mid-summer, and late summer/early fall. Ruch reported 243 species of plants, including 182 natives and 61 exotics.

As stated in earlier works (Ruch et al. 2008a, 2008b, 2009, 2012), an inventory of resources is the necessary first step in developing a long-term resource management plan. An inventory is the simplest means to document species diversity and is a fundamental step in monitoring changes that may occur in species composition. Additionally, measures of diversity, i.e., species richness, are frequently seen as indicators of the well-being of ecological systems (Magurran 1988). (Species richness is simply a count of species and does not take into account the abundances of the species or their relative abundance distributions.) Thus, the goals in this study were (1) to inventory the vascular flora; (2) to determine the floristic quality of the site; (3) to describe the various habitats and summarize floral dominance for each; and (4) to identify areas of special concern (e.g., areas with rare or threatened plants, if any, and communities sensitive to disturbance). Based on the finding of this study, long term resource management of the site has already been discussed with Mike Hoff, President of the WVLT.

#### SITE DESCRIPTION

Located in south-central Wayne County, Indiana (Fig. 1), Coffman Woods Nature Preserve is a 46 ha (~ 114 acres) property located just north and across the Whitewater River from Abington, Indiana, i.e., located in the southeast quarter of Abington Township or at ~ 39°44'03N and 84°57'25"W [NAD 83] at the gate to the logging road at the southern end of the property along Potter Shop Road; this location is marked with an X in Fig. 2. The property is part of the riparian corridor along the Whitewater River. The preserve is bordered on the south by Potter Shop Road, the Whitewater River along the southern third of the west border and by privately owned land along the northern two-thirds of the west border and the north border. The east border is adjacent to

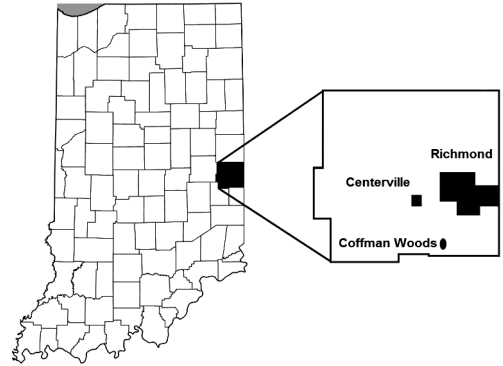


Figure 1.—Maps indicating the location of Coffman Woods Nature Preserve within Wayne County (right) and the location of Wayne County within the state of Indiana (left). The site lies approximately 10.5 km south of downtown Richmond.

the remaining land of the Coffman family. The site was acquired in two acquisitions. The first purchase (2012), using money from the REX grant, included the western 45 acres along the river and the majority of the slope woodland. The second purchase (2013), using money from the Bicentennial Nature Trust, Indiana Heritage Trust, and WVLT, included 69 acres of the flatter upland east of the original purchase.

Although CWNP contains a number of smaller habitat types, the majority of the site is a fairly steep, mesic, sloping woodland (Fig. 2). Within the sloping woodland several seasonal creeks have cut small rocky ravines. Also, a creek with water throughout the year flows generally to the southwest, entering the property in the northeast corner and flowing off the property in the west-central section of the woodland. Other habitat types present include the roadside and roadside field along Potter Shop Road, an old agricultural field along the southern third of the eastern border and a man-made pond, less than one-acre in size, on the east-central border. The northern 20-25% of the woodlands is a flat, upland woods with little slope. This upland woodland is bordered on the north by row-crop fields. Lying on the steep slope in the northwestern corner of the property is a circumneutral hardwood forest seep. [A circumneutral hardwood forest seep is a groundwater-fed wetland, having neutral or weakly acidic soil water, on organic soil (typically circumneutral muck) within a forest. These communities are characterized by slowly flowing water during at least

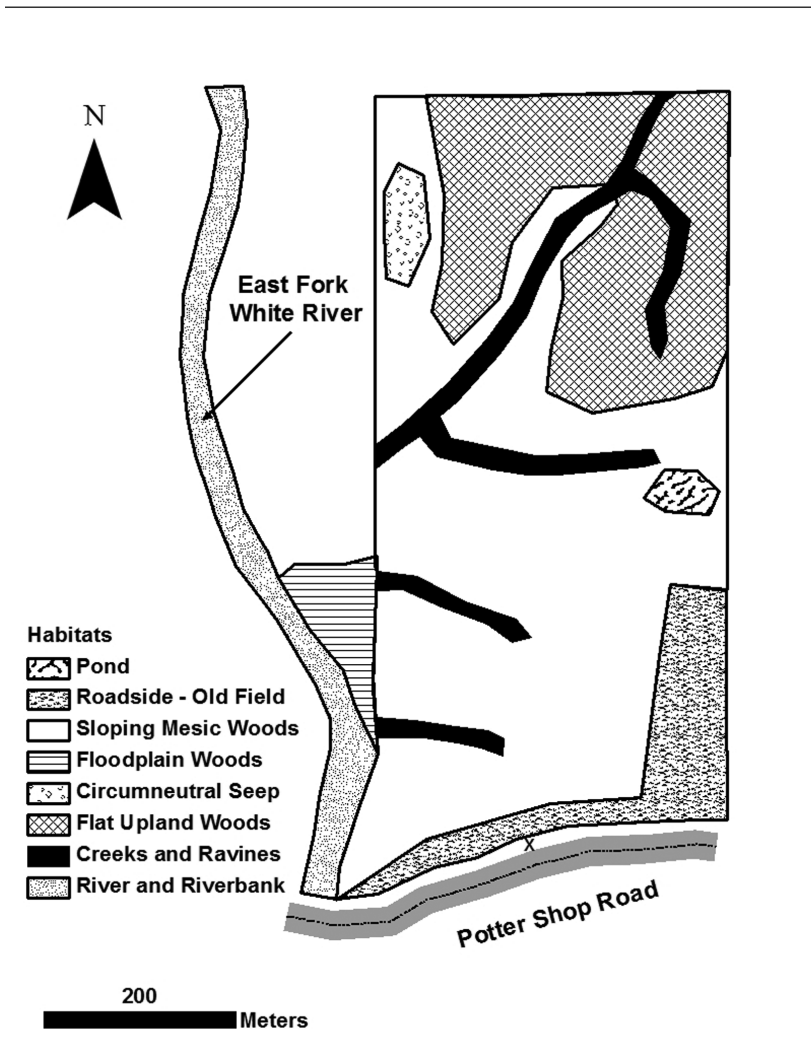


Figure 2.—Diagram illustrating the distribution of the major habitats at Coffman Woods Nature Preserve, Wayne County, Indiana. To the left of the dotted line is the original purchase of the property in 2012, and to the right of the line is the area of the second purchase (2013).

part of the year and mixture of seepage indicator and other wetland plants (Division of Forests and Lands 2014; WSAG 2005).] This seep is ~ 10 m wide and 30 m long. A small floodplain woodland is located in the southern third of the property along the river. This woodland is contiguous with a much larger, privately owned floodplain woods to the north. The final major habitat is the Whitewater River and river corridor, which is quite diverse from both the floristic and topo-edaphographic perspective. Much of the shoreline is sandy or sand and gravel and is underwater seasonally

or periodically due to rainfall. These shorelines rise slowly upward through sandy and silty soil into the floodplain woods. Located near the sand and gravel shoreline, is one large sand and gravel island. The southern half of the river corridor is a riverbank which is elevated from 1 – 2.5 m above the river. At the base of the slope at several locations is a shoreline of silt, sand, and rocks that supports plant growth.

According to Homoya et al. (1985) and Wiseman & Berta (2013), CWNP lies in the transition zone between the Tipton Till Plain [Central Till Plain] and the Switzerland Hills

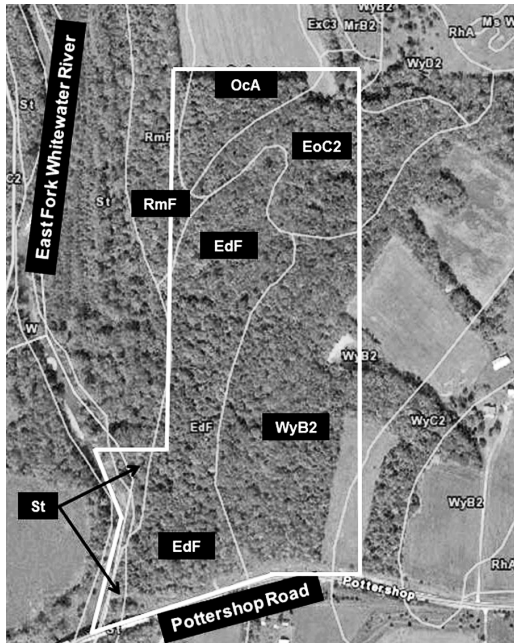


Figure 3.—Soil types and location in Coffman Woods Nature Preserve, Wayne County, Indiana. EdF = Eden flaggy silty clay loam, EoC2 = Eldean loam, OcA = Ockley silt loam, RmF = Rodman gravelly loam, St = Stonelick loam. (From WSS, 2013).

region. The preserve is within the Whitewater Watershed (USGS Cataloging Unit 05080003, EPA 2013). The Whitewater River flows south into Brookville Lake. From there it flows south and east into Ohio where it merges with the Miami River near Elizabethtown. The Miami River is tributary to the Ohio River.

The soils of CWNP range from loam to silty clay loam (Fig. 3) (Blank 1987; WSS 2013). The soil along the river corridor and the floodplain woodland is Stonelick loam, which is occasionally flooded, but well drained. The soil of the sloping woodland is Eden flaggy silty clay loam having a 25-40% slope and is eroded and well drained. The soil in the upper sloping woods and old-field at the top of the hill are Wynn silt loam characterized as having a 2-6% slope, are well drained, and eroded. The soils in the flatter woods in the northern section of the site are Eldean loam, 2-6% slope, well drained, and eroded, and Ockley silt loam, 1-2% slope and well drained. The soil around the circumneutral forest seep is Rodman gravelly loam, being gravelly loam to gravelly

sandy loam, having a 25-50% slope, and being an excessively drained, hydrologic soil (Blank 1987; WSS 2013).

### BRIEF HISTORY OF LAND USE

Based on aerial photographs from 1950 to 1976, except for a small area in the southern-third of the eastern side of the upper slope, nearly the entire slope was wooded (IHAPI 2008). Much of the 69 acres of the flatter upland in the second purchase was non-woodland. Mr. Phil Coffman purchased the property in 1973 from the Sherwood Family. It should be noted that the original Coffman property extended along the river south of the current location of Potter Shop Road. In the early 1990s, the state built the current bridge over the Whitewater River. Because the new bridge is located north of the former bridge, 5.54 acres of the original Coffman land was lost. The current border of the CWNP was established with the extension of Potter Shop Road to the new bridge. This extension also created the roadside and roadside field habitats.

On December 9, 1958, Mr. Paul Quigg, property owner at the time, placed 62.5 acres in the Indiana Classified Forest and Wildlands Program (IDNR 2013). Mr. Quigg added another 13.8 acres on the south end of the property on February 19, 1963. The later 13.8 acres was reduced to 8.256 acres when the County reworked Potter Shop Road and took some of the land for the right-of-way. In 1975 the Coffmans logged the site by removing all trees with a diameter greater than 30.5 cm (12 in). A letter to Coffman from Greg Yapp dated June 15, 1979 refers to a harvest when Coffman bought the farm that “removed most of the large merchantable trees.” According to the Coffman’s, the woodland purchased by the Whitewater Valley Land Trust has remained undisturbed since 1975. As a final note, to the knowledge of everyone mentioned above, although the site had been selectively logged prior to the 1970s, it had never been clear cut.

### METHODS

During the 2012 growing season, a foray was made every seven to ten days into the study area. Forays were made into every major habitat type, and an effort was made to cover all areas within these habitats. Voucher specimens for each species were collected and deposited in the Ball State Herbarium (BSUH).

Table 1.—Physiognomic analysis of the vascular flora documented at Coffman Woods Nature Preserve, Wayne County, Indiana. A = annual, B = biennial, H = herbaceous, P = perennial, W = woody.

	Native species summary		Exotic species summary	
	Number	% of total	Number	% of total
# of species	282	74.6%	96	25.4%
Tree	36	9.5%	4	1.1%
Shrub	11	2.9%	5	1.3%
W-Vine	8	2.1%	2	0.5%
H-Vine	3	0.8%	1	0.3%
P-Forbs	129	34.1%	26	6.9%
B-Forbs	10	2.6%	14	3.7%
A-Forbs	41	10.8%	25	6.6%
P-Grass	14	3.7%	8	2.1%
A-Grass	6	1.6%	11	2.9%
P-Sedge	16	4.2%	0	0.0%
A-Sedge	3	0.8%	0	0.0%
Fern	5	1.3%	0	0.0%

Notes on vegetation consisted of a species list with visual estimates of distribution patterns and relative abundance (see catalog of vascular plants, Appendix 1). Additionally, seasonal changes in the dominant vegetation (based on time of flowering) were noted for the various habitats. Nomenclature follows the USDA Plants Database (USDA 2013). A Floristic Quality Index (FQI) for CWNP was determined using the program developed by the Conservation Design Forum in conjunction with Rothrock (2004). This program also calculates the mean Coefficient of Conservatism (mean C), and the mean Wetland Indicator Status (mean W). Additionally, it presents a detailed physiognomic analysis of the flora, both native and exotic. For a detailed description of how the FQI is determined and an explanation of C-values, see Swink & Wilhelm (1994), Rothrock (2004), and Rothrock & Homoya (2005). Briefly, C-values, which range from zero to ten, are an index of the fidelity of an individual species to undisturbed plant communities characteristic of the region prior to European settlement. The higher the C-value the more conserved the species is to an undisturbed habitat. All exotics are given a C value of 0. The FQI is determined by multiplying the mean C for all species present by the square root of the total number of species. [For native FQI and mean C, only the native species are used.] A FQI greater than 35 suggests that a site has remnant natural quality and contains some noteworthy remnants of natural heritage

of the region (Rothrock & Homoya 2005; Swink & Wilhelm 1994).

## RESULTS

The catalog of the vascular flora documented at Coffman Woods Nature Preserve is listed in Appendix 1. The vascular flora consisted of 378 taxa representing 250 genera and 87 families. Thirty-three families [~ 38%] are represented by only one species and 16 families [~ 18%] are represented by only two species. As seen in Appendix 1, the twelve plant families having the highest number of species are the Asteraceae (49 species), Poaceae (39 species), Cyperaceae (19 species, including 12 *Carex* spp.), Brassicaceae (18 species), Apiaceae (15 species), Fabaceae (14 species), Liliaceae (14 species), Lamiaceae (12 species), Polygonaceae (12 species), Ranunculaceae (11 species), Scrophulariaceae (10 species), and the Rosaceae (8 species). These twelve families account for 221 of the 378 species or ~ 59% of the species documented. It should be noted that the USDA Plants Database follows the Cronquist system of plant taxonomy.

The physiognomic analysis of the flora in CWNP revealed some interesting information on plant composition (Table 1). Of the 378 plants documented, 282 [~ 74.6%] are native and 96 [~ 25.4%] are exotics. Of the 282 native species, 55 [~ 19.6%] are woody, 183 [64.8%] are herbaceous vines or forbs, 39 [~ 13.9%] are graminoids, and five [~ 1.7%] are ferns and their allies. Of the 96 exotics, 11 [~ 11.5%] are

woody, 66 [~ 68.7%] are vines or forbs, and 19 [~ 19.8%] are grasses.

The Floristic Quality Index and mean Coefficients of Conservatism (mean C) for the native species is 58.4 and 3.5, respectively, and for all species, including the exotics is 50.5 and 2.6, respectively. An examination of Appendix 1 reveals that one species, *Ranunculus hispidus* var. *caricetorum*, has a Coefficient of Conservatism (C) = 10 and one species, *Carex careyana*, has a C = 9. Nine species have a C = 8, i.e., *Aristolochia serpentaria*, *Collinsonia canadensis*, *Fagus grandifolia*, *Hepatica nobilis* var. *acuta*, *Sanicula trifoliata*, *Sedum ternatum*, *Symphotrichum prenanthoides*, *Symplocarpus foetidus* and *Trillium grandiflorum*. Twenty species have a C = 7. In comparison, 239 species [~ 63.4%] have C-values  $\leq 3$ , i.e., 125 species with C = 0 (including 29 native species), 30 species with C = 1, 32 species with C = 2, and 52 species with C = 3.

Based upon the Indiana Natural Heritage Data Center's records for Wayne County [this is the same plant list in the computer database of Keller et al. (1984)], the USDA Plant Database (2013), Overlease & Overlease (2007), the species listed at Hayes Arboretum (Ruch et al. 2007), and at Lick Creek Summit Nature Preserve (Ruch et al. 2008a), 20 species documented in CWNP are reported for the first time and represent Wayne County records. Among these 20 species are the exotics *Aegopodium podagraria* and *Digitaria ciliaris*, and the natives *Cyperus squarrosus*, *Prenanthes crepidinea*, *Rudbeckia triloba*, *Veratrum woodii* and *Wolffia punctata*. None of the species documented at the site have state RTE status (IDNR Nature Preserves 2013), but two species are on the state watch list, i.e., *Prenanthes crepidinea* and *Veratrum woodii*. Although *Pinus strobus* is listed as state rare, all the white pines in the preserve were planted and they do not appear to be naturalizing.

#### DESCRIPTIONS OF THE MAJOR HABITATS

Coffman Wood Nature Preserve encompasses several habitats, each with rather distinctive plant communities (Fig. 2). The communities are separated by topographic features, water regime, and history of human use. The major habitats at CWNP are listed earlier in the Site Description section. Below is a more detailed description of the plants in each habitat.

**Roadside, roadside field and old-field.**—These sites are typically very dry, although the roadside field had a ditch that held water through mid-summer. Although woody species are present, such as *Fraxinus pennsylvanica* and *Juglans nigra*, the majority of the vegetation is composed of forbs and graminoids. The dominant grasses include *Andropogon virginicus*, *Bromus inermis*, *Dactylis glomerata*, *Panicum virgatum*, *Poa pratensis*, *Schedonorus arundinaceus*, *Sporobolus vaginiflorus* and *Tridens flavus*. Sedges occurring in the wetter sites include *Carex granularis*, *C. vulpinoidea*, *Scirpus atrovirens* and *S. pendulus*. Dominant forbs or forbs occurring only in this habitat type are *Asclepias* spp., especially *A. tuberosa*, *Barbarea vulgaris*, *Medicago lupulina*, *Melilotus officinalis*, *Securigera varia*, *Solidago altissima*, *Solidago nemoralis*, *Symphotrichum pilosum* and *Typha* spp. Less frequently occurring forbs are those typical of old-fields, such as *Ambrosia artemisiifolia*, *Cichorium intybus*, *Cirsium arvense*, *Conium maculatum*, *Daucus carota*, *Eupatorium serotinum*, *Lepidium* spp., *Oenothera biennis*, *Pastinaca sativa*, *Symphotrichum novae-angliae*, *Trifolium* spp., *Vernonia gigantea* and *Veronica arvensis*.

**Sloping mesic woodland.**—Most of the site consists of a steep, mesic woodland. The slope runs east to west down the hill to the White-water River, dropping approximately 42.5 m (140 ft) from a height of 286 m (940 ft) to 244 m (800 ft) above sea level over a distance of approximately 244 m (800 ft). A south to north transect is dissected by three seasonal creeks with small rocky ravines. The vegetation along these creeks and ravines is generally the same as the surrounding woodlands. The eastern one-third of this habitat, especially along the southern one-half of the border, contains a much younger, successional woodland than does the rest of the sloping woodland. Based on aerial photographs, this area consisted of agricultural fields in the past (IHAPI 2008). Although younger, this site does contain the same tree species as the rest of the woodland slope but is dominated by *Lonicera maackii* and many planted *Pinus strobus*. Also, *Asplenium platyneuron* occurs only in this younger woodland and is abundant.

For the rest of the sloping, mesic woodland, the canopy is composed of a variety of deciduous tree species; however, the two dominant species are *Acer saccharum* and *Celtis occidentalis*, both abundant and widespread.

Other common canopy species include *Acer nigrum*, *Carya ovata*, *Fraxinus* spp., especially *F. quadrangulata*, *Gleditsia triacanthos*, *Juglans nigra*, *Quercus muehlenbergii* and *Ulmus americana*. The most common vines are *Menispermum canadense*, *Toxicodendron radicans* and *Vitis* spp. The spring floral display is outstanding and includes *Asarum canadense*, *Cardamine bulbosa*, *C. concatenata*, *Carex albursina*, *C. careyana*, *Claytonia virginica*, *Cryptotaenia canadensis*, *Cystopteris protrusa*, *Geum vernum*, *Elymus macgregorii*, *Festuca subverticillata*, *Hydrophyllum appendiculatum*, *H. macrophyllum*, *Jeffersonia diphylla*, *Maianthemum racemosum*, *Osmorhiza longistylis*, *Packera obovata*, *Phlox divaricata*, *Poa sylvestris*, *Polygonatum biflorum*, *Sanguinaria canadensis*, *Sanicula* spp., *Stylophorum diphyllum*, which covered many acres, *Tradescantia virginiana* and *Viola* spp. Later flowering forbs include *Ageratina altissima*, *Campanulastrum americanum*, *Circaea lutetiana*, *Geum canadense*, *Phryma leptostachya*, *Solidago flexicaulis* and *Tradescantia subaspera*.

Just inside the fence on the southern property line is a shrub dominated successional woodland. This shrub-strip, up to 15 m wide, ends when the slope becomes very steep. This layer is dominated by *Lonicera maackii*, *Celtis occidentalis*, *Gleditsia triacanthos*, *Juglans nigra* and *Maclura pomifera*. Additionally, a number of other tree species typical of the woodland slope occur here.

**Floodplain woodland.**—The southern end [~245 m] of the property on the west side borders the Whitewater River. A small but well established wooded floodplain occurs in this section. The dominant trees in this floodplain are *Acer negundo*, *A. saccharinum*, *Aesculus glabra*, *Platanus occidentalis* and *Populus deltoides*. Although a diversity of herbaceous plants occurs throughout the floodplain, the most common species are *Cryptotaenia canadensis*, *Elymus virginicus*, *Glyceria striata*, *Laportea canadensis*, *Poa trivialis*, *Pilea pumila*, *Tovara virginiana*, *Ranunculus ficaria* var. *bulbifera*, *Rudbeckia laciniata*, *Silphium perfoliatum*, *Symphytotrichum lanceolatum*, *S. lateriflorum*, *S. prenanthoides*, *Tradescantia subaspera* and *Verbesina alternifolia*. This site is severely infested with the exotic *R. ficaria* var. *bulbifera*. Along the riverbank, *Ligustrum obtusifolium* occurred in two locations, the only sites on the property where it is found. The southern-end of the riverbank is elevated from 1 – 2.5 m above the river. Although this elevated bank contains

many of the woody species typical of the slope woods, it also contained four species found almost exclusively here, i.e., *Asimina triloba*, *Carpinus caroliniana virginiana*, *Quercus macrocarpa* and *Symphoricarpos orbiculatus*.

**Flat upland woodland.**—The northern-most ~ 185 m (600 ft) is a relatively flat, dry woodland. It lies adjacent to a cow pasture on the northern border of the property. It is a mixed deciduous woodland but the most common tree species is *Acer saccharum*. This is the only site where *Fagus grandifolia* was found. The herbaceous layer is very similar to the sloping mesic woodland. *Agastache nepetoides* [rare] and *Corydalis flavula* [abundant] occur only in this habitat.

**Circumneutral hardwood forest seep.**—This site lies on a steep slope in the northwestern corner of the property. Woody species occurring in the seep include *Fraxinus nigra*, *Hydrangea arborescens*, *Ostrya virginiana*, *Sambucus nigra* ssp. *canadensis* and *Viburnum lentago*. The most common herbaceous species are *Cardamine bulbosa*, *C. pensylvanica*, *Cinna arundinacea*, *Equisetum hyemale*, *Galium triflorum*, *Impatiens capensis*, *Pilea pumila* and *Symplocarpus foetidus*. Plants growing on the edge of the seep and nowhere else on the property include *Collinsonia canadensis*, *Hybanthus concolor*, *Sanicula trifoliata*, *Uvularia grandiflora* and *Veratrum woodii*. Two species often associated with seeps but not found in CWNP are *Caltha palustris* and *Packera aurea*.

**Whitewater River corridor (including the riverbank, a sandy shoreline, and several sand-gravel shorelines and islands).**—These habitats contained the greatest diversity of plant species. Some of the plants occurring in these sites include *Abutilon theophrasti*, *Alisma subcordatum*, *Amaranthus albus*, *A. tuberculatus*, *Artemisia annua*, three *Bidens* spp., *Brassica nigra*, *Cicuta maculata*, *Commelina communis*, four *Cyperus* spp. including *C. erythrorhizos* and *C. squarrosus*, two *Echinochloa* spp., *Eclipta prostrata*, *Eleusine indica*, four *Eragrostis* spp., *Eupatorium perfoliatum*, *Humulus japonicus*, *Leucospora multifida*, *Lindernia dubia*, *Lobelia siphilitica*, *Ludwigia palustris*, *Mimulus* spp., *Mollugo verticillata*, *Muhlenbergia frondosa*, *Nasturtium officinale*, *Penthorum sedoides*, *Persicaria* spp., *Phalaris arundinacea*, *Plantago rugelii*, *Polanisia dodecandra*, many *Populus deltoides* seedlings, *Ranunculus ficaria* var. *bulbifera*, *R. hispidus* var. *caricetorum*, *Rorippa*

Table 2.—Comparison of the native Floristic Quality Index and mean Coefficient of Conservatism for sites in Wayne County, Indiana, and for sites across east-central Indiana. Sites are arranged by ascending FQI values for native species. Mean C = native mean Coefficient of Conservatism, FQI = Floristic Quality Index, \* = unpublished data (Ruch), NP = Nature Preserve. (Prast et al. 2014; Rothrock 1997; Ruch et al. 2004, 2007, 2008a, 2012; Stonehouse et al. 2003; Tunesvick et al. 2011).

Site	# Native spp./# total spp.	Native FQI	Mean C	Hectares	County
Coffman Woods NP	282/378	58.4	3.5	33	Wayne
Lick Creek Summit NP	304/387	68.9	4.0	16	Wayne
Duning Woods NP*	308/380	71.9	4.1	49	Wayne
Hayes Arboretum	375/525	72.0	3.7	203	Wayne
Mississinewa Woods NP	233/311	46.2	3.0	15	Randolph
Munsee Woods NP	300/399	55.0	3.2	18	Delaware
Fogwell Forest NP	210/240	59.3	4.1	11	Allen
McVey Memorial Woods*	295/378	60.0	3.5	115	Randolph
Botany Glen	295/357	68.5	4.0	18	Grant
Ginn Woods	364/441	74.1	3.9	61	Delaware
Mounds State Park	478/584	96.2	4.4	117	Madison

spp., *Rumex* spp. including *Rumex altissimus*, *Salix nigra*, *Setaria* spp., *Solanum ptycanthum*, *Verbascum* spp., *Verbena* spp., and *Veronica anagallis-aquatica*. Many more species occur along the river corridor (Appendix 1). Other than shoreline plants, no submerge aquatic vegetation is present.

**Pond.**—This is a small, less than one acre, man-made pond located in the east-central section of the study area (Fig. 2). It was created when a dam was constructed on the downhill side [west side]. The borders of the pond are either young successional woodlands dominated by *Lonicera maackii* or old-fields having the forbs listed in the Roadside ... old-field section earlier. However, several plant species occurring only at this site or are most abundant at this site include *Bidens tripartita*, *Celastrus orbiculatus*, *Ipomoea pandurata*, *Leersia oryzoides*, *Mentha arvensis*, *Prunella vulgaris*, *Typha x glauca* and *Wolffia punctata*. On the northern-bank of the drainage ditch from the pond and just inside the border of the woodland, one bush of *Euonymus alatus* was found.

## DISCUSSION

The vascular flora at Coffman Woods Nature Preserve (CWNP) included the same core of plants, and subsequently plant families, reported for other sites in east central Indiana (Prast et al. 2014; Rothrock et al. 1993; Rothrock 1997; Ruch et al. 1998, 2002, 2004, 2007, 2008a, b, 2009, 2012; Stonehouse et al. 2003; Tunesvick 2011). The 13 plant families, accounting for nearly 60% of the plants

reported at CWNP and all the sites referred to above, are the Apiaceae, Asteraceae, Brassicaceae, Caprifoliaceae, Cyperaceae, Fabaceae, Lamiaceae, Liliaceae, Poaceae, Polygonaceae, Ranunculaceae, Rosaceae, and Scrophulariaceae (see Appendix 1). In the current study, these families accounted for 227 of the 378 species documented or ~60%.

The Floristic Quality Index (FQI) for the native vascular flora of CWNP was 58.4, with a mean Coefficient of Conservatism (mean C) of 3.5. These values suggest that this site is of remnant natural quality and contains some noteworthy remnants of natural heritage of the region (Rothrock & Homoya 2005; Swink & Wilhelm 1994). A comparison of the floristic quality indices of other WVLT properties (i.e., Lick Creek Summit and Duning Woods Natures Preserves) located along the White-water River in Wayne County to CWNP is seen in Table 2. Although the floristic quality indices are similar, the values for CWNP are somewhat lower due to fewer native species being documented and the lower mean C (Rothrock 2004; Rothrock & Homoya 2005; Ruch et al. 2010; Swink & Wilhelm 1994). The lower values at CWNP reflect the increased human impact when compared to the other sites (Ruch et al. 2008a; Mike Hoff, President of WVLT, Pers. Comm.). Table 2 also compares CWNP to other woodland sites which have been studied in east-central Indiana. Sites having similar or more human impact over the years, such as McVey Memorial Woods, Mississinewa Woods Nature Preserve, and Munsee Woods Nature Preserve,



have similar native FQI and mean C values. Although having similar FQI values as CWNP, Botany Glen and Fogwell Forest Nature Preserve are both smaller sites and having higher mean C values.

The FQI and mean C for all species, both native and exotics, provides a further comprehensive understanding of the flora at CWNP. For all species the FQI = 50.5, or 7.9 units lower than the FQI for native species alone. Likewise, for all species, including exotics, the mean C is 2.6 or 0.9 units lower than the mean C for native species alone. Rothrock & Homoya (2005) have suggested that natural quality of an area is compromised when exotic diversity lowers mean C  $\geq 0.7$  units. Based on these numbers and on visual observations, it would appear that the exotic flora is having a negative impact on the native flora.

Ninety-six exotic species were found at CWNP or > 25% of the total species documented. While the majority of the exotic species were infrequent and occurred in the roadside field, the old-field near the top of the hill, or along the river corridor, some species were particularly invasive. Within the sloping mesic woodland, *Lonicera maackii* and *Alliaria petiolata* are a problem. *Lonicera* is growing in large colonies along the southern-third of the eastern border near the top of the hill and along the entire southern border. However, it is not growing so thickly as to prevent a herbaceous layer. Following our recommendation, the staff of WVLT began removing this exotic species. *Alliaria*, however, is growing throughout the woodland and would be virtually impossible to remove without major damage to the site. Fortunately, it is growing interspersed with other vegetation and not forming dense colonies at the expense of other species. The floodplain woodland is heavily infested with *Poa trivialis* and *Ranunculus ficaria* var. *bulbifera*. In the larger floodplain woodland just north of CWNP, *Ranunculus ficaria* is

growing in a large colony covering nearly three-fourth of an acre. Lastly, the river corridor, especially the sand-gravel shoreline and island, has heavy infestations of *Artemisia annua*, *Brassica nigra*, *Humulus japonicus* and *Phalaris arundinacea*. The *Humulus* and *Phalaris* are growing so thickly in spots that they are definitely suppressing the growth of native species.

In summary, although Coffman Woods Nature Preserve is of modest size, its floristic quality, its location within the Whitewater River riparian corridor, its diversity of habitats, and its remnant woodland structure and species richness make it a significant resource for the conservation of regional biodiversity. The Rockies Express Pipeline, LLC in partnership with the U.S. Fish and Wildlife Service, the Bicentennial Nature Trust, the Indiana Heritage Trust, and Whitewater Valley Land Trust, Inc. are to be commended for recognizing the value of this site as a permanent habitat for the native flora and fauna of this region.

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#### APPENDIX 1

##### CATALOG OF VASCULAR FLORA AT COFFMAN WOODS

(Arranged alphabetically by family in each phylum)

Listed are voucher specimens for all species observed at Coffman Woods, Wayne County, Indiana. Nomenclature follows the USDA Plants Database (USDA 2013). Each species report contains the following

information: (1) current scientific name based on the USDA Plants Database; (2) current taxonomic synonyms, if appropriate; (3) common names(s) based on Gleason & Cronquist (1991), Swink & Wilhelm (1994), Yatskievych (2000), and the USDA Plant Database (2013); (4) typical habitats(s) within the study site; (5) a visual estimate of its relative abundance; (6) its coefficient of conservation (C-value) for Indiana (Rothrock 2004); and (7) the Ball State University Herbarium (BSUH) number(s). Exotic species are listed in all capital letter; # = Wayne County records.

**PHYLUM EQUISETOPHYTA**

Equisetaceae (Horsetail Family)

*Equisetum hyemale* L. var. *affine* (Engelm.) A.A. Eaton; Common scouring rush or horsetail; Seep; Rare but locally abundant; C = 2; BSUH 18394.

**PHYLUM POLYPODIOPHYTA**

Aspleniaceae (Spleenwort Family)

*Asplenium platyneuron* (L.) Britton, Sterns & Poggenb. var. *platyneuron*; Ebony-spleenwort; Younger, drier upland slope woods; Common; C = 3; BSUH 18480.

Dryopteridaceae (Wood Fern Family)

*Cystopteris protrusa* (Weath.) Blasdell; SYN: *Cystopteris fragilis* (L.) Bernh. var. *protrusa* Weath.; Lowland bladderfern; Woodlands; Common; C = 4; BSUH 18178.

Ophioglossaceae (Adder's-tongue Family)

*Botrychium dissectum* Spreng. var. *obliquum* (Muhl. ex Willd.) Clute; Cut-leaf or lace-frond grape-fern, bronze fern; Slope woods; Rare; C = 3; BSUH 18196, 18533.

*Botrychium virginianum* (L.) Swartz; Rattlesnake fern; Woodlands; Common; C = 4; BSUH 18256.

**PHYLUM PINOPHYTA**

Cupressaceae (Redwood or Cypress Family)

*Juniperus virginiana* L. var. *virginiana*; Eastern red cedar; Woodland edge; Rare; C = 2; BSUH 18098, 18149.

Pinaceae (Pine Family)

*Pinus strobus* L.; Eastern white pine; Upper half of slope woods, planted; Infrequent but locally common; C = 5; BSUH 18221, 18549.

**PHYLUM MAGNOLIOPSIDA**

Acanthaceae (Acanthus Family)

*Ruellia strepens* L.; Smooth ruellia, limestone wild petunia; Woodlands; Infrequent; C = 4; BSUH 18479.

Aceraceae (Maple Family)

*Acer negundo* L.; Boxelder; Woodlands; Abundant; C = 1; BSUH 18126, 18528.

*Acer nigrum* Michx. f.; SYN: *Acer saccharum* Marshall var. *nigrum* (Michx. f.) Britton; Black maple; Woodlands; Common; C = 6; BSUH 18245, 18445.

*Acer saccharinum* L.; Silver or soft maple; Floodplain woods; Abundant; C = 1; BSUH 18521.

*Acer saccharum* Marshall; Sugar maple; Woodlands; Abundant; C = 4; BSUH 18502.

Alismataceae (Water-Plantain Family)

*Alisma subcordatum* Raf.; SYN: *Alisma plantago-aquatica* L. ssp. *subcordatum* (Raf.) Hultén; American or small-flowered water-plantain; Riverbank & shore; Rare; C = 2; BSUH 18406.

*Sagittaria latifolia* Willd.; Common or broad-leaf arrowhead; Riverbank; Rare; C = 3; BSUH 18547.

Amaranthaceae (Amaranth Family)

# *Amaranthus albus* L.; Tumbleweed; Sand & gravel bar and sandy shore; Abundant; C = 0; BSUH 18367.

*AMARANTHUS RETROFLEXUS* L.; Rough green amaranth, redroot amaranth; Sand & gravel bar, old-field; Infrequent; C = 0; BSUH 18349.

*Amaranthus tuberculatus* (Moq.) J.D. Sauer; SYN: *Acnida altissima* (Riddell) Moq. ex Standl.; Common water-hemp, rough-fruited amaranth; Sand & gravel bar, sandy shore; Common; C = 1; BSUH 18407.

Anacardiaceae (Cashew Family)

*Toxicodendron radicans* (L.) Kuntze ssp. *negundo* (Greene) Gillis; Common or Eastern poison ivy; Woodland; Abundant, widespread; C = 1; BSUH 18087.

*Toxicodendron radicans* (L.) Kuntze ssp. *radicans*; Common or Eastern poison ivy; Woodland edge; Infrequent; C = 1; BSUH 18123.

Annonaceae (Custard-Apple Family)

*Asimina triloba* (L.) Dunal; Pawpaw; Floodplain woods; Infrequent but locally common; C = 6; BSUH 18170, 18263.

Apiaceae (Carrot Family)

# *AEGOPIDIUM PODAGRARIA* L.; Goutweed; Floodplain woods; Rare; C = 0; BSUH 18274.

*Angelica atropurpurea* L.; Purple-stemmed angelica; Floodplain woods; Infrequent; C = 6; BSUH 18493.

*Chaerophyllum procumbens* (L.) Crantz var. *procumbens*; Wild or spreading chervil; Woodlands; Abundant; C = 2; BSUH 18150, 18543.

*Cicuta maculata* L. var. *maculata*; Spotted water hemlock; Riverbank and floodplain woods; Infrequent; C = 6; BSUH 18466.

*CONIUM MACULATUM* L.; Poison hemlock; Riverbank & shore, old-fields; Infrequent; C = 0; BSUH 18507.

*Cryptotaenia canadensis* (L.) DC.; Canadian hone-wort; Woodlands; Abundant; C = 3; BSUH 18501.

*DAUCUS CAROTA* L.; Queen Anne's-lace, wild carrot; Old-fields; Infrequent; C = 0; BSUH 18456.

*Erigenia bulbosa* (Michx.) Nutt.; Harbinger-of-spring; Woodlands; Abundant; C = 5; BSUH 18202.

*Heraclium maximum* W. Bartram; SYN: *Heraclium lanatum* Michx., *Heraclium sphondylium* L. ssp. *montanum* (Schleich. ex Gaudin) Briq.; Common cow parsnip; Floodplain woods; Infrequent but locally common; C = 6; BSUH 18088.

*Osmorhiza longistylis* (Torr.) DC.; Aniseroot, long-style sweetroot; Woodlands; Abundant; C = 3; BSUH 18539.

*PASTINACA SATIVA* L.; Wild parsnip; Old-fields; Infrequent; C = 0; BSUH 18229.

*Sanicula canadensis* L. var. *canadensis*; Canada sanicle, Canada black-snakeroot; Woodlands; Infrequent; C = 2; BSUH 18443.

*Sanicula odorata* (Raf.) Pryer & Philippe; SYN: *Sanicula gregaria* E.P. Bicknell; Clustered sanicle, clustered black-snakeroot; Woodlands; Abundant; C = 2; BSUH 18121.

*Sanicula trifoliata* E.P. Bicknell; Large-fruited black-snakeroot, beaked sanicle; Border of woodland seep; Rare; C = 8; BSUH 18396.

*Thaspium trifoliatum* (L.) A. Gray var. *aureum* (L.) Britton; Meadow parsnip; Floodplain woods; Infrequent; C = 5; BSUH 18109.

#### Apocynaceae (Dogbane Family)

*Apocynum cannabinum* L.; American Indian hemp, dogbane; Old-fields; Infrequent; C = 2; BSUH 18236, 18355.

#### Araceae (Arum Family)

*Arisaema triphyllum* (L.) Schott ssp. *triphyllum*; Jack-in-the-pulpit; Woodland creek bank; Rare; C = 4; BSUH 18494.

*Symplocarpus foetidus* (L.) Salisb. ex W.P.C. Barton; Skunk cabbage; Seep; Rare but locally abundant; C = 8; BSUH 18399.

#### Aristolochiaceae (Birthwort Family)

*Aristolochia serpentaria* L.; Virginia snakeroot; Woodland; Infrequent; C = 8; BSUH 18478.

*Asarum canadense* L.; SYN: *Asarum reflexum* E.P. Bicknell; Canadian wild ginger; Woodlands; Abundant; C = 5; BSUH 18164.

#### Asclepiadaceae (Milkweed Family)

*Asclepias syriaca* L.; Common milkweed; Old-field; Infrequent; C = 1; BSUH 18242.

*Asclepias tuberosa* L. var. *tuberosa*; Butterfly-weed; Old-field; Common; C = 4; BSUH 18460.

*Asclepias verticillata* L.; Whorled milkweed; Old-field, very dry site; Rare; C = 4; BSUH 18308.

#### Asteraceae (Aster Family)

*Ageratina altissima* (L.) King & H. Rob. var. *altissima*; SYN: *Eupatorium rugosum* Houtt.; White snakeroot; Woodlands; Abundant; C = 2; BSUH 18357.

*Ambrosia artemisiifolia* L. var. *elatior* Descourtils; Common or annual ragweed; Old-field; Infrequent; C = 0; BSUH 18324.

*Ambrosia trifida* L. var. *trifida*; Great or giant ragweed; Floodplain woods; Infrequent; C = 0; BSUH 18312.

*ARCTIUM MINUS* (Hill) Bernh.; Common or lesser burdock; Old-field; Rare; C = 0; BSUH 18439.

*ARTEMISIA ANNUA* L.; Sweet or annual wormwood, sweet sagewort; Riverbank, sandy/gravel bars, floodplain woods; Common; C = 0; BSUH 18291, 18292.

*Bidens cernua* L.; Nodding bur-marigold, nodding beggar's-tick; Riverbank and floodplain woods; Common; C = 2; BSUH .

*Bidens frondosa* L.; Common or devil's beggar's-tick; Riverbank and floodplain woods; Infrequent; C = 1; BSUH 18297.

*Bidens tripartita* L.; SYN: *Bidens comosa* (A. Gray) Wiegand; Three-parted or three-lobed beggar's-tick; Riverbank, floodplain woods, pond; Common; C = 2; BSUH 18303.

*CICHORIUM INTYBUS* L.; Chicory; Old-field; Infrequent; C = 0; BSUH 18481.

*CIRSIUM ARVENSE* (L.) Scop.; Canada thistle; Old-fields; Infrequent; C = 0; BSUH 18340.

*Cirsium discolor* (Muhl. ex Willd.) Spreng.; Field or pasteur thistle; Old-field; Rare; C = 3; BSUH 18304, 18360.

*Conyza canadensis* (L.) Cronquist var. *canadensis*; SYN: *Erigeron canadensis* L.; Canadian horseweed, common muleweed; Old-fields; Infrequent; C = 0; BSUH 18322.

*Eclipta prostrata* (L.) L.; SYN: *Eclipta alba* (L.) Hassk.; Yerba de tajo, false daisy; Riverbank and sand/gravel bars; Infrequent; C = 3; BSUH 18363.

*Erigeron annuus* (L.) Pers.; Eastern or annual daisy fleabane, whitetop; Old-fields; Infrequent; C = 0; BSUH 18484.

*Erigeron philadelphicus* L. var. *philadelphicus*; Common or Philadelphia fleabane; Woodlands; Infrequent; C = 3; BSUH 18127.

*Eupatorium perfoliatum* L. var. *perfoliatum*; Common boneset; Floodplain woods, sandy shore; Infrequent; C = 4; BSUH 18316.

# *Eupatorium serotinum* Michx.; Late boneset, late-flowering thoroughwort; Old-fields; Infrequent; C = 0; BSUH 18307, 18358.

*Eutrochium purpureum* (L.) E.E. Lamont var. *purpureum*; SYN: *Eupatoriadelphus purpureus* (L.) King & H. Rob., *Eupatorium purpureum* L. var. *purpureum*; Sweet-scented or purple-node Joe-Pye-weed; Woodland seep; Rare; C = 5; BSUH 18387.

# *GAILLARDIA PULCHELLA* Foug. var. *PULCHELLA*; Blanket-flower, Indian blanket; Old-fields; Infrequent; C = 0; BSUH 18457.

*GALINSOGA QUADRIRADIATA* Ruiz & Pav.; Common quickweed, Peruvian daisy, shaggy soldier; Floodplain woods, river bank; Infrequent; C = 0; BSUH 18333.

*Helenium autumnale* L. var. *autumnale*; Common sneezeweed; River bank; Rare; C = 3; BSUH 18279.

*Helianthus tuberosus* L.; Jerusalem-artichoke; Riverbank; Rare; C = 2; BSUH 18310.

*Heliopsis helianthoides* (L.) Sweet var. *helianthoides*; False sunflower, smooth oxeye; Woodland; Infrequent; C = 4; BSUH 18211.

*Lactuca floridana* (L.) Gaertn. var. *floridana*; Woodland or blue lettuce; Woodlands; Infrequent but widespread; C = 5; BSUH 18319.

*LACTUCA SERRIOLA* L.; Prickly lettuce; Roadside field; Common; C = 0; BSUH 18220.

*Packera glabella* (Poir.) C. Jeffrey; SYN: *Senecio glabellus* Poir.; Yellowtop, butterweed; Floodplain woods; Infrequent; C = 0; BSUH 18156, 18534.

*Packera obovata* (Muhl. ex Willd.) W.A. Weber & Á. Löve; SYN: *Senecio obovatus* Muhl. ex Willd.; Round-leaved ragwort; Woodlands; Abundant; C = 7; BSUH 18151.

*Polymnia canadensis* L.; Small-flowered or white-flowered leafcup; Woodlands; Abundant; C = 3; BSUH 18233.

*Prenanthes altissima* L. var. *altissima*; Tall rattlesnake-root, white lettuce; Woodlands; Common; C = 5; BSUH 18487.

# *Prenanthes crepidinea* Michx.; Great white lettuce, nodding rattlesnake-root, Midwestern white lettuce; Floodplain woods; Rare; C = 7; BSUH 18188.

*Rudbeckia laciniata* L. var. *laciniata*; Cut-leaved coneflower; Floodplain woods; Abundant; C = 3; BSUH 18375.

# *Rudbeckia triloba* L. var. *triloba*; Three-lobed coneflower, brown-eyed Susan; Sandy river bank; Rare; C = 3; BSUH 18378.

*Silphium perfoliatum* L. var. *perfoliatum*; Cupplant; Floodplain woods; Infrequent; C = 4; BSUH 18296, 18416, 18492.

*Solidago altissima* L.; SYN: *Solidago canadensis* L. var. *scabra* Torr. & A. Gray; Tall goldenrod, Canada goldenrod; Old-fields; Common; C = 0; BSUH 18283, 18306.

*Solidago caesia* L. var. *caesia*; Blue-stemmed goldenrod; Woodlands; Infrequent; C = 7; BSUH 18197.

*Solidago flexicaulis* L.; SYN: *Solidago latifolia* L.; Zigzag goldenrod; Woodlands, especially around the woodland seep; Common; C = 6; BSUH 18300, 18400.

*Solidago gigantea* Aiton; Late or giant goldenrod; Floodplain woods; Infrequent but locally common; C = 4; BSUH 18320.

*Solidago nemoralis* Aiton var. *nemoralis*; Old-field or gray goldenrod; Old-fields, especially in dry sites; Infrequent; C = 3; BSUH 18287.

*SONCHUS ASPER* (L.) Hill; Spiny sow-thistle; Old-fields; Infrequent; C = 0; BSUH 18227.

*Symphotrichum cordifolium* (L.) G.L. Nesom; SYN: *Aster cordifolius* L. var. *cordifolius*; Common blue heart-leaved aster, common blue wood aster; Woodlands; Common; C = 5; BSUH 18286.

*Symphotrichum lanceolatum* (Willd.) G.L. Nesom ssp. *lanceolatum* var. *lanceolatum*; SYN: *Aster lanceolatus* Willd., *Aster simplex* Willd.; White paniced aster; Woodlands, especially in the floodplain; Common; C = 3; BSUH 18194.

*Symphotrichum lateriflorum* (L.) Á. Löve & D. Löve var. *lateriflorum*; SYN: *Aster lateriflorus* (L.) Britton; Calico, goblet or side-flowering aster; Woodlands; Abundant; C = 3; BSUH 18284.

*Symphotrichum novae-angliae* (L.) G.L. Nesom; SYN: *Aster novae-angliae* L.; New England aster; Old-fields; Infrequent; C = 3; BSUH 18198, 18219, 18359.

*Symphotrichum pilosum* (Willd.) G.L. Nesom var. *pilosum*; SYN: *Aster pilosus* Willd. var. *pilosus*; Heath, awl or hairy white old-field aster, goodbye-meadow; Old-fields; Common; C = 0; BSUH 18289.

*Symphotrichum prenanthoides* (Muhl. ex Willd.) G.L. Nesom; SYN: *Aster prenanthoides* Muhl. ex Willd.; Zigzag or crooked-stem aster; Floodplain woods, especially near the river; Infrequent; C = 8; BSUH 18281.

*TARAXACUM OFFICINALE* F.H. Wigg. ssp. *OFFICINALE*; Common dandelion; Old-field, woodlands; Infrequent; C = 0; BSUH 18148.

*Verbesina alternifolia* (L.) Britton ex Kearney; SYN: *Actinomeris alternifolia* (L.) DC.; Wingstem; Floodplain woods; Abundant; C = 3; BSUH 18351.

*Vernonia gigantea* (Walter) Trel. ssp. *gigantea*; Tall or giant ironweed; Old-fields; Infrequent; C = 2; BSUH 18354.

*Xanthium strumarium* L. var. *canadense* (Mill.) Torr. & A. Gray; SYN: *Xanthium chinense* Mill.; Cocklebur; Floodplain woods, river bank; Infrequent but locally common; C = 0; BSUH 18428, 18429.

#### Balsaminaceae (Touch-Me-Not Family)

*Impatiens capensis* Meerb.; SYN: *Impatiens biflora* Walter; Orange jewelweed, spotted touch-me-not; Woodland seep; Abundant; C = 2; BSUH 18451.

*Impatiens pallida* Nutt.; Yellow jewelweed, pale touch-me-not; Floodplain woods; Infrequent; C = 4; BSUH 18228.

## Berberidaceae (Barberry Family)

*Jeffersonia diphylla* (L.) Pers.; Twinleaf; Woodlands; Abundant; C = 7; BSUH 18171.

*Podophyllum peltatum* L.; May-Apple; Woodlands; Abundant; C = 3; BSUH 18183.

## Betulaceae (Birch Family)

*Carpinus caroliniana* Walter ssp. *virginiana* (Marshall) Furlow; Musclemoore, blue beech, American hornbeam; Woodlands, especially in the floodplain; Common; C = 5; BSUH 18086, 18386.

*Ostrya virginiana* (Miller) K. Koch; Ironwood, hop-hornbeam; Woodlands; Common; C = 5; BSUH 18485.

## Bignoniaceae (Trumpet-Creeper Family)

*Catalpa speciosa* (Warder) Warder ex Engelm.; Northern catalpa; Floodplain woods; Rare; C = 0; BSUH 18372.

## Boraginaceae (Borage Family)

*Hackelia virginiana* (L.) I.M. Johnston; Stickseed, beggars-lice; Woodlands; Common; C = 0; BSUH 18409.

# *MYOSOTIS SCORPIOIDES* L.; True forget-me-not; Riverbank; Rare; C = 0; BSUH 18083.

## Brassicaceae (Mustard Family)

*ALLIARIA PETIOLATA* (M. Bieb.) Cavara & Grande; SYN: *Alliaria officinalis* Andr. ex M. Bieb.; Garlic mustard; Woodlands; Abundant; C = 0; BSUH 18153.

*Arabis laevigata* (Muhlenb. ex Willd.) Poir. var. *laevigata*; Smooth rockcress; Woodlands; Common; C = 5; BSUH 18532.

*BARBAREA VULGARIS* R. Br.; Yellow rocket; Old-fields; Common; C = 0; BSUH 18140.

*BRASSICA NIGRA* (L.) W.D.J. Koch; Black mustard; Sandy shore; Common; C = 0; BSUH 18452.

*CAPSELLA BURSA-PASTORIS* (L.) Medik.; Shepherd's purse; Old-fields; Infrequent; C = 0; BSUH 18145.

*Cardamine bulbosa* (Schreb. ex Muhl.) Britton, Sterns & Poggenb.; SYN: *Cardamine rhomboidea* (Pers.) DC.; White or bulbous springcress; Woodland seep and floodplain woods; Common but abundant in the seep; C = 4; BSUH 18173.

*Cardamine concatenata* (Michx.) O. Schwarz.; SYN: *Dentaria laciniata* Muhl. ex Willd.; Cut-leaved toothwort; Woodlands; Abundant; C = 4; BSUH 18187.

*Cardamine douglassii* (Torr.) Britton; Purple spingcress, limestone bittercress; Woodlands; Common; C = 5; BSUH 18203.

*Cardamine pensylvanica* Muhl. ex Willd.; Pennsylvania bittercress; Creek bank, floodplain woods near seep; Infrequent; C = 2; BSUH 18159.

*DRABA VERNA* L.; SYN: *Erophila verna* (L.) Besser; Early whitlow-grass, spring draba; Roadside field; Infrequent; C = 0; BSUH 18205.

*HESPERIS MATRONALIS* L.; Dame's rocket; Woodlands, especially the floodplain; Common; C = 0; BSUH 18117.

*Iodanthus pinnatifidus* (Michx.) Steud.; Purple-rocket; Woodlands; Infrequent; C = 6; BSUH 18084.

*LEPIDIUM CAMPESTRE* (L.) W.T. Aiton; Field peppergrass, field pepperweed, cow cress; Old-fields; Infrequent; C = 0; BSUH 18144.

*Lepidium virginicum* L. var. *virginicum*; Common peppergrass, poor-man's-pepper; Old-fields; Infrequent; C = 0; BSUH 18540.

*NASTURTIUM OFFICINALE* R. Br.; SYN: *Rorippa nasturtium-aquaticum* (L.) Hayek; Watercress; Old-fields in wet areas, riverbank; Infrequent; C = 0; BSUH 18241, 18258.

*Rorippa palustris* (L.) Besser ssp. *fernaldiana* (Butters & Abbe) Jonsell; SYN: *Rorippa islandica* (Oeder) Borbas var. *fernaldiana* Butters & Abbe; Common yellow cress; Riverbank; Infrequent; C = 2; BSUH 18335.

# *RORIPPA SYLVESTRIS* (L.) Besser; Creeping yellow cress; Riverbank; Infrequent but locally common; C = 0; BSUH 18261, 18420.

*THLASPI ARVENSE* L.; Field pennycress; Floodplain woods; Rare; C = 0; BSUH 18079, 18094.

## Campanulaceae (Bellflower Family)

*Campanulastrum americanum* (L.) Small; SYN: *Campanula americana* L.; Tall or American bellflower; Woodlands; Abundant; C = 4; BSUH 18329.

*Lobelia inflata* L.; Indian-tobacco; Woodland; Rare; C = 3; BSUH 18546.

*Lobelia siphilitica* L. var. *siphilitica*; Great blue lobelia; Floodplain woods, riverbank; Infrequent; C = 3; BSUH 18417.

## Cannabaceae (Indian Hemp Family)

*HUMULUS JAPONICUS* Siebold & Zucc.; Japanese hops; Sandy areas along the riverbank, floodplain woods; Abundant; C = 0; BSUH 18081, 18282, 18491.

## Capparaceae (Caper Family)

*POLANISIA DODECANDRA* (L.) DC. ssp. *DODECANDRA*; SYN: *Polanisia graviolens* Raf.; Redwhisker clammyweed; Sand/gravel bars; Infrequent; C = 0; BSUH 18404, 18424.

## Caprifoliaceae (Honeysuckle Family)

*LONICERA JAPONICA* Thunb.; Japanese honeysuckle; Woodland edge along southern end; Rare; C = 0; BSUH 18184.

*LONICERA MAACKII* (Rupr.) Maxim.; Amur honeysuckle, Manchurian bush honeysuckle;

Woodlands; Common and locally abundant; C = 0; BSUH 18544.

*Sambucus nigra* L. ssp. *canadensis* (L.) R. Bolli; SYN: *Sambucus canadensis* L.; American black elderberry; Woodlands near creeks, woodland seep; Infrequent; C = 2; BSUH 18246.

*Symphoricarpos orbiculatus* Moench.; Coralberry; Woodland, especially SW quarter; Common; C = 1; BSUH 18264, 18361, 18410.

*Viburnum lentago* L.; Nannyberry, sheepberry; Woodland seep; Rare; C = 5; BSUH 18362.

*Viburnum prunifolium* L.; Black haw; Woodlands; Common; C = 4; BSUH 18090.

Caryophyllaceae (Pink Family)

*SAPONARIA OFFICINALIS* L.; Soapwort, bouncing-bet; Sandy area of floodplain woods; Infrequent; C = 0; BSUH 18341.

*Silene stellata* (L.) W.T. Aiton; Starry catchfly, widow's-frill; Woodland; Infrequent but locally common; C = 5; BSUH 18401.

*Silene virginica* L. var. *virginica*; Firepink; Woodlands, southern half; Infrequent; C = 7; BSUH 18503.

*STELLARIA MEDIA* (L.) Vill. ssp. *MEDIA*; Common chickweed; Woodlands; Abundant; C = 0; BSUH 18152.

*Stellaria pubera* Michx.; Great or star chickweed; Woodlands; Common; C = 7; BSUH 18168.

Celastraceae (Staff-Tree Family)

*CELASTRUS ORBICULATUS* Thunb.; Oriental bittersweet; Woodland edge around pond; Rare but locally abundant; C = 0; BSUH 18234.

*EUONYMUS ALATUS* (Thunb.) Siebold; Winged euonymus, winged burning-bush; Woodland near pond; Rare; C = 0; BSUH 18383.

*EUONYMUS FORTUNEI* (Turcz.) Hand-Mazz. var. *RADICANS* (Siebold ex Miq.) Rehder; Winter-creeper; Slope woodland near floodplain; Rare; C = 0; BSUH 18444.

*Euonymus obovatus* Nutt.; Running strawberry-bush; Slope woodland, especially SW quarter; Common; C = 7; BSUH 18254.

Chenopodiaceae (Goosefoot Family)

*CHENOPODIUM ALBUM* L. var. *ALBUM*; Lamb's-quarters, pigweed; Old-fields, sandy/gravel bar along river; Infrequent; C = 0; BSUH 18438.

Commelinaceae (Spiderwort Family)

*COMMELINA COMMUNIS* L.; Common or Asiatic day-flower; Sandy shore of the river; Rare; C = 0; BSUH 18210.

*Tradescantia subaspera* Ker Gawl. var. *subaspera*; Zigzag spiderwort, broad-leaved spiderwort; Woodlands, especially the floodplain; Common; C = 4; BSUH 18446.

*Tradescantia virginiana* L.; Virginia spiderwort; Woodlands, especially the slope woods; Infrequent but locally abundant; C = 7; BSUH 18120.

Convolvulaceae (Morning-Glory Family)

*Calystegia sepium* (L.) R. Br.; Common hedge bindweed; Riverbank; Infrequent; C = 1; BSUH 18408.

# *IPOMOEA HEDERACEA* Jacq.; Ivy-leaved morning-glory; Sand/gravel bar; Rare; C = 0; BSUH 18421.

*Ipomoea pandurata* (L.) G. Mey.; Wild potato, man-of-the-earth; Woodland edge around pond; Rare but locally abundant; C = 3; BSUH 18217.

Cornaceae (Dogwood Family)

*Cornus drummondii* C.A. Mey.; Rough leaved dogwood; Woodland edge; Infrequent; C = 2; BSUH 18249.

Crassulaceae (Stonecrop Family)

*Penthorum sedoides* L.; Ditch-stonecrop; Riverbank, sandy shore; Infrequent; C = 2; BSUH 18373.

*Sedum ternatum* Michx.; Wild stonecrop; Woodlands; Common and widespread; C = 8; BSUH 18530.

Cucurbitaceae (Gourd Family)

*Sicyos angulatus* L.; One-seed bur cucumber; Floodplain woods; Rare; C = 3; BSUH 18350.

Cuscutaceae (Dodder Family)

*Cuscuta gronovii* Willd. ex Schult. var. *gronovii*; Common dodder, scaldweed; Woodland seep, floodplain forest; Infrequent but locally abundant; C = 2; BSUH 18353.

Cyperaceae (Sedge Family)

*Carex albursina* E. Sheld.; Blunt-scaled wood sedge; Woodlands; Common; C = 7; BSUH 18116.

*Carex blanda* Dewey; Common wood sedge; Woodlands; Abundant; C = 1; BSUH 18137.

*Carex careyana* Torr. ex Dewey; Carey's wood sedge; Woodlands; Common; C = 9; BSUH 18189, 18476.

*Carex conjuncta* Booth; Green-headed fox sedge, soft fox sedge; Woodlands; Infrequent; C = 6; BSUH 18136.

*Carex granularis* Muhl. ex Willd.; Pale sedge; Old-fields; Common; C = 2; BSUH 18093.

*Carex grisea* Wahlenb.; Wood gray sedge, inflated narrow-leaf sedge; Woodlands; Abundant; C = 3; BSUH 18103, 18135, 18138.

*Carex hystericina* Willd.; Porcupine sedge; Roadside ditch in wet area; Rare; C = 5; BSUH 18512.

*Carex jamesii* Schwein.; Grass sedge; Woodlands; Common; C = 4; BSUH 18529.

*Carex rosea* Schkuhr ex Willd.; Curly-styled wood sedge, rosy sedge; Woodlands; Infrequent; C = 5; BSUH 18139.

*Carex sparganioides* Willd.; Loose-headed bracted sedge; Woodlands; Infrequent; C = 4; BSUH 18104, 18105.

*Carex tribuloides* Wahlenb.; Awl-fruited oval sedge, blunt broom sedge; Riverbank; Rare; C = 5; BSUH 18391.

*Carex vulpinoidea* Michx. var. *vulpinoidea*; Brown fox sedge; Old-fields; Rare; C = 2; BSUH 18244.

*Cyperus erythrorhizos* Muhl.; Redroot flatsedge; Sand/gravel bar and sandy shoreline; Common; C = 1; BSUH 18368, 18427.

*Cyperus odoratus* L. SYN: *Cyperus ferruginescens* Boeckeler; Rusty flatsedge, fragrant flatsedge; Sand/gravel bar and sandy shoreline; Common; C = 1; BSUH 18327, 18434.

# *Cyperus squarrosus* L.; Bearded flatsedge; Sand/gravel bar and sandy shoreline; Rare; C = 2; BSUH 18426.

*Cyperus strigosus* L.; False nutsedge, long-scaled or straw-colored nutsedge; Sand/gravel bar and sandy shoreline; Common; C = 0; BSUH 18328, 18423.

*Schoenoplectus tabernaemontani* (C.C. Gmel.) Pella; SYN: *Scirpus validus* Vahl.; Great or soft-stem bulrush; Sandy area of floodplain woods; Rare; C = 4; BSUH 18325, 18343.

*Scirpus atrovirens* Willd.; Black or dark green bulrush; Old-fields; Rare but locally common; C = 4; BSUH 18464.

*Scirpus pendulus* Muhl.; Red or rufous bulrush, nodding bulrush; Old-fields; Rare; C = 2; BSUH 18240.

#### Dipsacaceae (Teasel Family)

*DIPSACUS FULLONUM* L.; SYN: *Dipsacus sylvestris* Huds., *Dipsacus fullonum* L. ssp. *sylvestris* (Huds.) Clapman; Common teasel, Fuller's teasel; Old-field; Infrequent; C = 0; BSUH 18243.

#### Euphorbiaceae (Spurge Family)

*Acalypha rhomboidea* Raf.; SYN: *Acalypha virginica* L. var. *rhomboidea* (Raf.) Cooperr.; Common three-seeded mercury; Woodlands and river corridor; Abundant; C = 0; BSUH 18318.

*Chamaesyce maculata* (L.) Small; SYN: *Euphorbia supina* Raf., *Euphorbia maculata* L.; Creeping spurge, spotted sandmat; Roadside and sandy-gravel shoreline; Infrequent but locally common; C = 0; BSUH 18206.

*Chamaesyce nutans* (Lag.) Small; SYN: *Euphorbia nutans* Lag.; Nodding spurge, eyebane; Roadside; Infrequent; C = 0; BSUH 18380.

*Euphorbia dentata* Michx. var. *dentata*; SYN: *Poinsettia dentata* (Michx.) Klotzsch & Garcke; Toothed spurge; Old-field; Rare; C = 0; BSUH 18288.

#### Fabaceae (Pea or Bean Family)

*Amphicarpaea bracteata* (L.) Fernald; Hog-peanut; Floodplain woods; Abundant; C = 5; BSUH 18440.

*Cercis canadensis* L. var. *canadensis*; Eastern redbud; Woodland edge; Infrequent; C = 3; BSUH 18154, 18505.

*Gleditsia triacanthos* L.; Honey locust; Woodlands; Common; C = 1; BSUH 18147.

*Gymnocladus dioica* (L.) K. Koch; Kentucky coffee-tree; Woodlands; Common; C = 4; BSUH 18270, 18548.

*MEDICAGO LUPULINA* L.; Black medic; Old-fields; Common; C = 0; BSUH 18095.

*MEDICAGO SATIVA* L. ssp. *SATIVA*; Alfalfa; Old-fields; Rare; C = 0; BSUH 18458.

*MELILOTUS ALBUS* Medik.; SYN: *Melilotus officinale* (L.) Lam.; White sweet clover; Old-fields; Common; C = 0; BSUH 18483.

*MELILOTUS OFFICINALIS* (L.) Lam.; Yellow sweet clover; Old-fields; Common; C = 0; BSUH 18097.

*Robinia pseudoacacia* L.; Black locust; Woodlands; Infrequent; C = 1; BSUH 18265.

*SECURIGERA VARIA* (L.) Lassen; SYN: *Coronilla varia* L.; Crown-vetch; Old-fields; Abundant; C = 0; BSUH 18510.

*TRIFOLIUM HYBRIDUM* L.; Alsike or hybrid clover; Old-field; Rare; C = 0; BSUH 18336.

*TRIFOLIUM PRATENSE* L.; Red clover; Old-field; Rare; C = 0; BSUH 18130.

*TRIFOLIUM REPENS* L.; White clover; Old-field; Infrequent; C = 0; BSUH 18541.

*VICIA CRACCA* L.; Cow vetch; Old-field; Infrequent; C = 0; BSUH 18268.

#### Fagaceae (Beech Family)

*Fagus grandifolia* Ehrh.; American beech; Woodlands; Rare, only four trees observed; C = 8; BSUH 18113.

*Quercus macrocarpa* Michx.; Bur oak; Woodland especially along the river; Infrequent; C = 5; BSUH 18251, 18252, 18275.

*Quercus muehlenbergii* Engelm.; Yellow oak, chinquapin or chinkapin oak; Woodlands; Abundant; C = 4; BSUH 18384, 18511, 18536.

*Quercus rubra* L.; Northern red oak; Woodlands; Infrequent; C = 4; BSUH 18385, 18482, 18506.

#### Fumariaceae (Fumitory Family)

*Corydalis flavula* (Raf.) DC.; Short-spurred corydalis, yellow corydalis, yellow fumewort; Woodlands, especially the northern half; Abundant; C = 3; BSUH 18192.

*Dicentra canadensis* (Goldie) Walp.; Squirrel-corn; Woodlands; Abundant; C = 7; BSUH 18167.

*Dicentra cucullaria* (L.) Bernh.; Dutchman's-breeches; Woodlands; Abundant; C = 6; BSUH 18161.

#### Geraniaceae (Geranium Family)

*Geranium maculatum* L.; Wild geranium, spotted geranium; Woodlands; Abundant; C = 4; BSUH 18162.

Grossulariaceae (Gooseberry Family)

*Ribes cynosbati* L.; Dogberry, Eastern prickly gooseberry; Woodlands; Infrequent; C = 4; BSUH 18185.

Hippocastanaceae (Horse-Chestnut Family)

*Aesculus glabra* Willd. var. *glabra*; Ohio buckeye; Woodlands; Abundant; C = 5; BSUH 18169, 18475.

Hydrangeaceae (Hydrangea Family)

*Hydrangea arborescens* L.; American or wild hydrangea; Woodland seep; Rare; C = 7; BSUH 18395.

Hydrophyllaceae (Waterleaf Family)

*Hydrophyllum appendiculatum* Michx.; Appendaged waterleaf; Woodlands; Abundant; C = 6; BSUH 18114, 18538.

*Hydrophyllum macrophyllum* Nutt.; Large-leaved or hairy waterleaf; Woodlands; Common; C = 7; BSUH 18077, 18495.

*Phacelia purshii* Buckley; Miami-mist; Woodlands; Abundant; C = 3; BSUH 18125.

Juglandaceae (Walnut Family)

*Carya cordiformis* (Wangenh.) K. Koch; Bitternut hickory; Woodlands; Common; C = 5; BSUH 18260.

*Carya ovata* (Miller) K. Koch; Shagbark hickory; Woodlands; Common; C = 4; BSUH 18465.

*Juglans nigra* L.; Black walnut; Woodlands; Abundant; C = 2; BSUH 18473.

Juncaceae (Rush Family)

*Juncus dudleyi* Wiegand; Dudley's rush; Old-field; Infrequent; C = 2; BSUH 18100, 18277.

Lamiaceae (Mint Family)

*Agastache nepetoides* (L.) Kuntze; Yellow giant-hyssop; Woodland, northern end; Rare; C = 4; BSUH 18299.

*Collinsonia canadensis* L.; Horsebalm, richweed; Woodland around the seep; Infrequent; C = 8; BSUH 18352.

*GLECHOMA HEDERACEA* L.; Gill-over-the-ground, ground ivy, creeping Charlie; Floodplain woods; Infrequent but locally common; C = 0; BSUH 18141.

*LAMIUM PURPUREUM* L. var. *PURPUREUM*; Purple deadnettle; Woodlands; Infrequent but widespread; C = 0; BSUH 18143.

*Lycopus americanus* Muhl. ex W. Barton; American bugleweed, American water horehound; Floodplain woods; Abundant; C = 3; BSUH 18314.

*Lycopus uniflorus* Michx. var. *uniflorus*; Northern bugleweed, Northern water-horehound; Floodplain woods; Abundant; C = 5; BSUH 18321.

*Mentha arvensis* L.; SYN: *Mentha canadensis* L.; Field or wild mint; Riverbank, edge of pond; Infrequent; C = 4; BSUH 18313.

*Monarda clinopodia* L.; SYN: *Monarda fistulosa* L. var. *clinopodia* (L.) Cooperr.; Basil-balm, white bergamot; Woodlands; Infrequent, occurring in patches; C = 7; BSUH 18467.

*PRUNELLA VULGARIS* L. ssp. *VULGARIS*; Selfheal, heal-all; Border of pond; Rare; C = 0; BSUH 18356.

*Scutellaria lateriflora* L. var. *lateriflora*; Mad-dog skullcap; Sandy shore of floodplain woods; Infrequent; C = 4; BSUH 18370.

*Stachys tenuifolia* Willd.; SYN: *Stachys hispida* Pursh.; Smooth hedge-nettle; Floodplain woods; Infrequent; C = 4; BSUH 18455.

*Teucrium canadense* L. var. *canadense*; SYN: *Teucrium canadense* L. var. *virginicum* (L.) Eaton; Canada or American germander; Floodplain woods; Rare but locally common; C = 3; BSUH 18330.

Lauraceae (Laurel Family)

*Lindera benzoin* (L.) Blume; Spicebush; Woodlands; Infrequent; C = 5; BSUH 18078.

Lemnaceae (Duckweed Family)

*Lemna minor* L.; Small or common duckweed; Whitewater River; Infrequent; C = 3; BSUH 18415.

# *Wolffia punctata* Griseb.; Watermeal; Pond; Abundant; C = 5; BSUH 18369.

Liliaceae (Lily Family)

*Allium burdickii* (Hanes) A.G. Jones; SYN: *Allium tricoccum* Aiton var. *burdickii* Hanes; Narrowleaf wild leek; Woodlands; Abundant; C = 6; BSUH 18176, 18237.

*Allium canadense* L. var. *canadense*; Wild garlic; Floodplain woods; Common; C = 1; BSUH 18132.

*ASPARAGUS OFFICINALIS* L.; Asparagus; Old-fields; Rare; C = 0; BSUH 18509.

*Camassia scilloides* (Raf.) Cory; Early-blooming wild hyacinth; Woodlands; Abundant; C = 5; BSUH 18107, 18531.

*Erythronium americanum* Ker Gawl. ssp. *americanum*; Yellow trout-lily, yellow dog-tooth violet; Woodlands; Common, locally abundant; C = 5; BSUH 18191, 18200.

*HEMEROCALLIS FULVA* (L.) L.; Orange day-lily; Riverbank; Rare; C = 0; BSUH 18468.

*Maianthemum racemosum* (L.) Link ssp. *racemosum*; SYN: *Smilacina racemosa* (L.) Desf.; Feathery Solomon's plume, false Solomon's-seal, feathery false lily-of-the-valley; Woodlands; Infrequent but locally common; C = 4; BSUH 18089, 18115.

*ORNITHOGALUM UMBELLATUM* L.; Common star-of-Bethlehem; Floodplain woods; Rare; C = 0; BSUH 18111.



*Polygonatum biflorum* (Walter) Elliott var. *biflorum*; Smooth Solomon's-seal; Woodlands; Abundant; C = 4; BSUH 18542.

*Trillium grandiflorum* (Michx.) Salisb.; Large-flowered trillium, big white trillium; Woodlands; Abundant, occurring in large patches; C = 8; BSUH 18535.

*Trillium sessile* L.; Sessile trillium, toad-shade; Woodlands; Abundant; C = 4; BSUH 18182.

*Trillium sessile* L. f. *luteum*; Yellow-form of the sessile trillium; Woodlands; Infrequent but widespread; C = 4; BSUH 18193.

*Uvularia grandiflora* Sm.; Large-flowered bellwort, big merrybells; Border of woodland seep; Rare; C = 7; BSUH 18190, 18382.

# *Veratrum woodii* J.W. Robbins ex Alph. Wood; SYN: *Melanthium woodii* (J.W. Robbins ex Alph. Wood) Bodkin; False hellebore, wood's bunch-flower; Border of woodland seep; Rare; C = 7; BSUH 18397.

#### Malvaceae (Mallow Family)

*ABUTILON THEOPHRASTI* Medik.; Velvetleaf; Sand/gravel bar; Rare; C = 0; BSUH 18207, 18280.

#### Menispermaceae (Moonseed Family)

*Menispermum canadense* L.; Moonseed; Woodlands; Common; C = 3; BSUH 18142.

#### Molluginaceae (Carpetweed Family)

*MOLLUGO VERTICILLATA* L.; Carpetweed; Sandy shore, sand/gravel bar; Infrequent; C = 0; BSUH 18374.

#### Moraceae (Mulberry Family)

*MACLURA POMIFERA* (Raf.) C.K. Schneider; Osage-orange, hedge apple; Floodplain woods, riverbank; Infrequent; C = 0; BSUH 18488.

*MORUS ALBA* L.; SYN: *Morus tatarica* L.; White mulberry; Woodlands, especially the edge, floodplain woods; Infrequent; C = 0; BSUH 18332, 18474.

*Morus rubra* L. var. *rubra*; Red mulberry; Woodlands; Infrequent; C = 4; BSUH 18393.

#### Oleaceae (Olive Family)

*Fraxinus americana* L.; White or American ash; Woodlands; Common; C = 4; BSUH 18266, 18504.

*Fraxinus nigra* Marshal; Black ash; Woodland seep; Rare; C = 7; BSUH 18411.

*Fraxinus pennsylvanica* Marshall; SYN: *Fraxinus pennsylvanica* Marshall var. *subintegerrima* (Vahl.) Fernald; Green ash; Woodlands; Infrequent; C = 1; BSUH 18271.

*Fraxinus quadrangulata* Michx.; Blue ash; Woodlands; Common C = 7; BSUH 18128.

*LIGUSTRUM OBTUSIFOLIUM* Siebold & Zucc.; Border privet; Floodplain woods on the riverbank; Rare; C = 0; BSUH 18131, 18490.

#### Onagraceae (Evening Primrose Family)

*Circaea lutetiana* L. ssp. *canadensis* (L.) Asch. & Magnus; SYN: *Circaea latifolia* Hill; Common or broadleaf enchanter's-nightshade; Woodlands; Abundant; C = 2; BSUH 18215, 18239.

*Epilobium coloratum* Biehler; Purple-leaf or cinnamon willowherb; Sandy shore of river; Rare; C = 3; BSUH 18422.

*Ludwigia palustris* (L.) Elliott; Marsh purslane, marsh seedbox; Shoreline of river; Rare but locally abundant; C = 3; BSUH 18405.

*Oenothera biennis* L.; SYN: *Oenothera pycnocarpa* Atk. & Bartlett; Common evening-primrose; Old-fields; Infrequent; C = 0; BSUH 18323.

#### Oxalidaceae (Wood Sorrel Family)

*Oxalis dillenii* Jacq.; SYN: *Oxalis stricta* auct. non L.; Slender yellow wood sorrel; Old-field, woodlands; Infrequent; C = 0; BSUH 18091.

#### Papaveraceae (Poppy Family)

*CHELIDONIUM MAJUS* L.; Lesser celandine; Sandy shore of river; Rare; C = 0; BSUH 18524.

*Sanguinaria canadensis* L.; Bloodroot; Woodlands; Abundant; C = 5; BSUH 18180, 18201.

*Stylophorum diphyllum* (Michx.) Nutt.; Wood poppy, celandine poppy; Woodlands; Abundant; C = 7; BSUH 18160, 18526.

#### Phytolaccaceae (Pokeweed Family)

*Phytolacca americana* L. var. *americana*; Poke-weed; Floodplain woods; Rare; C = 0; BSUH 18449.

#### Plantaginaceae (Plantain Family)

*PLANTAGO LANCEOLATA* L.; English plantain, buckhorn; Old-fields; Infrequent; C = 0; BSUH 18092.

*Plantago rugelii* Decne. var. *rugelii*; American or blackseed plantain; Sandy shoreline of river [very large plants]; Infrequent; C = 0; BSUH 18225.

#### Platanaceae (Plane-Tree Family)

*Platanus occidentalis* L.; American sycamore, buttonwood; Floodplain woods; Infrequent; C = 3; BSUH 18523.

#### Poaceae (Grass Family)

*AGROSTIS STOLONIFERA* L.; SYN: *Agrostis stolonifera* L. var. *palustris* (Huds.) Farw; Creeping bent-grass; Sandy shoreline of river; Rare; C = 0; BSUH 18461.

*Andropogon virginicus* L. var. *virginicus*; Broom-sedge, Virginia bluestem; Old-fields; Common; C = 1; BSUH 18290, 18305.

*BROMUS COMMUTATUS* Schrad.; SYN: *Bromus racemosus* L.; Hairy chess; Old-fields; Rare; C = 0; BSUH 18106, 18518.

*BROMUS INERMIS* Leys. var. *INERMIS*; Smooth or Hungarian brome; Old-fields; Abundant; C = 0; BSUH 18513.

*BROMUS JAPONICUS* Thunb.; SYN: *Bromus arvensis* L.; Japanese chess, field brome; Old-fields; Infrequent; C = 0; BSUH 18463.

*Cinna arundinacea* L.; Common woodreed; Woodland around the seep; Common here, absent elsewhere; C = 4; BSUH 18390.

*DACTYLIS GLOMERATA* L.; Orchard grass; Old-fields; Common; C = 0; BSUH 18101.

# *DIGITARIA CILIARIS* (Retz.) Koeler; SYN: *Digitaria sanguinalis* (L.) Scop var. *ciliaris* (Retz.) Parl.; Southern crabgrass; Sandy shoreline of river; Infrequent; C = 0; BSUH 18365.

*ECHINOCHLOA CRUS-GALLI* (L.) P. Beauv.; Barnyard-grass; Sandy shoreline of river, sand/gravel bar; Common; C = 0; BSUH 18348, 18366.

*Echinochloa muricata* (P. Beauv.) Fernald var. *muricata*; Rough barnyard-grass; Sandy shore of river, sand/gravel bar; Common; C = 1; BSUH 18222, 18435.

*ELEUSINE INDICA* (L.) Gaertn.; Crowfoot-grass, yard-grass, Indian goosegrass; Sand/gravel bar; Common; C = 0; BSUH 18208.

*Elymus hystrix* L. var. *hystrix*; SYN: *Hystrix patula* Moench; Eastern bottlebrush grass; Woodlands; Infrequent; C = 5; BSUH 18436.

*Elymus macgregorii* R. Brooks; SYN: *Elymus virginicus* L.; Early wild rye; Woodlands; Abundant; C = 3; BSUH 18272, 18273, 18515.

*Elymus villosus* Muhl.; Downy wild rye; Woodlands; Common; C = 4; BSUH 18345.

*Elymus virginicus* L.; Virginia wild rye; Floodplain woods; Common; C = 3; BSUH 18344.

*ERAGROSTIS CILIANENSIS* (All.) Vign. ex Janchen; Stink-grass; Sand/gravel bar; Infrequent; C = 0; BSUH 18412.

# *Eragrostis hypnoides* (Lam.) Britton, Sterns & Poggenb.; Teal or creeping love-grass; Sandy shoreline of river [where the river receded]; Common; C = 3; BSUH 18389.

*ERAGROSTIS MINOR* Host; SYN: *Eragrostis poaeoides* P. Beauv. ex Roem. & Schult.; Low or little love-grass; Sand/gravel bar; Infrequent; C = 0; BSUH 18414.

*Eragrostis pectinacea* (Michx.) Nees ex Steud. var. *pectinacea*; Carolina or tufted love-grass; Sand/gravel bar; Infrequent; C = 0; BSUH 18413.

*Festuca subverticillata* (Pers.) E. Alexeev.; Nodding fescue; Woodlands; Abundant; C = 4; BSUH 18517.

*Glyceria striata* (Lam.) Hitchc.; Fowl manna grass; Floodplain woods; Abundant; C = 4; BSUH 18516.

*Leersia oryzoides* (L.) Sw.; Rice cut-grass; Border of pond; Abundant locally; C = 2; BSUH 18302.

*Leersia virginica* Willd.; White grass; Woodlands; Common; C = 4; BSUH 18377.

*Muhlenbergia frondosa* (Poir.) Fernald; Common satin grass, wirestem muhly; Riverbank and shore-

line; Infrequent but locally abundant; C = 3; BSUH 18433.

*Panicum dichotomiflorum* Michx. var. *dichotomiflorum*; Knee-grass, fall panic grass; Sand/gravel bar; Infrequent; C = 0; BSUH 18295.

*Panicum philadelphicum* Bernh.; Philadelphia panic grass; Sandy shoreline of river; Rare; C = 4; BSUH 18388.

# *Panicum virgatum* L. var. *virgatum*; Switchgrass; Old-field; Common; C = 4; BSUH 18364, 18381.

*PHALARIS ARUNDINACEA* L.; Reed canary-grass; Floodplain woods, riverbank and shore; Infrequent but locally abundant; C = 0; BSUH 18108.

*POA ANNUA* L.; Speargrass, annual bluegrass; Old-fields; Infrequent; C = 0; BSUH 18146.

*POA COMPRESSA* L.; Canada bluegrass; Woodlands; Common; C = 0; BSUH 18462.

*POA PRATENSIS* L. ssp. *PRATENSIS*; Kentucky bluegrass; Old-fields; Abundant; C = 0; BSUH 18099, 18134.

*Poa sylvestris* A. Gray; Woodland bluegrass; Woodlands; Abundant; C = 5; BSUH 18133.

*POA TRIVIALIS* L.; Rough bluegrass; Floodplain; Abundant; C = 0; BSUH 18102.

*SCHEDONORUS ARUNDINACEUS* (Schreb.) Dumort., nom. cons.; SYN: *Schedonorus phoenix* (Scop.) Holob, *Festuca elatior* L. var. *arundinacea* (Schreb.) Wimm., *Festuca arundinacea* Schreb.; Tall fescue; Old-fields; Common; C = 0; BSUH 18514.

*SETARIA FABERI* R. Herrm.; Nodding or giant foxtail; Sand/gravel bar, sandy shoreline of river; Rare; C = 0; BSUH 18342.

*SETARIA PUMILA* (Poir.) Roem. & Schult. ssp. *pumila*; SYN: *Setaria glauca* (L.) P. Beauv.; Yellow foxtail; Old-fields, sand/gravel bar; Infrequent; C = 0; BSUH 18379.

# *SETARIA VIRIDIS* (L.) P. Beauv. var. *viridis*; Green foxtail, green bristle-grass; Sand/gravel bar; Rare; C = 0; BSUH 18326, 18402.

# *Sporobolus vaginiflorus* (Torr. ex A. Gray) Alph. Wood var. *vaginiflorus*; Poverty-grass, poverty dropseed; Old-fields; Infrequent; C = 1; BSUH 18309.

*Tridens flavus* (L.) A. Hitchc. var. *flavus*; SYN: *Triodia flava* (L.) Smyth; Purpletop tridens; Old-fields; Common; C = 1; BSUH 18432.

Polemoniaceae (Phlox Family)

*Phlox divaricata* L. ssp. *divaricata*; Wild blue or woodland phlox; Woodlands; Abundant; C = 5; BSUH 18177.

*Phlox paniculata* L.; Garden, summer or fall phlox; Floodplain woods; Infrequent; C = 3; BSUH 18338.

*Polemonium reptans* L. var. *reptans*; Spreading Jacob's-ladder, Greek valerian; Woodlands; Abundant; C = 5; BSUH 18181.

Polygonaceae (Smartweed Family)

*FALLOPIA JAPONICA* (Houtt.) Ronse Decr.; SYN: *Polygonum cuspidatum* Siebold & Zucc.;

Japanese knotweed; Sandy shoreline of river; Rare, one plant; C = 0; BSUH 18486.

*Fallopia scandens* (L.) Holub; SYN: *Polygonum scandens* L. var. *scandens*; Climbing false buckwheat; Floodplain woods; Infrequent; C = 0; BSUH 18278.

*PERSICARIA CESPITOSA* (Blume) Nakai, var. *LONGISETA* (Bruijn) C. F. Reed; SYN: *Polygonum cespitosum* Blume var. *longisetum* (Bruijn) A.N. Steward, *Polygonum longisetum* Bruijn, *Persicaria longiseta* (Bruijn) Kitagawa; Creeping smartweed, Oriental lady's-thumb; Woodlands, sandy shoreline of river; Common; C = 0; BSUH 18247, 18301, 18431.

*Persicaria lapathifolia* (L.) Gray; SYN: *Polygonum lapathifolium* L.; Heart's-ease, dock-leaved smartweed, curly-top knotweed; Sandy shoreline of river; Abundant; C = 0; BSUH 18231, 18315.

*PERSICARIA MACULOSA* Gray; SYN: *Polygonum persicaria* L., *Polygonum dubium* Stein, *Polygonum maculata* (Raf.) Gray, *Persicaria vulgaris* Webb & Moq.; Spotted lady's-thumb; Riverbank and sandy shoreline of river; Common; C = 0; BSUH 18080, 18230, 18430.

*Persicaria pennsylvanica* (L.) Small; SYN: *Polygonum pennsylvanicum* L.; Pinkweed, Pennsylvania smartweed; Sandy shoreline of river; Infrequent; C = 0; BSUH 18419.

*Persicaria punctata* (Elliott) Small var. *leptostachya* (Meisn.) Small; SYN: *Polygonum punctatum* Elliott var. *confertiflorum* (Meisn.) Fassett; Water or dotted smartweed; Floodplain woods, sandy shoreline of river; Abundant; C = 3; BSUH 18223.

*POLYGONUM AVICULARE* L.; SYN: *Polygonum monspeliense* Pers.; Common, field or prostrate knotweed; Sandy shoreline of river; Common; C = 0; BSUH 18232.

*Rumex altissimus* Alph. Wood; Pale dock; Sandy shoreline of river; Common; C = 2; BSUH 18347, 18489.

*RUMEX CRISPUS* L.; Curly dock, sour dock; Sandy shoreline of river; Infrequent; C = 0; BSUH 18257, 18262.

*RUMEX OBTUSIFOLIUS* L.; Bitter dock, blunt-leaved dock; Floodplain woods, sandy shoreline of river; Infrequent; C = 0; BSUH 18448.

*Tovara virginiana* (L.) Raf.; SYN: *Polygonum virginianum* L., *Persicaria virginiana* (L.) Gaertn.; Woodland knotweed, jumpseed; Woodlands; Abundant; C = 3; BSUH 18371.

#### Portulacaceae (Purslane Family)

*Claytonia virginica* L. var. *virginica*; Spring beauty; Woodlands; Common; C = 2; BSUH 18163.

*PORTULACA OLERACEA* L.; Purslane, little hogweed; Sand/gravel bar; Rare; C = 0; BSUH 18437.

#### Primulaceae (Primrose Family)

*LYSIMACHIA NUMMULARIA* L.; Moneywort, creeping Jenny; Floodplain woods, seasonal creek beds; Common; C = 0; BSUH 18497.

#### Ranunculaceae (Buttercup Family)

*Clematis virginiana* L.; Virgin's-bower, devil's darn- ing needles; Riverbank; Rare; C = 3; BSUH 18469.

*Delphinium tricorne* Michx.; Dwarf, spring, or rock larkspur; Woodlands; Abundant; C = 5; BSUH 18174.

*Enemion biternatum* Raf.; SYN: *Isopyrum biterna- tum* (Raf.) Torr. & A. Gray; Eastern false rue- anemone; Woodlands; Infrequent but locally abun- dant; C = 5; BSUH 18155.

*Hepatica nobilis* Schreb. var. *acuta* (Pursh) Steyer. SYN: *Hepatica acutiloba* DC.; Sharp- leaved hepatica, liverleaf; Slope woods near flood- plain, border of woodland seep; Common; C = 8; BSUH 18253.

*Ranunculus abortivus* L.; Small-flowered crowfoot, little-leaf buttercup, kidney-leaved buttercup or crowfoot; Floodplain woods; Common; C = 0; BSUH 18158.

*RANUNCULUS FICARIA* L. var. *BULBIFERA* Marsden-Jones; Lesser celandine, fig buttercup; Woodlands, especially floodplain woods; Abundant [extremely]; C = 0; BSUH 18204, 18525.

*Ranunculus hispidus* Michx. var. *caricetorum* (Greene) T. Duncan; Swamp buttercup; Floodplain woods, sandy shoreline of river; Infrequent but locally abundant; C = 10; BSUH 18082, 18454, 18520.

*Ranunculus hispidus* Michx. var. *hispidus*; Hispid buttercup; Woodlands; Infrequent; 7; BSUH 18119, 18165, 18250, 18537.

*Ranunculus micranthus* Nutt. ex Torr. & A. Gray; Rock buttercup, rock crowfoot; Upland woods [drier sites]; Common; C = 4; BSUH 18166.

*Ranunculus recurvatus* Poir. var. *recurvatus*; Hooked buttercup, hooked crowfoot; Woodlands along creeks; Infrequent; C = 5; BSUH 18157.

*Ranunculus sceleratus* L. var. *sceleratus*; Cursed buttercup, cursed crowfoot; Sandy shoreline of river; Rare; C = 3; BSUH 18453.

#### Rosaceae (Rose Family)

*Agrimonia pubescens* Wallr.; Downy or soft agrimony; Woodlands; Common; C = 5; BSUH 18376.

*Crataegus punctata* Jacq.; Dotted hawthorn; Woodlands; Infrequent; C = 2; BSUH 18285.

*Geum canadense* Jacq. var. *canadense*; White avens; Woodlands; Common; C = 1; BSUH 18477.

*Geum vernum* (Raf.) Torr. & A. Gray; Spring avens; Woodlands; Abundant; C = 1; BSUH 18179.

*Prunus serotina* Ehrh. var. *serotina*; Wild black cherry; Woodlands; Common; C = 1; BSUH 18472, 18499.

*ROSA MULTIFLORA* Thunb.; Multiflora rose; Woodlands; Common; C = 0; BSUH 18096.

*Rosa setigera* Michx.; Climbing prairie-rose, Illi- nois rose; Woodland edge; Infrequent; C = 4; BSUH 18459.

*Rubus occidentalis* L.; Black raspberry; Woodland edge on east side; Infrequent; C = 1; BSUH 18235.

#### Rubiaceae (Madder Family)

*Galium aparine* L.; Cleaves, annual bedstraw, stickwilly; Woodlands; Abundant; C = 1; BSUH 18124.

*Galium concinnum* Torr. & A. Gray; Shining bedstraw; Woodlands; Infrequent; C = 5; BSUH 18442.

*Galium triflorum* Michx.; Sweet-scented or fragrant bedstraw; Floodplain woods, border of seep; Infrequent; C = 5; BSUH 18392.

#### Rutaceae (Rue Family)

*Zanthoxylum americanum* Miller; Common prickly ash; Woodlands; Infrequent but locally common, widespread; C = 3; BSUH 18498.

#### Salicaceae (Willow Family)

*Populus deltoides* Marshall var. *deltoides*; Eastern cottonwood; Woodlands, especially floodplain woods; Common; C = 1; BSUH 18522.

# *SALIX FRAGILIS* L.; Crack willow; Sandy shore of river; Rare; C = 0; BSUH 18441.

*Salix nigra* Marshall; Black willow; Floodplain woods, sandy shore of river; Infrequent; C = 3; BSUH 18276.

#### Saxifragaceae (Saxifrage Family)

*Heuchera americana* L. var. *americana*; Common alumroot; Woodlands; Infrequent; C = 7; BSUH 18500.

#### Scrophulariaceae (Figwort Family)

*Leucospora multifida* (Michx.) Nutt.; SYN: *Conobea multifida* (Michx.) Benth.; Conobea, narrowleaf paleseed; Sand/gravel bar; Abundant; C = 3; BSUH 18425.

# *Lindernia dubia* (L.) Pennell var. *anagallidea* (Michx.) Cooperr.; SYN: *Lindernia anagallidea* (Michx.) Pennell; Yellowseed false pimpernel; Sand/gravel bar; Common; C = 3; BSUH 18209.

*Mimulus alatus* Aiton; Winged or sharpwing monkey-flower; Sand/gravel shore of river; Common; C = 4; BSUH 18214.

*Mimulus ringens* L. var. *ringens*; Allegheny monkey-flower; Sand/gravel shore of river; Common; C = 4; BSUH 18226.

*Penstemon calycosus* Small; SYN: *Penstemon laevigatus* Aiton; Eastern or smooth beard-tongue; Woodlands; Infrequent; C = 4; BSUH 18269.

*Scrophularia marilandica* L.; Eastern or late figwort, carpenter's square; Floodplain woods; Common; C = 5; BSUH 18331.

*Veronica anagallis-aquatica* L.; SYN: *Veronica catenata* Pennell; Water speedwell; Floodplain woods; Common; C = 5; BSUH 18259.

*VERONICA ARVENSIS* L.; Corn speedwell; Old-fields; Infrequent; C = 0; BSUH 18129.

*VERBASCUM BLATTARIA* L.; Moth mullein; Sandy shoreline of river; Rare; C = 0; BSUH 18450.

*VERBASCUM THAPSUS* L.; Common or woolly mullein; Sandy shoreline of river; Rare; C = 0; BSUH 18447.

#### Simaroubaceae (Quassia family)

*AILANTHUS ALTISSIMA* (Mill.) Swingle; Tree-of-heaven; Riverbank; Rare; C = 0; BSUH 18470.

#### Smilacaceae (Catbrier Family)

*Smilax ecirrhata* (Engelm. ex Kunth) S. Watson; Upright carrion-flower; Woodlands; Infrequent; C = 5; BSUH 18216.

*Smilax tamnoides* L.; SYN: *Smilax hispida* Muhl. ex Torr.; Bristly greenbrier; Woodlands; Common; C = 3; BSUH 18255.

#### Solanaceae (Nightshade Family)

*DATURA STRAMONIUM* L.; Jimsonweed; Woodland edge/row crop field; Rare but locally common; C = 0; BSUH 18195.

*Solanum ptycanthum* Dunal; SYN: *Solanum nigrum* auct. non L., *Solanum americanum* auct. non Mill.; Eastern or West Indian black nightshade; Floodplain woods, sandy shore of river; Infrequent; C = 0; BSUH 18224, 18403.

#### Tiliaceae (Linden Family)

*Tilia americana* L.; Basswood, American linden; Woodlands; Common; C = 5; BSUH 18496.

#### Typhaceae (Cattail Family)

*TYPHA ANGUSTIFOLIA* L.; Narrow-leaved cattail; Old-fields; C = 0; BSUH 18267.

# *TYPHA* × *GLAUCA* Godr.; Hybrid cattail; Roadside field and pond; C = 0; BSUH 18339.

#### Ulmaceae (Elm Family)

*Celtis occidentalis* L.; Northern or common hackberry; Woodlands; Common; C = 3; BSUH 18118.

*Ulmus americana* L. White or American elm; Woodlands; Common; C = 3; BSUH 18471, 18527.

*Ulmus rubra* Muhl.; Slippery or red elm; Woodlands; Infrequent; C = 3; BSUH 18545.

#### Urticaceae (Nettle Family)

*Boehmeria cylindrica* (L.) Sw.; Small-spike false nettle; Floodplain woods; Common; C = 3; BSUH 18317.

*Laportea canadensis* (L.) Weddell; Canadian wood nettle; Woodlands, especially floodplain woods; Abundant; C = 2; BSUH 18311.

*Pilea pumila* (L.) A. Gray var. *pumila*; Canadian clearweed; Woodlands; Abundant; C = 2; BSUH 18199, 18293.

*Urtica dioica* L. ssp. *gracilis* (Aiton) Seland.; SYN: *Urtica dioica* L. var. *procera* (Muhl. ex Willd.) Weddell, *Urtica procera* Muhl. ex Willd.; Tall or stinging nettle; Sandy shore of floodplain woods; Infrequent; C = 1; BSUH 18334.

#### Valerianaceae (Valerian Family)

*Valeriana pauciflora* Michx.; Large-flowered valerian; Floodplain woods; Infrequent; C = 7; BSUH 18110, 18519.

*Valerianella umbilicata* (Sull.) Alph. Wood; Navel-fruited corn salad; Floodplain woods; Infrequent; C = 5; BSUH 18112.

#### Verbenaceae (Vervain Family)

*Phryma leptostachya* L.; American lopseed; Woodlands; Abundant; C = 4; BSUH 18218, 18238.

*Verbena hastata* L. var. *hastata*; Blue vervain, swamp verbena; Sandy shoreline of river; Locally common; C = 3; BSUH 18212.

*Verbena urticifolia* L. var. *urticifolia*; White vervain; Sandy shoreline of river; Locally common; C = 3; BSUH 18337.

#### Violaceae (Violet Family)

*Hybanthus concolor* (T.F. Forst.) Spreng.; Eastern green violet; Woods around woodland seep; Rare but locally common; C = 6; BSUH 18294, 18398.

*Viola pubescens* Aiton var. *pubescens*; Downy yellow violet; Woodlands; Common; C = 5; BSUH 18175.

*Viola sororia* Willd.; SYN: *Viola papilionacea* Pursh p.p.; Common blue violet; Woodlands; Abundant; C = 1; BSUH 18172.

*Viola striata* Aiton; Striped white violet, striped cream violet; Woodlands; Abundant; C = 4; BSUH 18186.

#### Vitaceae (Grape Family)

*Parthenocissus quinquefolia* (L.) Planch.; Virginia creeper, woodbine; Woodlands; Abundant; C = 2; BSUH 18122.

*Vitis riparia* Michx.; Frost or riverbank grape; Woodlands; Infrequent; C = 1; BSUH 18085.

*Vitis vulpina* L.; Frost grape; Woodlands; Common; C = 3; BSUH 18508.

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