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THE FLORA AND VEGETATION OF GINN WOODS, BALL STATE UNIVERSITY, DELAWARE COUNTY, INDIANA

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ABSTRACT: Ginn Woods, a 161-acre tract of woodlands located in northern Delaware County, contains one of the largest remaining sections of old-growth forest in east-central Indiana. This study presents (1) a comprehensive inventory of the vascular flora of the woods, including a visual estimate of the relative distribution of each species, and (2) a description of seasonal changes in the various habitats. The flora consists of 384 species of vascular plants, representing 244 genera and 94 families. A total of 127 species are recorded for the first time from Delaware County. Of the 384 species listed, 58, or approximately 15%, are exotic species. Other than *Alliaria petiolata*, which is beginning to invade the woods through open areas along the edge and along seasonal creeks, the interior of the woods contains a native flora that probably approximates the composition of the pre-settlement forest in this area.

KEYWORDS: Beech-maple forest, Delaware County, flora, Indiana vascular plant records.

INTRODUCTION

Ginn Woods is a 161-acre tract of woodland (SW¼, Sec. 18, and NW¼, Sec. 19, T22N, R10E; Wheeling Quadrangle 7.5 Minute Series Topographic Map) owned by Ball State University and managed by the Department of Biology. Situated approximately 15 miles north of Muncie (Figure 1), the forest has been used by Ball State students and faculty members for educational and research purposes for over 60 years. Despite frequent use, little formal botanical documentation was done. The most notable study was by McClain (1985), who examined the influence of edaphic and pedologic factors on the tree species in the undisturbed old-growth section of the forest. The Ball State University Herbarium's data base contained just 166 specimens from Ginn Woods, representing 59 species from 26 families. All these specimens were collected before June 2 in any year. An additional 17 sedge species were collected by Dr. Paul Rothrock and deposited in the Butler University Herbarium (Rothrock, pers. comm.). Lindsey, *et al.* (1969) conducted limited sampling of the overstory species for their

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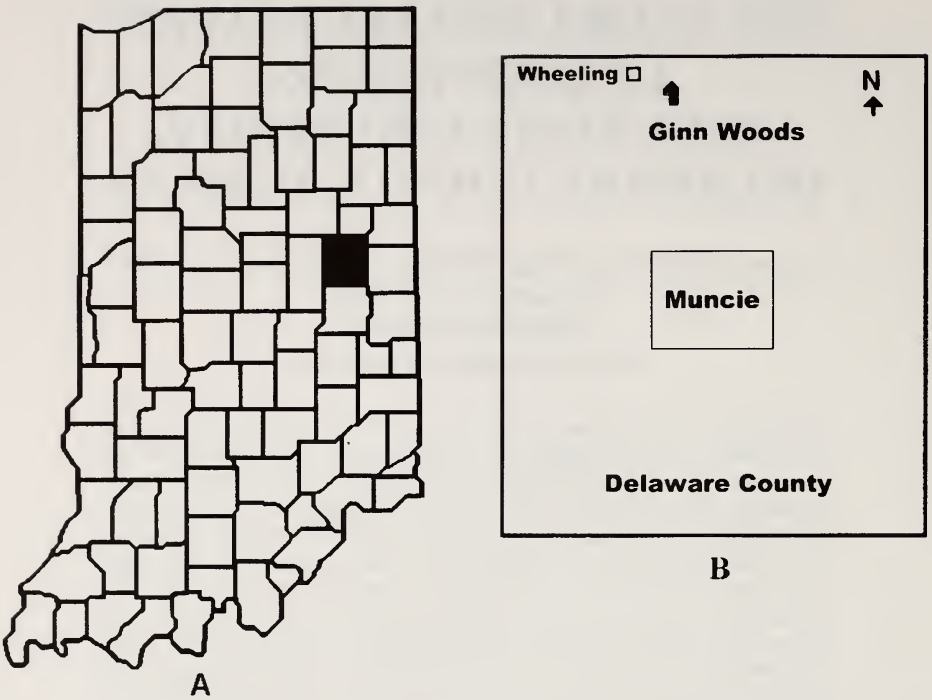

Figure 1. **A.** Map ot Indiana showing the location of Delaware County (darkened). **B.** Delaware County enlarged showing the location of Ginn Woods (darkened).

book, *Natural Areas in Indiana and Their Preservation*, but, to our knowledge, no comprehensive study of the overstory tree species has ever been published.

Ginn Woods is one of the largest old-growth forests remaining in east-central Indiana. Old-growth forests in the United States have been severely reduced in size through clearing for wood products, farming, and urbanization (Duffy and Meier, 1992). Consequently, Ginn Woods is ecologically significant not only as an outdoor laboratory for Ball State University but also as a remnant of the forests that once covered much of eastern and central Indiana. The woods lies in the Bluffton Till Plain Section of the Central Till Plain Natural Region, an area formerly covered by an extensive beech-maple forest (Homoya, *et al.*, 1985). The importance of the area is indicated by its inclusion in the book, *The Natural Areas of Indiana and Their Preservation* (Lindsey, *et al.*, 1969). Lindsey, *et al.* (1969) rated the forest (which they referred to as Ginn's Woods) quite highly as an educational area because of its proximity to Ball State University and the scarcity of forested areas in this part of Indiana. They (Lindsey, *et al.*, 1969, p. 313) wrote, "Its preservation and resulting improvement by further maturation is therefore desirable."

The inventory of a community such as Ginn Woods has applications in applied and basic science as well as in autecology (Barbour, *et al.*, 1987). While developing their classification of the Natural Regions of Indiana, Homoya, *et al.* (1985)

used floral species composition and distribution as important criteria for delineating the various Natural Regions. Species presence and absence reveals much about the landscape. Demographic information is also important in determining whether or not the number of individuals in and the number of populations of a species are increasing, decreasing, or stable (Schemske, *et al.*, 1994). For example, Brewer (1980) and Duffy and Meier (1992) described changes in the herbaceous layer of mature forests in the eastern United States. Duffy and Meier (1992) reported that in clear-cut, old-growth forests, the herbaceous species had not recovered to their predisturbance levels after time periods ranging from 45 to 87 years. Brewer (1980) reported that several herbaceous species in a climax beech-maple forest in Michigan had decreased in abundance over the last half century. This decrease was due to the increased dominance of sugar maple and beech, which increased the amount of shade, causing the canopy to close earlier and resulting in the loss of late-flowering herbs.

An inventory is the simplest method for documenting species diversity and is a fundamental step in monitoring any changes that may occur in species composition over time. Meier, *et al.* (1995) found that even small, remnant, primary-forest stands, like the old-growth section in Ginn Woods, are important reserves of vernal herb diversity. Given its history of minimal disturbance and the present-day management policy, Ginn Woods provides an opportunity for numerous ecological studies, including the long-term monitoring of species composition and size class structure. Our goals were: (1) to inventory the vascular flora of Ginn Woods; (2) to visually estimate of the relative distribution of each species; and (3) to describe the seasonal changes in the vegetation.

HISTORY

Ginn Woods consists of three separately purchased tracts of land. The tract originally known as Ginn's Woods was purchased by John Ginn in 1832 as a United States Land Grant shortly after Delaware County was first settled (McClain, 1985). The woods remained with the Ginn Family until its purchase by Ball State University in 1971. The northern portion of this tract of land, known to the Ginn family as the North Woods (Figure 2), has neither been grazed nor burned and has not been logged since its acquisition by the Ginn family (McClain, 1985). This section of Ginn Woods contains one of the few stands of beech-maple forest still remaining in east-central Indiana that closely approximates a presettlement forest (Lindsey, *et al.*, 1965). The portion of the original tract known as the South Woods (Figure 2) has been moderately disturbed. In 1924, some timber was removed for the construction of a house. Subsequently, several white oaks were cut by a stave mill company, but, for some unknown reason, the logs were not removed (McClain, 1985). The original Ginn Woods, which consisted of both North and South Woods, was designated a classified forest in December 1929. The State Forester at that time, Charles C. Deam, reported on the application form that the woods bore no indication of insect or disease damage and no evidence of anthropogenic disturbance. He stated that Ginn Woods was a virgin forest (McClain, 1985).

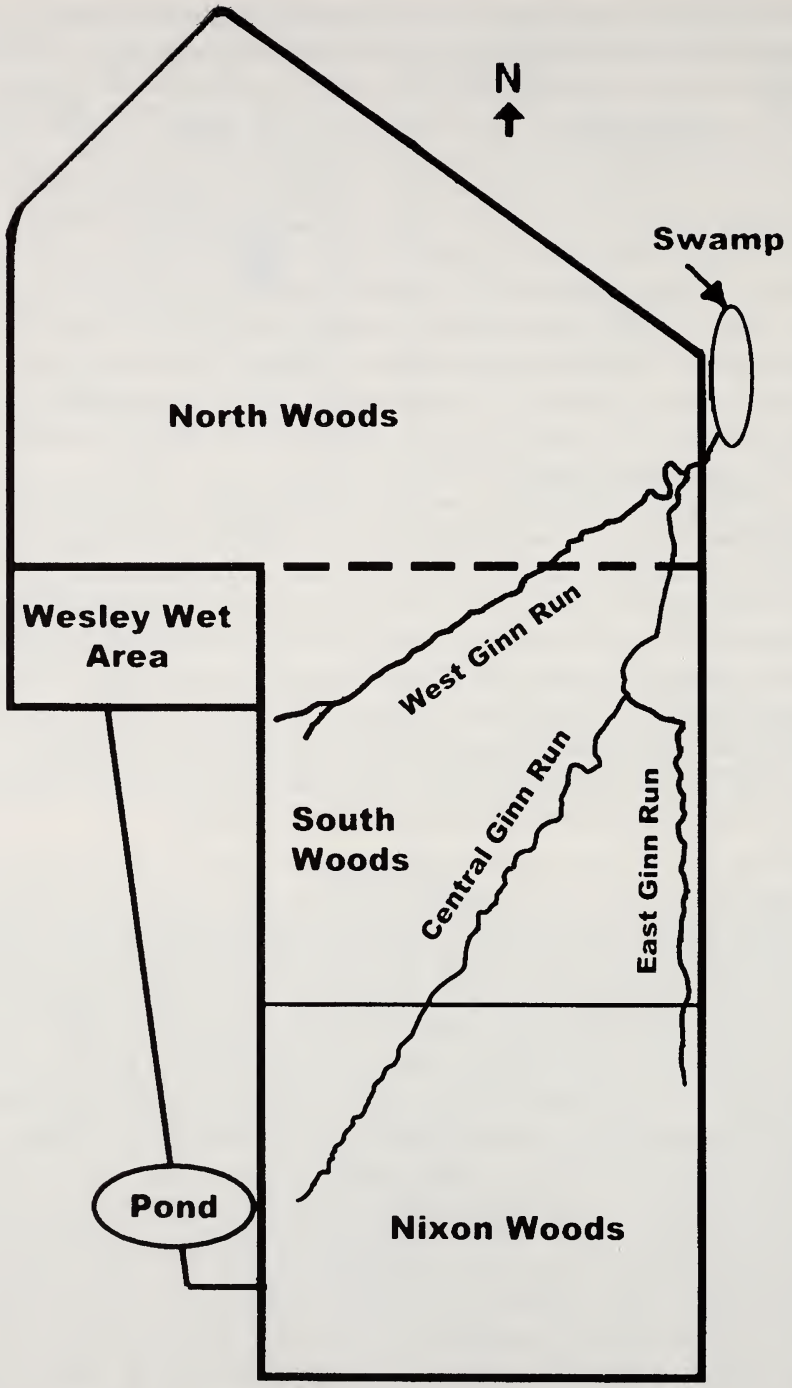

Figure 2. Map of Ginn Woods.

Two additional tracts of land were purchased by Ball State University shortly after the acquisition of the original Ginn's Woods. Nixon Woods (Figure 2), which lies adjacent to the southern end of South Woods, was acquired in 1974. As no records have been found, we are not sure how this section was used in the past. However, Nixon Woods has been left undisturbed since its acquisition by Ball State University. The third and final tract purchased was the Wesley Wet Area (Figure 2). This 10-acre site is adjacent to the southwestern side of North Woods and was purchased to preserve the integrity of North Woods. These three tracts are now known collectively as Ginn Woods. The Department of Biology maintains and manages Ginn Woods, and the Department's management philosophy is to maintain the woodland as a "natural area" with minimal disturbance (Department of Biology, Field Areas and Facilities Committee).

SITE DESCRIPTION

Ginn Woods lies in northern Delaware County (Figure 1). The forest is bordered on its northeastern edge by the Eaton-Wheeling Pike and on the northwestern and upper portion of its western edge by County Road 300 West (Figure 3). The southern half of the western edge is contiguous with a narrow open field (designated Farmer's Field) that is a buffer between the woods and a cultivated field. The eastern and southern edges of Ginn Woods are bordered by agricultural fields.

The Bluffton Till Plain Section was once covered by the Ontario-Erie Lobe of the Wisconsinan ice sheet, and the retreat of glacial ice left a relatively level plain with clay-rich soils (Homoya, *et al.*, 1985). The two prevalent soils in Ginn Woods are the Blount Silt and Pewamo Silty Clay Loams (Cartwright, 1978). The Blount Series underlies 70% to 75% of the woods and is the better drained of the two soils. The natural, presettlement plant communities of the Bluffton Till Plain Section were forests. The beech-maple complex at Ginn Woods is inhabited by mesic and upland depressional wet-site species (Lindsey, *et al.*, 1969). In an attempt to simplify the presentation of our results, various habitats have been given descriptive names to serve as reference points (Figure 3).

Topographically, the woods is mostly level with the west side tending to be slightly higher and better drained than the east side. Several depressions that have standing water from spring to mid-summer are found in the woods. These seasonally wet areas are more frequent and larger in size in South Woods and the northern part of Nixon Woods. The exception is a large vernal pool (West Vernal Pool) located in the southwestern corner of North Woods. This depressional area is the only site where *Quercus bicolor* is found. The Wesley Wet Area, a 10-acre successional field, is separated from this portion of North Woods by a stand of *Populus deltoides*. To the east of West Vernal Pool are two open areas. The larger of the two (Wrigley Field) supports several shrub species along its border with the mixed hardwood species of North Woods. The second open area (Small Field) has a stand of willow, *Salix nigra*, along its border with Wesley Wet Area.

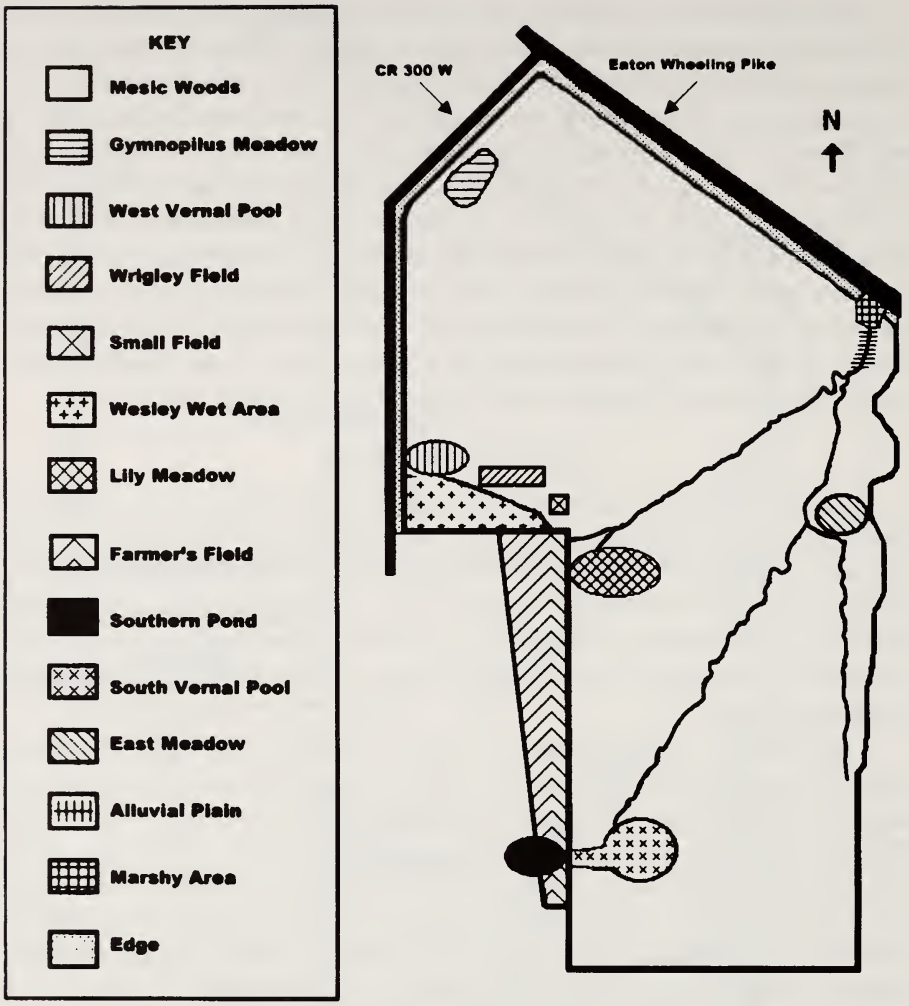

Figure 3. Map of the habitats and reference points at Ginn Woods.

Within the mesic woods, a number of gaps have formed by single and multiple canopy tree falls. The replacement of the canopy trees in some areas has been slow, and, consequently, these areas provide some unique microhabitats. Several understory species are found only in these "meadows" (*e.g.*, Lily and East Meadows, which remain wet through the early summer). The interior of the woods is drained by three seasonal creeks — West, Central, and East Ginn Runs (Figure 2). Central Ginn Run originates at Southern Pond in Farmer's Field adjacent to Nixon Woods. Southern Pond holds water year round and was included in the study. The three creeks drain to the northeast corner of the woods where they converge forming a small alluvial plain. This creek drains through an open marshy area bordering the Eaton-Wheeling Pike and eventually flows into the Mississinewa River.

Several areas that lie outside Ginn Woods were included in our study. These areas lie between the woods' edge and the roads on the upper western and northern sides and between the woods' edge and the agricultural fields on the remaining sides. The northern third of Farmer's Field remains wet into early summer and drains into West Ginn Run. These additional areas were included in the study to help monitor the future spread of non-native species.

METHODS

During the 1995 and 1996 growing seasons, two to three forays per week were made into the study area. Our visits continued on a less intensive basis during the 1997 season. Simultaneously, collections stored at the Ball State University Herbarium (BSUH) were re-examined. Our notes on the vegetation consisted of species lists with visual estimates of their abundance (see p. 33). In addition, seasonal changes in the dominant vegetation were noted for each habitat. Gleason and Cronquist (1991) was used as the primary taxonomic reference. Potential county records were checked against the Indiana Natural Heritage Data Center's records for Delaware County. Herbarium specimens were deposited in the Ball State University Herbarium (BSUH).

RESULTS

Attached is a checklist of the vascular flora of Ginn Woods. The 384 species represent 244 genera and 94 families based on the family classification of Gleason and Cronquist (1991). The checklist is arranged alphabetically by family. Thirty-eight families are represented by only one species. A check against the Indiana Natural Heritage Data Center's records for Delaware County revealed that a total of 127 species are recorded here for the first time. Of the 384 species listed, 58, or approximately 15%, are non-native or exotic species. The five most abundant families are the Asteraceae (52 species), Cyperaceae (22 species), Rosaceae (21 species), Lamiaceae (18 species), and Liliaceae (13 species). Each species is followed by its common name (based on Gleason and Cronquist, 1991), an estimate of its relative abundance, its typical habitat in the study area, and a herbarium number if a specimen is preserved in the Ball State University Herbarium (BSUH).

HABITAT DESCRIPTIONS

Mesic Woods. The mesic woods occupies the largest part of the study area (Figure 3). The two most abundant canopy species are *Acer saccharum* and *Fagus grandifolia*. Other common canopy species include *Acer saccharinum*, *Carya cordiformis*, *C. glabra*, *C. ovata*, *Celtis occidentalis*, *Fraxinus americana*, *F. pennsylvanica*, *Liriodendron tulipifera*, *Populus deltoides*, *Quercus muehlenbergii*, *Q. rubra*, *Tilia americana,* and *Ulmus rubra*. The understory and shrub layers vary in response to moisture, light, and time of leafout by the upper canopy trees. Shrub and understory species include *Acer negundo*, *Aesculus glabra*, *Asimina triloba* (which occurred in large-sized stands primarily on the west side

of the woods), *Carpinus caroliniana*, *Cephalanthus occidentalis* (bordering wet areas), *Cornus drummondii* (especially along the edge), *Crataegus* spp., *Euonymus atropurpureus*, *Gleditsia triacanthos*, *Gymnocladus dioica*, *Ilex verticillata*, *Lindera benzoin* (in wetter areas), *Ostrya virginiana*, *Prunus serotina*, *P. virginiana*, *Ribes cynosbati*, *Sambucus canadensis*, *Staphylea trifolia* (along the edge), *Ulmus americana*, *U. rubra*, *Viburnum acerifolium*, and *V. prunifolium*. Common vine species are *Menispermum canadense*, *Parthenocissus quinquefolia*, *Smilax* spp. (especially *S. hispida*), *Toxicodendron radicans*, and *Vitis vulpina*. Ferns in the mesic woods include *Adiantum pedatum*, *Athyrium pycnocarpon*, *Botrychium virginianum*, *Cystopteris protrusa*, *Dryopteris goldiana*, *Dryopteris carthusiana*, *Onoclea sensibilis,* and *Polystichum acrostichoides* (rare). Spring ephemerals frequent to abundant in the woods include *Cardamine concatenata*, *C. douglassii*, *Caulophyllum thalictroides*, *Claytonia virginica*, *Dicentra cucullaria*, *Erigenia bulbosa*, *Erythronium americanum*, *Floerkea proserpinacoides*, *Geranium maculatum*, *Phlox divaricata*, *Polemonium reptans*, *Sanguinaria canadensis*, *Trillium flexipes*, *T. recurvatum*, and *Uvularia grandiflora*. Dominant late spring to early summer species are *Aplectrum hyemale*, *Arisaema triphyllum*, *Asarum canadense*, *Cryptotaenia canadensis*, *Elymus hystrix*, *Galium aparine*, *G. obtusum*, *G. concinnum*, *Geum canadense*, *Hydrophyllum* spp., *Isopyrum biternatum*, *Mitella diphylla* (in Nixon Woods), *Osmorhiza claytonii*, *O. longistylis*, *Podophyllum peltatum*, *Ranunculus hispidus* (in the wetter areas), *Sanicula gregaria*, *Senecio aureus*, *S. obovatus*, *Silene virginica*, *Smilacina racemosa*, *Thaspium barbinode*, *Tradescantia subaspera*, *Viola pubescens*, *V. sororia*, and *V. striata*. During mid- to late-summer, the richness of herbaceous species in flower in the woods decreases. Late July through August were very dry during both years of this study (Schoultz, 1997). The dominant species at this time are *Boehmeria cylindrica*, *Campanula americana*, *Circaea lutetiana*, *Collinsonia canadensis*, *Eupatorium rugosum*, *Helianthus decapetalus* (along the edge and in open areas), *Impatiens* spp. (in open wet areas), *Laportea canadensis* (in the moist areas), *Lobelia siphilitica*, *Mimulus alatus*, *Phryma leptostachya*, *Pilea pumila* (in damp areas), and *Polymnia canadensis*. During the fall, *Aster cordifolius*, *A. lanceolatus* var. *simplex*, *A. lateriflorus*, *A. sagittifolius*, *A. shortii*, *Solidago caesia*, and *S. flexicaulis* are prominent.

Meadows. The gaps created by tree fall create unique microhabitats within the mesic woods. Three large open areas have been designated as meadows (Figure 3): *Gymnopilus* Meadow in North Woods and Lily Meadow and East Meadow in South Woods. *Gymnopilus* Meadow is the driest and most open of the three. This meadow is bordered by the mesic woods, although the side parallel to County Road 300 West contains more shrubs and fewer trees. The herbaceous plant community of *Gymnopilus* Meadow is large, varied, and includes *Ambrosia trifida*, *Apocynum cannabinum*, *Bidens vulgata*, *Boehmeria cylindrica*, *Campanula americana*, *Carex* spp., *Cirsium arvense*, *Daucus carota*, *Erechtites hieracifolia*, *Erigeron annuus*, *E. philadelphicus*, *Eupatorium perfoliatum*, *E. purpureum*, *Geum vernum*, *Hackelia virginiana*, *Laportea canadensis*, *Lobelia*

siphilitica, *Oxalis stricta*, *Phytolacca americana*, *Pilea pumila*, *Polygonum pensylvanicum*, *Potentilla norvegica*, *Senecio glabellus*, *Smilax ecirrhata*, *Sisyrinchium angustifolium*, *Solidago flexicaulis*, *Stachys tenuifolia,* and *Typha latifolia*. The sensitive fern, *Onoclea sensibilis*, is also common in this meadow. Despite its high species richness, much of the open area of *Gymnopilus* Meadow is covered with *Cirsium arvense* from mid to late summer. Vines found in or around this meadow include *Dioscorea villosa*, *Menispermum canadense*, and *Toxicodendron radicans*. *Gymnopilus* Meadow is the only site where *Dioscorea villosa* is found in the study area. Frequent shrubs or small trees that border the meadow are *Carpinus caroliniana*, *Cornus* spp. (especially *C. drummondii*), and *Ostrya virginiana*. Additionally, one plant of *Lonicera maackii* is growing in the northeastern corner of the meadow.

Lily Meadow is generally wet throughout the summer. Although the meadow contains several tall trees, the area is open. Besides having many of the plants commonly found in the wet areas in the mesic woods, this meadow contains several additional plant species including *Aster pilosus*, *Carex* spp., *Circaea lutetiana*, *Clematis virginiana*, *Cornus alternifolia*, *Eupatorium perfoliatum*, *Geum vernum*, *Iodanthus pinnatifidus*, *Lilium michiganense*, *Lysimachia ciliata*, *Monarda clinopodia* (on the border with Farmer's Field), *Sambucus canadensis*, *Viola striata,* and *Zizia aurea*. Lily Meadow is the only site where *Cornus alternifolia* and *Zizia aurea* are found and one of two sites where *Clematis virginiana*, *Iodanthus pinnatifidus*, *Lilium michiganense*, *Lysimachia ciliata*, and *Monarda clinopodia* are found in the study area. Ferns common to Lily Meadow include *Athyrium pycnocarpon*, *Dryopteris goldiana*, *Dryopteris carthusiana*, and *Onoclea sensibilis*. *Acer negundo* and *Toxicodendron radicans* are abundant along the border between Lily Meadow and Farmer's Field.

East Meadow, which drains into East Ginn Run, is the wettest of the meadows, holding water through much of the summer. The meadow also contains a small vernal pool. In addition to having the greatest richness of *Carex* spp. in the study area, East Meadow contains a variety of herbaceous plants including *Arisaema dracontium*, *Laportea canadensis*, *Lilium michiganense*, *Lobilia cardinalis*, *Lycopus uniflorus*, *Pilea pumila*, and *Thaspium barbinode*. Just to the west of the meadow is a large patch of *Thalictrum pubescens*.

Wesley Wet Area. Wesley Wet Area is a successional area containing a mixture of exotic species, old field species, shrubs, and trees (Figure 3). Of the plant species reported from the study area, several occur only here, including the woody species, *Cercis canadensis*, *Cornus amomum*, *Salix discolor,* and *Rosa palustris,* and the herbaceous species, *Antennaria plantaginifolia*, *Campanula rapunculoides*, *Convallaria majalis*, *Desmodium paniculatum*, *Fragaria virginiana,* *Geum laciniatum*, *Ipomoea hederacea*, *Knautia arvensis*, *Melilotus alba*, *Melissa officinalis*, *Mirabilis nyctaginea*, *Trifolium hybridum*, *T. repens,* and *Veronica arvensis*. Frequent to abundant woody species in Wesley Wet Area include *Acer saccharinum*, *Campsis radicans*, *Cercis canadensis*, *Elaeagnus umbellata*, *Fraxinus pennsylvanica*, *Populus deltoides*, *Rosa setigera*, and *Salix nigra*.

Less frequent woody species and vines are *Cornus amomum*, *C. racemosa*, *Crataegus mollis*, *Platanus occidentalis*, *Rosa multiflora*, *R. palustris*, *Salix discolor*, *Toxicodendron radicans*, and *Ulmus rubra*. Frequent to abundant spring to summer herbaceous species in Wesley Wet Area include *Agrimonia parviflora*, *Antennaria plantaginifolia*, *Barbarea vulgaris*, *Chrysanthemum leucanthemum*, *Daucus carota*, *Fragaria virginiana*, *Geum laciniata*, *Prunella vulgaris*, *Trifolium hybridum*, and *T. pratense*. Although *Knautia arvensis* is frequent in Wesley Wet Area from June to the first autumn frost, this species was not observed in flower during our study. Less frequent spring and summer herbaceous species are *Asclepias incarnata*, *A. syriaca*, *Desmodium glabellum*, *D. paniculatum*, *Euphorbia maculata*, *Geum vernum*, *Hypericum* spp., *Lepidium campestre*, *L. virginicum*, *Melilotus alba*, *Oxalis stricta*, *Plantago virginica*, *Potentilla recta,* and *Rumex crispus*. *Campanula rapunculoides*, *Convallaria majalis*, *Ipomoea hederacea, Melissa officinalis*, *Mirabilis nyctaginea*, and *Veronica arvensis* are found only on the edge of the field bordered by County Road 300 West. Late summer to fall dominants include *Aster novae-angliae*, *A. pilosus*, *Cirsium discolor*, *Euthamia graminifolia*, *Oenothera biennis*, *Solidago canadensis,* and *Vernonia gigantea*. The most common grass species include *Dactylis glomerata*, *Echinochloa crusgalli*, *Festuca elatior*, *Setaria glauca*, and *S. faberi* (in the disturbed areas). Spike-rush, *Eleocharis tenuis*, is also common.

Fields and Ponds. Farmer's Field (Figure 3) is mowed periodically (once in 1995 and twice in 1996). Therefore, the field is an example of a repeatedly disturbed area. In addition, the northern half of this field is usually wet through early summer due to runoff. Starting just north of Southern Pond, water flows through the field into West Ginn Run. Several small woody plants grow in this field, especially near the edge of the woods. Since these plants are cut periodically, they are small sprouts. The species present include *Acer saccharinum*, *A. saccharum*, *Campsis radicans*, *Elaeagnus umbellata*, *Fraxinus pennsylvanica*, *Gleditsia triacanthos*, *Platanus occidentalis*, *Rosa multiflora*, *R. setigera*, and several species of oaks. With the exception of the grasses, no herbaceous species occur in large numbers in this field. The most frequent species are *Aster pilosus*, *Helianthus decapetalus* (along the edge of the woods), *Lobelia inflata*, *Leonurus marrubiastrum*, *Lycopus americanus*, *Mimulus ringens* (both purple and white flowers are common), *Polygonum pensylvanicum,* and *Teucrium canadense*. Other flowering herbaceous plants include *Agalinis tenuifolia*, *Agastache scrophulariaefolia*, *Allium vineale*, *Apocynum cannabinum*, *Erechtites hieracifolia*, *Euphorbia maculata*, *Monarda clinopodia* (on the edge of Farmer's Field bordered by Lily Meadow), *Penthorum sedoides*, *Physalis longifolia*, *Polygonum aviculare*, *Potentilla norvegica*, *P. simplex*, *Rorippa palustris*, *Scirpus atrovirens*, *Sida spinosa*, *Solanum nigrum*, *Solidago canadensis*, *Sonchus asper*, and *Typha angustifolia*. Herbaceous species growing only in tilled soil along the edge of Farmer's Field include *Abutilon theophrasti*, *Chenopodium album*, *Hibiscus trionum*, *Solanum carolinense*, *Verbascum blattaria*, and *Xanthium strumarium*. Species found only in Farmer's Field include *Abutilon*

theophrasti, *Allium vineale*, *Hibiscus trionum*, *Leonurus marrubiastrum*, *Sida spinosa*, *Sonchus asper*, and *Typha angustifolia*. The most common grass species in the field are *Dactylis glomerata*, *Echinochloa crusgalli*, *Festuca elatior*, *Setaria glauca,* and *S. faberi*.

Southern Pond lies near the southern end of Farmer's Field, and several wet-site species are found on its edges, including *Asclepias incarnata*, *Alisma subcordatum*, *Bidens frondosa*, *Epilobium coloratum*, *Eupatorium perfoliatum*, *Hypericum mutilum*, *Mentha arvensis*, *Phyla lanceolata*, *Polygonum hydropiperoides*, *Polygonum pensylvanicum*, *Sium suave*, *Verbena hastata,* and *Cinna arundinacea*. *Cephalanthus occidentalis* grows at the edge of the woods between Southern Pond and South Vernal Pool. Three species growing in shallow water along the edge of the pond are *Juncus tenuis*, *Lindernia dubia*, and *Polygonum hydropiperoides*. *Nuphar advena*, which occurs only in the pond, is abundant. *Cirsium arvense* is common on the high, dry, southern bank of the pond.

The two smaller fields, Small Field and Wrigley Field, that lie within North Woods, are dominated by grasses, such as *Festuca elatior* and bulrush (*Scirpus atrovirens*), as well as shrubs, such as *Campsis radicans*, *Elaeagnus umbellata*, *Rosa* spp., and *Rubus* spp. Only a few flowering herbaceous species occur in these fields, most from the Asteraceae, including *Aster pilosus*, *A. novae-angliae*, *Chrysanthemum leucanthemum*, *Cirsium discolor*, and *Solidago canadensis*. *Trifolium pratense* is also common. Both of these fields occur in the southwest corner of North Woods, an area having standing water throughout the spring and early summer. Thus, the most frequent tree species bordering the fields in these wet areas is the moisture-tolerant *Acer saccharinum*. On slightly higher but still wet ground, *Fraxinus pennsylvanica* and *Populus deltoides* are common. On the highest and driest ground bordering these fields, other tree species occur, including *Acer saccharum*, *Juglans nigra*, *Liriodendron tulipifera*, *Platanus occidentalis*, and *Quercus muehlenbergii*. The only specimen of *Catalpa speciosa* in Ginn Woods occurs on the dry border of Wrigley Field.

Vernal Pools and Other Wet Areas in the Mesic Woods. A number of vernal pools and low wet areas are located throughout the mesic woods. Most are relatively small in size, although West Vernal Pool (located in North Woods) and South Vernal Pool (located in Nixon Woods) are large. The most common shrub associated with the small pools and wet areas is *Lindera benzoin*, which typically grows around the edge of these areas. These pools usually dry up in early summer. As they dry, the most frequent plants inhabiting them are *Boehmeria cylindrica*, *Laportea canadensis*, *Menispermum canadense*, *Pilea pumila*, and *Sium suave*. The only site of *Collinsia verna* is on the edge of an open wet area near the border of North and South Woods.

West Vernal Pool is the largest and most open of the vernal pools. Although much of this pool lies within the mesic woods, its entire south side extends out of the woods into an open field. This pool remains wet well into the summer. When the pool finally dries, the surface, especially in the areas were the water was deepest, is composed of a thick humus layer. Although this layer becomes

so dry that few plants can grow in it, *Acalypha rhomboidea* is abundant in late summer and fall. *Boehmeria cylindrica*, *Campsis radicans*, *Pilea pumila*, and *Sium suave* grow toward the edges of West Vernal Pool. Overstory trees include *Acer saccharinum*, *Populus deltoides*, *Quercus bicolor*, and *Q. macrocarpa*. The section of West Vernal Pool that extends into the open field is dominated from late summer through fall by *Bidens vulgata*, *Cyperus strigosus*, *Xanthium strumarium*, and *Cuscuta gronovii* (which is parasitic primarily on *X. strumarium*). The open area is ringed with *Cephalanthus occidentalis*. On the east edge, *Ambrosia artemisiifolia*, *Phyla lanceolata*, and *Pilea pumila* are common. The woods lying between this open area and Wrigley Field is wet and contains a nearly pure stand of small (less than 10 cm dbh) *Acer saccharinum*. The entire western edge of West Vernal Pool is bordered by County Road 300 West, and the most common woody border species are *Acer negundo*, *Cephalanthus occidentalis*, *Gymnocladus dioica*, *Salix nigra*, and *Ulmus rubra*.

South Vernal Pool receives its water from Southern Pond, drains into Central Ginn Run, and lies entirely within the mesic woods. Like West Vernal Pool, South Vernal Pool is wet well into the summer, and, upon drying, exposes a thick humus layer in which few plants grow. The most common herbaceous plants are *Boehmeria cylindrica*, *Pilea pumila*, *Sium suave*, and *Lycopus uniflorus* (which forms a large stand here). The only other site where *L. uniflorus* is found is in East Meadow. On the north side of the connection between Southern Pond and South Vernal Pool in the mesic woods is a raised, dry area. This rise is the only site were *Amelanchier arborea* and *Anemonella thalictroides* are found. In addition, *Jeffersonia diphylla* occurs here.

Marshy Area. The marsh habitat (Figure 3) is small but contains one of the richest communities in the study area. Although most of the area is wet, the northeastern corner is slightly elevated and somewhat drier. The only woody species in the marsh are a small tree, *Crataegus* sp., and *Elaeagnus umbellata*, both of which occur in the drier corner. Herbaceous plants include *Alisma subcordatum*, *Bidens cernua*, *B. frondosa*, *Carex* spp., *Chelone glabra*, *Cuscuta gronovii* (parasitic on teasel), *Dipsacus sylvestris*, *Epilobium coloratum*, *Eupatorium perfoliatum*, *Impatiens capensis* (abundant), *I. pallida* (infrequent), *Iris virginica* var. *shrevei*, *Lemna minor*, *Lobelia siphilitica*, *Lycopus virginicus*, *Mentha arvensis*, *Mimulus ringens*, *Penthorum sedoides*, *Phytolacca americana*, *Pilea pumila*, *Polygonum punctatum*, *Scutellaria lateriflora*, *Typha latifolia*, *Valerianella umbilicata*, *Verbena urticifolia*, *Vernonia gigantea*, *Veronica catenata*, and *Cinna arundinacea*. Herbaceous plants that occur along the road's edge and dry corner of the marsh include *Ambrosia artemisiifolia*, *A. trifida*, *Anemone virginiana*, *Asclepias syriaca*, *Eupatorium purpureum*, *Euphorbia maculata*, *E. nutans*, *Gleditsia triacanthos*, *Hypericum perforatum*, *Lactuca biennis*, *Lepidium campestre*, *Polygonum aviculare*, *P. scandens*, *Penstemon digitalis*, *Ruellia strepens*, *Saponaria officinalis*, *Solidago canadensis*, *Tragopogon dubius*, *Verbesina alternifolia*, and *Vernonia gigantea*.

Alluvial Plain. The alluvial plain lies between the confluence of East and West Ginn Runs and the marshy area at the Eaton-Wheeling Pike (Figure 3). The seasonal creek (Ginn Run) running through the alluvial plain dries by mid to late summer, but the banks, plain, and creek bed retain their moisture. Although contiguous with the marshy area, the plants growing on the alluvial plain are notably different, possibly due to the fact that the marshy area is fully open, while the alluvial plain lies within the woods. Common plant species from spring through early summer are *Claytonia virginica*, *Erigenia bulbosa*, *Floerkea proserpinacoides*, *Hepatica acutiloba* (on the creek bank), *Iodanthus pinnatifidus*, *Ranunculus hispidus* var. *caricetorum*, *R. recurvatus*, *Symplocarpus foetidus*, *Valeriana pauciflora*, and *Valerianella umbilicata*. In the spring of 1995, two flowering specimens of *Cardamine pratensis* were observed on the alluvial plain, but due to the scarcity of plants, no herbarium specimens were collected. This species was not observed in the same area in the springs of 1996 or 1997. Species common later in the season include *Aster lanceolatus* var. *simplex, A. lateriflorus*, *Cuscuta gronovii* (parasitic on several different plant species), *Impatiens capensis*, *Laportea canadensis* (abundant), *Lobilia cardinalis*, *L. siphilitica*, *Penthorum sedoides*, *Pilea pumila*, *Samolus floribundus* (in shallow water), *Stachys tenuifolia*, and *Urtica dioica*. *Ribes americanum* also grows on the alluvial plain. The plant species found only on the alluvial plain are *S. foetidus*, *V. pauciflora*, *C. pratensis*, and *R. americanum*.

Creek Banks. Several plant species are frequently associated with the seasonal creeks, growing either in the creek, in the moist creek bed, or on the creek bank. Species growing in the creeks before they dry are *Cardamine pensylvanica* and *Samolus floribundus* in West Ginn Run just south of the alluvial plain and *Cardamine rhomboidea* in East Ginn Run north of East Meadow. Plants growing in the creek beds after the creeks dry include *Lobelia cardinalis* (West Ginn Run between East Meadow and the marshy area) and *Phlox paniculata* (widespread). Plants found only on the creek banks are *Polystichum acrostichoides* (West Ginn Run just south of the alluvial plain) and *Viburnum acerifolium*. Plants found primarily on the creek banks include *Hepatica acutiloba*, *Prenanthes altissima* (the only flowering specimens were found along West Ginn Run just south of the alluvial plain), and *Solidago caesia* (widespread). Although the later two species are common throughout the woods, they are more frequent on the creek banks. The only site where *Lycopodium lucidulum* is found is approximately 50 feet west of the south end of the alluvial plain.

Edges of the Woods. The edges of the woods have the greatest variety of plants. Additionally, the edges along County Road 300 West and the Eaton-Wheeling Pike (the upper west and north side of Ginn Woods) have a noticeably different plant community than the edge along the east side of the woods. Along the roads, the most abundant shrub was *Cornus drummondii*. Other frequent to abundant shrubs and trees include *Acer negundo*, *A. saccharum*, *Carpinus caroliniana*, *Celtis occidentalis*, *Gymnocladus dioica*, *Ostrya virginiana*, *Rubus*

occidentalis, *Salix nigra*, *Sambucus canadensis*, *Staphylea trifolia*, and *Ulmus rubra*. Less common woody species include *Acer nigrum* (along County Road 300 West), *Cornus racemosa*, *Crataegus punctata*, *Rosa multiflora*, *Rubus pensilvanicus*, and *Quercus* spp. The most frequent vines are *Menispermum canadense*, *Parthenocissus quinquefolia*, *Toxicodendron radicans*, and *Vitis vulpina*. Less frequent vines include *Dioscorea villosa*, *Smilax herbacea*, and *S. hispida*. Along County Road 300 West and the Eaton-Wheeling Pike, the most abundant herbaceous plants growing from the edge of the woods to the mowed area next to the road include *Alliaria petiolata*, *Ambrosia trifida*, *Aster shortii*, *Campanula americana*, *Dicentra cucullaria*, *Erigeron annuus*, *E. philadelphicus*, *Geum canadense*, *Geranium maculatum*, *Helianthus decapetalus*, *Hydrophyllum appendiculatum*, *Oxalis stricta*, *Sisyrinchium angustifolium*, and *Stachys tenuifolia*. Less abundant herbaceous species in the same area include *Ambrosia artemisiifolia*, *Aster cordifolius*, *A. novae-angliae*, *Cirsium vulgare*, *Conium maculatum*, *Dactylis glomerata*, *Desmodium glabellum*, *Dipsacus sylvestris*, *Elymus hystrix*, *Eupatorium purpureum*, *Galium concinnum*, *G. obtusum*, *G. triflorum*, *Heliopsis helianthoides*, *Lactuca biennis*, *L. canadensis*, *Lysimachia ciliata*, *Monarda clinopodia*, *Oenothera biennis*, *Pastinaca sativa*, *Phleum pratense*, *Polygonatum biflorum*, *P. pubescens*, *Ratibida pinnata*, *Rudbeckia hirta* var. *pulcherrima*, *Ruellia strepens*, *Scutellaria incana*, *S. nervosa* var. *calvifolia*, *Sisymbrium altissimum*, *Teucrium canadense*, *Tradescantia subaspera*, *Verbascum thapsus*, and *Verbena urticifolia*. Herbaceous plants found in the mowed area next to the road are *Achillea millefolium*, *Barbarea vulgaris*, *Capsella bursa-pastoris*, *Cerastium arvense*, *C. vulgatum*, *Cichorium intybus*, *Daucus carota*, *Lepidium campestre*, *Silene latifolia*, *Medicago lupulina*, *Plantago lanceolata*, *P. rugelii*, *Prunella vulgaris*, *Stellaria media*, *Taraxacum officinale*, *Tragopogon dubius*, *Trifolium pratense*, *T. repens*, *Veronica arvensis*, and *V. serpyllifolia.*

The shrubs and trees along the east edge of the woods are analogous to those described above except that *Cornus drummondii*, *Carpinus caroliniana*, and *Ostrya virginiana* are much less common and *Acer nigrum*, *Celtis occidentalis*, *Rosa multiflora*, *Rubus occidentalis*, *R. pensilvanicus*, *Sambucus canadensis*, and *Staphylea trifolia* are more abundant. Additional frequent woody species on the eastern edge of Ginn Woods include *Aesculus glabra*, *Fraxinus pennsylvanica*, *Gleditsia triacanthos*, *Juglans nigra*, *Liriodendron tulipifera*, and *Rosa setigera*. Frequent vines are *Menispermum canadense*, *Parthenocissus quinquefolia*, *Toxicodendron radicans*, and *Vitis vulpina*. Less frequent to rare vines include *Smilax herbacea* and *Vitis riparia*. The east edge is bordered along its entire length by several different agricultural fields. Herbaceous species occurring from the edge of the woods to the plowed fields include *Alliaria petiolata*, *Ambrosia artemisiifolia*, *A. trifida*, *Barbarea vulgaris*, *Bidens frondosa*, *B. vulgata*, *Carex* spp., *Chaerophyllum procumbens*, *Cirsium arvense*, *C. vulgare*, *Erigeron canadensis*, *Equisetum arvensis*, *Eupatorium perfoliatum*, *Euthamia graminifolia*, *Glechoma hederacea*, *Helianthus decapetalus*, *Lactuca serriola*, *Lamium purpureum*, *Lobelia inflata*, *L. siphilitica*, *Physalis longifolia* var. *sub-*

glabrata, *Phytolacca americana*, *Senecio glabellus*, *Solanum nigrum*, *Solidago canadense*, *Triosteum aurantiacum*, *Verbascum blattaria* (both the yellow and white flower phenotypes), *Verbena hastata*, and *V. urticifolia*.

DISCUSSION

Of the nearly 400 plant species found in Ginn Woods and associated areas, many are typical of old-growth beech-maple association forests. The subdominant canopy tree species, *Quercus rubra*, *Tilia americana*, *Liriodendron tulipifera*, *Fraxinus americana*, *Ulmus rubra*, *Celtis occidentalis*, and *Prunus serotina,* are commonly found in beech-maple woods (Lindsey and Escobar, 1976). Shrub species found in Ginn Woods that are included in the shrub layer of other beech-maple woods are *Asimina triloba*, *Lindera benzoin*, *Sambucus canadensis*, *Euonymus atropurpureus,* and *Viburnum acerifolium* (Petty and Jackson, 1966). Levenson and Jackson (1980) sampled the ground layer of 21 old-growth beech-maple forests in Indiana, Michigan, and western Ohio and found a total of 174 species. Ginn Woods contains 109 of these species, including 43 of the 50 most important species. The 58 exotic species in Ginn Woods are found predominantly along the woods' edge or in open areas (*e.g.*, the meadows, fields, and Wesley Wet Area). The only exotic species which is beginning to invade the interior of the woods is *Alliaria petiolata*. The exotic species comprise only about 15% of the total species, clearly indicating that the native flora is dominant. However, the invasion of non-native species, such as *Alliaria petiolata,* into the interior of the woods is a threat that should be monitored and controlled. The vegetation currently growing in the interior of the woods resembles pre-settlement vegetation (Lindsey, *et al.*, 1965). With the fragmentation of regional ecosystems into isolated forest systems as a result of urbanization and agricultural development, the maintenance and preservation of original communities becomes more difficult. Ginn Woods is one of the few remaining remnants of old-growth forest in east-central Indiana and serves as an important reserve for the native flora of this area. The inventory provided in this study establishes important baseline data with which future studies can be compared.

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CATALOG OF THE VASCULAR PLANTS OF GINN WOODS ARRANGED ALPHABETICALLY BY FAMILY

DIVISION LYCOPODIOPHYTA

Lycopodiaceae — Clubmoss Family

Lycopodium lucidulum Michx.
Shining clubmoss; rare[1]; 50 feet west of southern end of alluvial plain[2]; BSUH 7973.

DIVISION EQUISETOPHYTA

Equisetaceae — Horsetail Family

Equisetum arvense L.
Field horsetail; rare; road's edge along Eaton-Wheeling Pike at marshy area and woods' edge east of alluvial plain; BSUH 7974.

DIVISION POLYPODIOPHYTA

Adiantaceae — Maidenhair Fern Family

Adiantum pedatum L.
Northern maidenhair fern; frequent; mesic woods; BSUH 7975.

Aspleniaceae — Spleenwort Family

Athyrium pycnocarpon (Sprengel) Tidestrom
Glade-fern; frequent; mesic woods; BSUH 7976.

§[3] *Cystopteris protrusa* (Weatherby) Blasdell
Lowland bladder-fern; frequent; mesic woods; BSUH 7977.

Dryopteris goldiana (Hook.) Gray
Goldie's wood-fern; infrequent; mesic woods; BSUH 7978.

Dryopteris carthusiana (Villars) H.P. Fuchs (*D. spinulosa*)
Toothed wood-fern; frequent; mesic woods; BSUH 7979.

Polystichum acrostichoides (Michx.) Schott.
Christmas fern; rare; West Ginn Run creek bank just south of the alluvial plain; BSUH 7980.

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[1] Relative abundance: rare = < 3 sites; infrequent = occasional, not widespread throughout the woods; frequent = common throughout the woods, typically not in great numbers (although occasionally a species may be locally abundant); and abundant = found throughout the woods, often locally abundant in suitable habitat.

[2] Typical habitat: In an attempt to simplify the presentation of the results, descriptive names have been assigned to the different habitats; these are defined in Figure 3.

[3] The symbols on the left refer to the following: * = naturalized (exotic), non-native species; § = county record; + = probably planted.

Onocleaceae — Sensitive Fern Family

Onoclea sensibilis L.
Sensitive fern; frequent; mesic woods; BSUH 7981.

Ophioglossaceae — Adder's Tongue Family

Botrychium virginianum (L.) Swartz
Rattlesnake fern; frequent; mesic woods; BSUH 7982.

DIVISION MAGNOLIOPHYTA (Flowering Plants)

Acanthaceae — Acanthus Family

§*Ruellia strepens* L.
Smooth ruellia; infrequent; woods' edge; BSUH 7983.

Aceraceae — Maple Family

Acer negundo L.
Boxelder; frequent; woods' edge; BSUH 7984.

Acer nigrum Michx. f.
Black maple; infrequent; woods' edge; BSUH 7985.

Acer rubrum L.
Red maple; infrequent; South Woods; BSUH 7986.

Acer saccharinum L.
Silver maple; frequent; mesic woods, especially around West Vernal Pool; BSUH 7987.

Acer saccharum Marsh
Sugar maple; abundant; mesic woods; BSUH 7988.

Alismataceae — Water-Plantain Family

Alisma subcordatum Raf.
Southern water plantain; infrequent; Southern Pond, the marshy area, and the southwestern corner of Wesley Wet Area; BSUH 7989.

Anacardiaceae — Cashew Family

Toxicodendron radicans (L.) Kuntze
Common poison ivy; abundant; edges and open areas; BSUH 7990.

Annonaceae — Custard-Apple Family

Asimina triloba (L.) Dunal.
Pawpaw; frequent; west side of mesic woods; BSUH 7991.

Apiaceae — Carrot Family

Chaerophyllum procumbens (L.) Crantz
Spreading chervil; infrequent; northeast edge; BSUH 7992.

*§ *Conium maculatum* L.
Poison hemlock; rare; road's edge; BSUH 7993.

Cryptotaenia canadensis (L.) DC.
Honewort; abundant; mesic woods; BSUH 7994.

* *Daucus carota* L.
Wild carrot; frequent; road's edge and Wesley Wet Area; BSUH 7995.

Erigenia bulbosa (Michx.) Nutt.
Harbinger of spring; abundant; mesic woods; BSUH 7996.

Osmorhiza claytonii (Michx.) Clarke
Bland sweet cicely; abundant; mesic woods; BSUH 7997.

Osmorhiza longistylis (Torr.) DC.
Aniseroot; abundant; mesic woods; BSUH 7998.

* *Pastinaca sativa* L.
Parsnip; infrequent; road's edge; BSUH 7999.

Sanicula canadensis L.
Canada sanicle; infrequent; road's edge along Eaton-Wheeling Pike; BSUH 8000.

Sanicula gregaria Bickn.
Cluster sanicle; abundant; mesic woods; BSUH 8001.

§ *Sium suave* Walter
Water parsnip; frequent; pond's edge and vernal pools; BSUH 8002.

Thaspium barbinode (Michx.) Nutt.
Bearded meadow-parsnip; abundant; mesic woods; BSUH 8003.

Zizia aurea (L.) Koch
Common golden alexanders; infrequent; mesic woods on edge of Lily Meadow; BSUH 8004.

Apocynaceae — Dogbane Family

Apocynum cannabinum L.
Hemp dogbane; infrequent; Wesley Wet Area and Farmer's Field; BSUH 8005.

Aquifoliaceae — Holly Family

Ilex verticillata (L.) Gray
Winterberry; rare; northeast corner of North Woods; BSUH 8006.

Araceae — Arum Family

Arisaema dracontium (L.) Schott
Green dragon; rare; northeast corner of North Woods and west of East Meadow; BSUH 8007.

Arisaema triphyllum (L.) Schott
Jack-in-the-pulpit; abundant; mesic woods; BSUH 8008.

Symplocarpus foetidus (L.) Nutt.
Skunk cabbage; rare; alluvial plain; BSUH 8009.

Aristolochiaceae — Birthwort Family

Asarum canadense L.
Wild ginger; abundant; mesic woods; BSUH 8010.

Asclepiadaceae — Milkweed Family

Asclepias incarnata L.
Swamp milkweed; infrequent; Wesley Wet Area and pond's edge; BSUH 8011.

Asclepias syriaca L.
Common milkweed; infrequent; road's edge near marshy area; BSUH 8012.

Asteraceae — Aster Family

**Achillea millefolium* L.
Common yarrow; infrequent; road's edge; BSUH 8013.

Ambrosia artemisiifolia L.
Common ragweed; frequent; road's edge and east edge; BSUH 8014.

Ambrosia trifida L.
Giant ragweed; abundant; along Eaton-Wheeling Pike, east edge, and open areas in mesic woods; BSUH 8015.

Antennaria plantaginifolia (L.) Richardson
Plantain pussytoes; infrequent; Wesley Wet Area; BSUH 8016.

**Arctium minus* Schk.
Common burdock; rare; road's edge along Eaton-Wheeling Pike; BSUH 8017.

Aster cordifolius L.
Common blue heart-leaved aster; frequent; mesic woods; BSUH 8018.

§*Aster lanceolatus* Willd. var. *simplex* (Willd.) Jones
Eastern lined aster; frequent; mesic woods; BSUH 8019.

Aster lateriflorus (L.) Britton
Goblet aster; frequent; mesic woods; BSUH 8020.

Aster novae-angliae L.
New England aster; frequent on road's edge; abundant in Wesley Wet Area and fields; BSUH 8021.

Aster pilosus Willd.
Awl aster; abundant in Wesley Wet Area and Farmer's Field; BSUH 8022.

Aster sagittifolius Willd.
Arrow-leaved aster; frequent; mesic woods; BSUH 8023.

§*Aster shortii* Lindley
Midwestern blue heart-leaved aster; frequent; mesic woods; BSUH 8024.

§*Bidens cernua* L.
Bur-marigold; infrequent; marshy area; BSUH 8025.

Bidens frondosa L.
Devil's beggar ticks; frequent; Farmer's Field, marshy area, and southern end of east edge; BSUH 8026.

Bidens vulgata Greene
Tall beggar ticks; frequent; east edge and West Vernal Pool; BSUH 8027.

**Chrysanthemum leucanthemum* L.
Oxeye daisy; abundant in Wesley Wet Area; BSUH 8028.

*§*Cichorium intybus* L.
Chicory; infrequent; road's edge; BSUH 8029.

*§*Cirsium arvense* (L.) Scop.
Canada thistle; infrequent; *Gymnopilus* Meadow; BSUH 8030.

Cirsium discolor (Muhl.) Sprengel.
Field thistle; frequent; Wesley Wet Area and woods' edge; BSUH 8031.

**Cirsium vulgare* (Savi) Tenore
Bull thistle; rare; road's edge; BSUH 8032.

Conyza canadensis (L.) Cronq.
Horseweed; infrequent; east edge; BSUH 8033.

§*Erechtites hieracifolia* (L.) Raf.
Fireweed; infrequent; *Gymnopilus* Meadow, north end of Farmer's Field, and North Vernal Pool; BSUH 8034.

Erigeron annuus (L.) Pers.
Annual fleabane; frequent; *Gymnopilus* Meadow, edge, and mesic woods; BSUH 8035.

Erigeron philadelphicus L.
Philadelphia daisy; frequent; road's edge; BSUH 8036.

Eupatorium perfoliatum L.
Boneset; frequent; road's edge, east edge, pond bank, and marshy area; BSUH 8037.

Eupatorium purpureum L.
Purple-node Joe-pye weed; infrequent; *Gymnopilus* Meadow and edge; BSUH 8038.

Eupatorium rugosum Houttuyn
White snakeroot; frequent; mesic woods; BSUH 8039.

§*Euthamia graminifolia* (L.) Nutt.
Common flat-topped goldenrod; frequent; Wesley Wet Area and east edge; BSUH 8040.

Helianthus decapetalus L.
Forest sunflower; abundant; woods' edge and open areas in mesic woods; BSUH 8041.

Heliopsis helianthoides (L.) Sweet
Sunflower everlasting; rare; road's edge; BSUH 8042.

§*Lactuca biennis* (Moench) Fern.
Tall blue lettuce; frequent; road's edge; BSUH 8043.

Lactuca canadensis L.
Tall lettuce; frequent; edge; BSUH 8044.

§*Lactuca serriola* L.
Prickly lettuce; rare; Wesley Wet Area; BSUH 8045.

§*Matricaria matricarioides* (Less.) Porter
Pineapple weed; frequent; road's edge along County Road 300 West; BSUH 8046.

Polymnia canadensis L.
Pale-flowered leaf-cup; abundant; mesic woods; BSUH 8047.

Prenanthes altissima L.
Tall white lettuce; frequent but rarely flowering; mesic woods (flowering specimens on the creek bank of West Ginn Run just south of the alluvial plain); BSUH 8048.

Ratibida pinnata (Vent.) Barnhart
Globular coneflower; rare; road's edge; BSUH 8049.

Rudbeckia hirta L. var. *pulcherrima* Farw.
Black-eyed Susan; rare; road's edge along Eaton-Wheeling Pike; BSUH 8050.

Rudbeckia laciniata L.
Cutleaf coneflower; rare; road's edge; BSUH 8051.

§*Senecio aureus* L.
Round-leaved groundsel; frequent; mesic woods; BSUH 8052.

§*Senecio glabellus* Poir.
Yellowtop; infrequent; *Gymnopilus* Meadow, east edge, and open areas in mesic woods; BSUH 8053.

Senecio obovatus Muhl.
Running groundsel; frequent; mesic woods; BSUH 8054.

Solidago caesia L.
Axillary goldenrod; frequent; mesic woods; BSUH 8055.

§*Solidago canadensis* L.
Common goldenrod; frequent; Wesley Wet Area, fields, east edge, and marshy area; BSUH 8056.

§*Solidago flexicaulis* L.
Zigzag goldenrod; frequent; mesic woods; BSUH 8057.

**Sonchus asper* (L.) Hill
Prickly sow thistle; infrequent; Farmer's Field; BSUH 8059.

*§*Taraxacum officinale* Weber
Common dandelion; frequent; road's edge; BSUH 8060.

*§*Tragopogon dubius* Scop.
Fistulous goat's-beard; infrequent; road's edge; BSUH 8061.

**Tragopogon pratensis* L.
Showy goat's-beard; infrequent; road's edge; BSUH 8062.

§*Verbesina alternifolia* (L.) Britt.
Wingstem; infrequent; woods' edge; BSUH 8063.

Vernonia gigantea (Walter) Trel.
Tall ironweed; infrequent; Wesley Wet Area and marshy area; BSUH 8064.

§*Xanthium strumarium* L.
Common cocklebur; frequent; West Vernal Pool, Wesley Wet Area, and Farmer's Field; BSUH 8065.

Balsaminaceae — Touch-Me-Not Family

Impatiens capensis Meerb.
Orange touch-me-not; frequent; marshy area and mesic woods; BSUH 8066.

§*Impatiens pallida* Nutt.
Yellow touch-me-not; frequent; mesic woods; BSUH 8067.

Berberidaceae — Barberry Family

Caulophyllum thalictroides (L.) Michx.
Blue cohosh; frequent; mesic woods; BSUH 8068.

Jeffersonia diphylla (L.) Pers.
Twinleaf; infrequent; patches in mesic woods; BSUH 8069.

Podophyllum peltatum L.
Mayapple; abundant; mesic woods; BSUH 8070.

Betulaceae — Birch Family

Carpinus caroliniana Walter
Hornbeam; frequent; mesic woods; BSUH 8071.

§*Ostrya virginiana* (Miller) Koch
Hop-hornbeam; frequent; mesic woods; BSUH 8072.

Bignoniaceae — Trumpet-Creeper Family

§*Campsis radicans* (L.) Seemann
Trumpet creeper; frequent; Small Field, Wesley Wet Area, and edge of West Vernal Pool; BSUH 8073.

§*Catalpa speciosa* Warder
Northern catalpa; rare; one tree on edge of Wrigley Field; BSUH 8074.

Boraginaceae — Borage Family

Hackelia virginiana (L.) Johnston
Stickseed; infrequent; *Gymnopilus* Meadow and mesic woods; BSUH 8075.

Mertensia virginica (L.) Pers.
Eastern bluebell; rare; two plants in North Woods northeast of the marshy area; BSUH 8076.

Brassicaceae — Mustard Family

*§*Alliaria petiolata* (Bieb.) Cavara & Grande
Garlic mustard; frequent; road's edge along Eaton-Wheeling Pike, east edge, and occasional patches in mesic woods; BSUH 8077.

**Barbarea vulgaris* R. Br.
Yellow rocket; infrequent; Wesley Wet Area and east edge; BSUH 8078.

**Capsella bursa-pastoris* (L.) Medikus
Shepherd's purse; frequent; road's edge; BSUH 8079.

Cardamine concatenata (Michx.) Schwarz
Five-parted toothwort; abundant; mesic woods; BSUH 8080.

Cardamine douglassii Britt.
Pink spring cress; abundant; mesic woods; BSUH 8081.

§*Cardamine pensylvanica* Muhl.
Pennsylvania bitter cress; rare; West Ginn Run south of alluvial plain; BSUH 8082.

Cardamine rhomboidea (Pers.) DC.
Spring cress; rare; East Ginn Run north of East Meadow; BSUH 8083.

Iodanthus pinnatifidus (Michx.) Steud.
Purple rocket; infrequent; Lily Meadow and southern end of marshy area; BSUH 8084.

**Lepidium campestre* (L.) R. Br.
Field cress; infrequent; road's edge; BSUH 8085.

Lepidium virginicum L.
Poor-man's peppergrass; infrequent; road's edge; BSUH 8086.

§*Rorippa palustris* (L.) Besser var. *fernaldiana* (Butters & Abbe) Stuckey.
Common yellow cress; frequent; Farmer's Field and east edge; BSUH 8087.

*§*Sisymbrium altissimum* L.
Tumbling mustard; infrequent; road's edge; BSUH 8088.

Caesalpiniaceae — Caesalpinia Family

Cercis canadensis L.
Redbud; infrequent; west end of Wesley Wet Area; BSUH 8089.

Gleditsia triacanthos L.
Honey locust; frequent; woods' edge and mesic woods; BSUH 8090.

Gymnocladus dioica (L.) Moench
Kentucky coffee-tree; infrequent; road's edge and mesic woods; BSUH 8091.

Campanulaceae — Bellflower Family

Campanula americana L.
Tall bellflower; frequent; mesic woods; BSUH 8092.

§+*Campanula rapunculoides* L.
Creeping bellflower; infrequent; road's edge along Wesley Wet Area; BSUH 8093.

§*Lobilia cardinalis* L.
Cardinal flower; infrequent; East Meadow and creek bed of East Ginn Run to alluvial plain; BSUH 8094.

§*Lobelia inflata* L.
Indian tobacco; frequent; Farmer's Field and east edge; BSUH 8095.

Lobelia siphilitica L.
Great lobelia; frequent; road and field edges as well as mesic woods; BSUH 8096.

Caprifoliaceae — Honeysuckle Family

* *Lonicera maackii* (Rupr.) Maxim.
Honeysuckle; rare; northeast end of *Gymnopilus* Meadow (one plant, not flowering); BSUH 8058.

Sambucus canadensis L.
Common elderberry; infrequent; woods' edge along Eaton-Wheeling Pike and Lily Meadow; BSUH 8097.

Triosteum aurantiacum Bickn.
Perfoliate horse-gentian; infrequent; woods' edge on east side south of East Meadow, North Woods west of marshy area, and mesic woods; BSUH 8098.

§ *Viburnum acerifolium* L.
Dockmackie; infrequent; creek bank on East Ginn Run south of alluvial plain; BSUH 8099.

Viburnum prunifolium L.
Black haw; infrequent; North Woods; BSUH 8100.

Caryophyllaceae — Pink Family

Arenaria lateriflora L.
Blunt-leaved sandwort; infrequent; mesic woods; BSUH 8101.

Cerastium arvense L.
Field chickweed; infrequent; road's edge; BSUH 8102.

* *Cerastium vulgatum* L.
Mouse-ear chickweed; infrequent; road's edge; BSUH 8103.

* *Saponaria officinalis* L.
Bouncing bet; rare; road's edge at marshy area; BSUH 8104.

* *Silene latifolia* Poiret
White campion; rare; road's edge; BSUH 8105.

Silene virginica L.
Fire pink; frequent; mesic woods; BSUH 8106.

* *Stellaria media* (L.) Villars
Common chickweed; frequent; road's edge; BSUH 8107.

Celastraceae — Staff-Tree Family

Euonymus atropurpureus Jacq.
Wahoo; infrequent; mesic woods; BSUH 8108.

Euonymus obovatus Nutt.
Running strawberry bush; infrequent; northeast corner of North Woods; BSUH 8109.

Chenopodiaceae — Goosefoot Family

* *Chenopodium album* L.
Lamb's quarters; infrequent; Farmer's Field and east edge; BSUH 8110.

Clusiaceae — Mangosteen Family

§ *Hypericum mutilum* L.
Dwarf St. John's-wort; infrequent; Wesley Wet Area and pond edge; BSUH 8111.

*§ *Hypericum perforatum* L.
Common St. John's-wort; infrequent; Wesley Wet Area and road's edge; BSUH 8112.

Hypericum punctatum Lam.
Spotted St. John's-wort; infrequent; Wesley Wet Area; BSUH 8113.

Commelinaceae — Spiderwort Family

Tradescantia subaspera Ker Gawler
Wide-leaved spiderwort; frequent; mesic woods; BSUH 8114.

Convolvulaceae — Morning-Glory Family

Calystegia sepium (L.) B. Br.
Hedge bindweed; infrequent; woods' edge and road's edge; BSUH 8115.

§ *Ipomoea hederacea* Jacq.
Ivy-leaved morning glory; rare; road's edge along Wesley Wet Area; BSUH 8116.

Cornaceae — Dogwood Family

§ *Cornus alternifolia* L. f.
Pagoda dogwood; rare; Lily Meadow; BSUH 8117.

Cornus amomum Miller var. *schuetzeana* (Meyer) Richett
Knob-styled dogwood; rare; edge between Wesley Wet Area and Small Field; BSUH 8118.

§ *Cornus drummondii* Meyer
Rough-leaved dogwood; abundant; woods' edge; BSUH 8119.

Cornus florida L.
Flowering dogwood; infrequent; mesic woods; BSUH 8120.

Cornus racemosa Lam.
Northern swamp dogwood; infrequent; northwestern edge of mesic woods along County Road 300 West and North Woods; BSUH 8121.

Crassulaceae — Stonecrop Family

Sedum ternatum Michx.
Wild stonecrop; rare; one large patch along County Road 300 West; BSUH 8122.

Cuscutaceae — Dodder Family

§ *Cuscuta gronovii* Willd.
Common dodder; abundant in West Vernal Pool and infrequent in alluvial and marshy areas; BSUH 8123.

Cyperaceae — Sedge Family

Carex albursina Shel.
Sedge; mesic woods; PER[4] 2472.

Carex blanda Dew.
Sedge; mesic woods; PER 2473.

§ *Carex bromoides* Willd.
Sedge; edge of vernal pools; PER 2477.

§ *Carex careyana* Dew.
Sedge; moist woods; PER 2458.

Carex davisii Schw. & Torr.
Sedge; creek banks and edge of woods; PER 2479.

Carex gracilescens Steud.
Sedge; mesic woods; PER 2469.

Carex granularis Willd.
Sedge; moist clearing near creek; PER 2456.

Carex grayi Carey
Sedge; edges of vernal pools; PER 2476.

Carex grisea Wahl.
Sedge; creek banks and edge of woods; PER 2480.

Carex hirtifolia Mack.
Sedge; mesic woods; PER 2465.

Carex hitchcockiana Dew.
Sedge; mesic woods; PER 2471.

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[4] Specimens with a PER number (*i.e.*, *Carex* spp.) were collected by P.E. Rothrock and are on file in the Butler University Herbarium, Indianapolis, Indiana.

Carex jamesii Schw.
Sedge; mesic woods; PER 2460.

Carex laevivaginata (Kuek.) Mack.
Sedge; moist clearing near creek on north side; PER 2457.

Carex laxiculmis Schw.
Sedge; mesic woods; BSUH 8136.

§ *Carex laxiflora* Lam.
Sedge; mesic woods; PER 2466.

§ *Carex radiata* (Wahl.) Sm.
Sedge; mesic woods; PER 2475.

Carex rosea Schk. *ex* Willd. (*C. convoluta*)
Sedge; mesic woods; BSUH 8137.

Carex sparganiodes Willd.
Sedge; mesic woods; PER 2464.

§ *Carex woodii* Dew.
Sedge; mesic woods; PER 2468.

§ *Cyperus strigosus* L.
False nutsedge; frequent; wet areas; BSUH 8131.

§ *Eleocharis tenuis* (Willd.) Schultes var. *borealis* (Svenson) Gleason
Spike-rush; frequent; wet areas, especially Wesley Wet Area; BSUH 8132.

Scirpus atrovirens Willd.
Black bulrush; all fields; BSUH 8284.

Dioscoreaceae — Yam Family

Dioscorea villosa L.
Colic-root; rare; north edge of *Gymnopilus* Meadow; BSUH 8141.

Dipsacaceae — Teasel Family

*§ *Dipsacus sylvestris* Hudson
Common teasel; infrequent; road's edge and marshy area; BSUH 8142.

*§ *Knautia arvensis* (L.) Duby
Blue buttons; frequent in Wesley Wet Area (did not flower); BSUH 8124.

Elaeagnaceae — Oleaster Family

*§ *Elaeagnus umbellata* Thunb.
Autumn olive; infrequent; Wesley Wet Area, Farmer's Field, and marshy area; BSUH 8143.

Euphorbiaceae — Spurge Family

Acalypha rhomboidea Raf.
Rhombic copperleaf; frequent; West Vernal Pool, when dry; BSUH 8133.

§*Euphorbia maculata* L.
Milk purslane; infrequent; Wesley Wet Area and road's edge; BSUH 8144.

§*Euphorbia nutans* Lagasca
Eyebane; infrequent; road's edge; BSUH 8145.

Fabaceae — Pea Family

§*Desmodium glabellum* (Michx.) DC.
Tick trefoil; infrequent; Wesley Wet Area and road's edge; BSUH 8146.

§*Desmodium paniculatum* (L.) DC.
Panicled tick trefoil; infrequent; Wesley Wet Area; BSUH 8147.

**Medicago lupulina* L.
Black medick; frequent; road's edge; BSUH 8148.

**Melilotus alba* Medikus
White sweet clover; infrequent; Wesley Wet Area; BSUH 8149.

*§*Melilotus officinalis* (L.) Pallas
Yellow sweet clover; infrequent; woods' edge; BSUH 8150.

*§*Trifolium hybridum* L.
Alsike clover; frequent in Wesley Wet Area; BSUH 8151.

*§*Trifolium pratense* L.
Red clover; frequent; road's edge, Wesley Wet Area, and fields; BSUH 8152.

**Trifolium repens* L.
White clover; rare; road's edge and Wesley Wet Area; BSUH 8128.

Fagaceae — Beech Family

Fagus grandifolia Ehrh.
American beech; abundant; mesic woods; BSUH 8153.

Quercus alba L.
White oak; frequent; mesic woods; BSUH 8154.

Quercus bicolor Willd.
Swamp white oak; rare; West Vernal Pool; BSUH 8155.

Quercus macrocarpa Michx.
Bur oak; infrequent; West Vernal Pool and mesic woods; BSUH 8156.

Quercus muehlenbergii Engelm.
Yellow oak; frequent; mesic woods; BSUH 8157.

§ *Quercus palustris* Muenchh.
Pin oak; frequent; mesic woods; BSUH 8158.

§ *Quercus rubra* L.
Northern red oak; frequent; mesic woods; BSUH 8159.

Fumariaceae — Fumitory Family

§ *Dicentra cucullaria* (L.) Bernh.
Dutchman's breeches; abundant; mesic woods; BSUH 8160.

Geraniaceae — Geranium Family

Geranium maculatum L.
Wild geranium; abundant; mesic woods; BSUH 8161.

Grossulariaceae — Gooseberry Family

§ *Ribes americanum* Miller
Eastern black currant; rare; alluvial plain (5 plants); BSUH 8162.

§ *Ribes cynosbati* L.
Dogberry; infrequent; mesic woods; BSUH 8163.

Hippocastanaceae — Horse-Chestnut Family

Aesculus glabra Willd.
Ohio buckeye; abundant; mesic woods and edge; BSUH 8164.

Hydrophyllaceae — Waterleaf Family

Hydrophyllum appendiculatum Michx.
Biennial waterleaf; abundant; mesic woods; BSUH 8165.

§ *Hydrophyllum canadense* L.
Maple-leaved waterleaf; frequent; mesic woods; BSUH 8166.

Hydrophyllum macrophyllum Nutt.
Hairy waterleaf; abundant; mesic woods; BSUH 8167.

Hydrophyllum virginianum L.
Eastern waterleaf; abundant; mesic woods (this species flowers before the hairy waterleaf, *H. macrophyllum*); BSUH 8127.

Iridaceae — Iris Family

Iris virginica L. var. *shrevei* (Small) Anderson
Southern blue flag; rare; one patch in the marshy area; BSUH 8168.

Sisyrinchium angustifolium Miller
Blue-eyed grass; frequent; road's edge; BSUH 8169.

Juglandaceae — Walnut Family

Carya cordiformis (Wang.) Koch
Bitternut hickory; frequent; mesic woods; BSUH 8170.

§*Carya glabra* (Miller) Sweet
Pignut hickory; frequent; mesic woods; BSUH 8171.

§*Carya laciniosa* (Michx. f.) Loudon
Shellbark hickory; infrequent; mesic woods; BSUH 8172.

Carya ovata (Miller) Koch
Shagbark hickory; frequent; mesic woods; BSUH 8173.

Juglans nigra L.
Black walnut; frequent; mesic woods; BSUH 8174.

Juncaceae — Rush Family

§*Juncus tenuis* Willd. var. *dudleyi* (Wieg.) Herm.
Rush; abundant around pond; BSUH 8125.

Lamiaceae — Mint Family

Agastache nepetoides (L.) Kuntze
Catnip giant hyssop; rare; North Woods; BSUH 8175.

Agastache scrophulariaefolia (Willd.) Kuntze
Purple giant hyssop; infrequent; Farmer's Field; BSUH 8176.

Collinsonia canadensis L.
Northern horse balm; frequent; mesic woods; BSUH 8177.

**Glechoma hederacea* L.
Gill-over-the-ground; frequent; woods' edge; BSUH 8178.

**Lamium purpureum* L.
Red dead nettle; infrequent; woods' edge on east side; BSUH 8179.

*§*Leonurus marrubiastrum* L.
Horehound motherwort; frequent in Farmer's Field; BSUH 8180.

§*Lycopus americanus* Muhl.
American water horehound; infrequent; Farmer's Field and wet areas along east edge; BSUH 8181.

§*Lycopus uniflorus* Michx.
Northern water horehound; infrequent; East Meadow and South Vernal Pool; BSUH 8182.

Lycopus virginicus L.
Virginia water horehound; rare; marshy area (this species has been previously reported in Delaware County; Deam, 1940); BSUH 8183.

*§+*Melissa officinalis* L.
Lemon balm; rare; road's edge along Couny Road 300 West; BSUH 8184.

§*Mentha arvensis* L.
Field mint; infrequent; edge of Southern Pond and marshy area; BSUH 8185.

§ *Monarda clinopodia* L.
Basil bee-balm; infrequent; western edge of County Road 300 West (infrequent in Indiana, where the species is near the northern edge of its range); BSUH 8186.

**Prunella vulgaris* L.
Self-heal; frequent; Wesley Wet Area and edge (plants with white flowers frequent); BSUH 8187.

Scutellaria incana Biehler
Downy skullcap; infrequent; road's edge; BSUH 8188.

Scutellaria lateriflora L.
Mad-dog skullcap; frequent; mesic woods and marshy area; BSUH 8189.

§*Scutellaria nervosa* Pursh. var. *calvifolia* Fern.
Veined skullcap; infrequent; woods' edge; BSUH 8190.

Stachys tenuifolia Willd.
Smooth hedge nettle; frequent; woods' edge and open areas in mesic woods; BSUH 8191.

Teucrium canadense L.
American germander; infrequent; Farmer's Field; BSUH 8192.

Lauraceae — Laurel Family

Lindera benzoin (L.) Blume
Spicebush; abundant; wet areas in mesic woods; BSUH 8193.

Lemnaceae — Duckweed Family

§*Lemna minor* L.
Lesser duckweed; rare; marshy area; BSUH 8194.

Liliaceae — Lily Family

Allium tricoccum Ait.
Wild leek; frequent; mesic woods; BSUH 8195.

**Allium vineale* L.
Field garlic; infrequent; Farmer's Field; BSUH 8196.

*§+*Convallaria majalis* L.
Lily of the valley; rare; road's edge along County Road 300 West; BSUH 8197.

Erythronium albidum Nutt.
White trout lily; infrequent; mesic woods; BSUH 8198.

Erythronium americanum Gawler
Yellow trout lily; abundant; mesic woods; BSUH 8199.

§*Lilium michiganense* Farw.
Michigan lily; rare; Lily Meadow (about 25 plants), East Meadow (3 plants), and scattered in mesic woods; BSUH 8200.

§*Polygonatum biflorum* (Walter) Elliott
Smooth Solomon's seal; infrequent; woods' edge; BSUH 8201.

Polygonatum pubescens (Willd.) Pursh
Hairy Solomon's seal; infrequent; road's edge and mesic woods; BSUH 8202.

Smilacina racemosa (L.) Desf.
False Solomon's seal; abundant; mesic woods; BSUH 8203.

§*Trillium flexipes* Raf.
Bent trillium; abundant; mesic woods; BSUH 8204.

Trillium recurvatum Beck
Prairie trillium; abundant; mesic woods; BSUH 8205.

Trillium sessile L.
Toadshade; infrequent; South Woods; BSUH 8206.

Uvularia grandiflora Smith
Bellwort; abundant; mesic woods; BSUH 8207.

Limnanthaceae — Meadow-Foam Family

Floerkea proserpinacoides Willd.
False mermaid; abundant; mesic woods; BSUH 8208.

Magnoliaceae — Magnolia Family

§*Liriodendron tulipifera* L.
Tuliptree; frequent; mesic woods and east edge; BSUH 8209.

Malvaceae — Mallow Family

**Abutilon theophrasti* Medikus
Velvetleaf; infrequent; Farmer's Field (disturbed areas); BSUH 8210.

**Hibiscus trionum* L.
Flower-of-an-hour; infrequent; Farmer's Field (disturbed areas); BSUH 8211.

Sida spinosa L.
Prickly sida; infrequent; Farmer's Field; BSUH 8212.

Menispermaceae — Moonseed Family

Menispermum canadense L.
Moonseed; frequent; mesic woods and woods' edge; BSUH 8213.

Monotropaceae — Indian Pipe Family

§*Monotropa uniflora* L.
Indian pipe; infrequent; mesic woods; BSUH 8214.

Moraceae — Mulberry Family

*§*Morus alba* L.
White mulberry; infrequent; mesic woods; BSUH 8215.

§*Morus rubra* L.
Red mulberry; infrequent; mesic woods; BSUH 10459

Nyctaginaceae — Four-O'Clock Family

+ *Mirabilis nyctaginea* (Michx.) MacMillan
Heart-leaved umbrellawort; rare; County Road 300 West along Wesley Wet Area; BSUH 8217.

Nymphaeaceae — Water-Lily Family

§*Nuphar advena* (Aiton) Aiton f.
Southern pond lily; abundant in Southern Pond; BSUH 8218.

Oleaceae — Olive Family

Fraxinus americana L.
White ash; abundant; mesic woods; BSUH 8219.

Fraxinus nigra Marshall
Black ash; frequent; mesic woods; BSUH 8220.

Fraxinus pennsylvanica Marshall
Green ash; abundant; mesic woods; BSUH 8221.

Onagraceae — Evening-Primrose Family

Circaea lutetiana L. var. *canadensis* L.
Common enchanter's nightshade; frequent; mesic woods; BSUH 8222.

§*Epilobium angustifolium* L.
Fireweed; rare; northeast corner of woods' edge along Eaton-Wheeling Pike; BSUH 8223.

Epilobium coloratum Biehler
Eastern willow herb; infrequent; Farmer's Field and marshy area; BSUH 8224.

Oenothera biennis L.
Common evening primrose; frequent; Wesley Wet Area and woods' edge; BSUH 8225.

Orchidaceae — Orchid Family

§*Aplectrum hyemale* (Muhl.) Torr.
Puttyroot; frequent; mesic woods; BSUH 8226.

Triphora trianthophora (Swartz) Rydb.
Three-birds orchid; rare; mesic woods; BSUH 8130.

Orobanchanceae — Broom-Rape Family

§*Epifagus virginiana* (L.) Barton
Beechdrops; infrequent; mesic woods; BSUH 8227.

Oxalidaceae — Wood Sorrel Family

Oxalis stricta L.
Common yellow wood sorrel; frequent; road's edge, open areas in mesic woods, and Wesley Wet Area; BSUH 8228.

Papaveraceae — Poppy Family

Sanguinaria canadensis L.
Bloodroot; abundant; mesic woods; BSUH 8229.

Phytolaccaceae — Pokeweed Family

Phytolacca americana L.
Pokeweed; infrequent; *Gymnopilus* Meadow and east edge; BSUH 8230.

Plantaginaceae — Plantain Family

**Plantago lanceolata* L.
English plantain; frequent; road's edge; BSUH 8231.

§*Plantago rugelii* Dcne.
American plantain; frequent; road's edge; BSUH 8232.

§*Plantago virginica* L.
Plantain; rare; southwestern corner of Wesley Wet Area; BSUH 8233.

Platanaceae — Plane-Tree Family

§*Platanus occidentalis* L.
Sycamore; infrequent; mesic woods; BSUH 8234.

Poaceae — Grass Family

Cinna arundinacea L.
Common woodreed; frequent; especially along west edge of Southern Pond and in marshy area; BSUH 8135.

**Dactylis glomerata* L.
Orchard grass; frequent; road's edge, Wesley Wet Area, and Farmer's Field; BSUH 8235.

**Echinochloa crusgalli* (L.) Beauv.
Barnyard grass; frequent; Wesley Wet Area and Farmer's Field; BSUH 8236.

Elymus hystrix L. (*Hystrix patula*)
Bottlebrush-grass; frequent; mesic woods; BSUH 8237.

**Elytrigia repens* (L.) Nevski
Quack grass; frequent; fields; BSUH 8134.

Festuca elatior L.
Tall fescue; abundant in fields; BSUH 8126.

Festuca subverticillata (Pers.) Alexeev. (*F. obtusa*)
Nodding fescue; frequent; mesic woods; BSUH 8138.

**Phleum pratense* L.
Timothy; frequent; road's edge and fields; BSUH 8238.

*§*Poa pratensis* L.
Kentucky bluegrass; frequent; road's edge and Wesley Wet Area; BSUH 9421.

Poa sylvestris Gray
Forest bluegrass; infrequent; mesic woods; BSUH 8139.

*§*Setaria faberi* Herrm.
Nodding foxtail; frequent; at south edge of Nixon Woods; BSUH 8239.

**Setaria glauca* (L.) Beauv.
Yellow foxtail; frequent; Farmer's Field and Wesley Wet Area; BSUH 8240.

Setaria viridis (L.) Beauv.
Green foxtail; infrequent; Farmer's Field and Wesley Wet Area; BSUH 8241.

Polemoniaceae — Phlox Family

Phlox divaricata L.
Forest phlox; abundant; mesic woods; BSUH 8242.

§*Phlox paniculata* L.
Summer phlox; infrequent; creek banks; BSUH 8243.

Polemonium reptans L.
Spreading Jacob's ladder; frequent; mesic woods; BSUH 8244.

Polygonaceae — Smartweed Family

*§*Polygonum aviculare* L.
Knotweed; infrequent; road's edge; BSUH 8245.

§*Polygonum hydropiperoides* Michx.
False water-pepper; frequent in Southern Pond; BSUH 8246.

Polygonum pensylvanicum L.
Pennsylvania smartweed; frequent; Farmer's Field and edge of Southern Pond; BSUH 8247.

§*Polygonum punctatum* Elliott
Dotted smartweed; infrequent; marshy area; BSUH 8248.

Polygonum scandens L.
False buckwheat; frequent; woods' edge; BSUH 8249.

Polygonum virginianum L.
Jumpseed; abundant; mesic woods; BSUH 8250.

§*Rumex crispus* L.
Curly dock; infrequent; road's edge and Wesley Wet Area; BSUH 8251.

Portulacaceae — Purslane Family

Claytonia virginica L.
Spring beauty; abundant; mesic woods; BSUH 8252.

Primulaceae — Primrose Family

Lysimachia ciliata L.
Fringed loosestrife; infrequent; edge of mesic woods along Eaton-Wheeling Pike and Lily Meadow; BSUH 8253.

§*Samolus floribundus* HBK
Water pimpernel; rare; Central Ginn Run south of alluvial plain; BSUH 8254.

Ranunculaceae — Buttercup Family

§*Actaea alba* (L.) Miller
Doll's eyes; infrequent; mesic woods; BSUH 8255.

§*Anemone virginiana* L.
Tall anemone; infrequent; road's edge; BSUH 8256.

Anemonella thalictroides (L.) Spach
Rue anemone; rare; mesic woods near Southern Pond; BSUH 8257.

§*Clematis virginiana* L.
Virgin's bower; infrequent; Lily Meadow and road's edge along Eaton-Wheeling Pike; BSUH 8258.

Hepatica acutiloba DC.
Sharp-lobed hepatica; frequent; mesic woods; BSUH 8259.

Hydrastis canadensis L.
Golden seal; rare; North Woods (2 patches near Eaton-Wheeling Pike); BSUH 8260.

Isopyrum biternatum (Raf.) T. & G.
False rue anemone; frequent; mesic woods; BSUH 8261.

Ranunculus abortivus L.
Small-flowered crowfoot; infrequent; road's edge; BSUH 8262.

Ranunculus hispidus Michx. var. *caricetorum* (Greene) Duncan
Hispid buttercup; frequent; mesic woods; BSUH 8263.

Ranunculus recurvatus Poiret
Hooked crowfoot; infrequent; creek bank and alluvial plain; BSUH 8264.

Thalictrum pubescens L.
Tall meadow rue; infrequent; East Meadow and mesic woods; BSUH 8265.

Rosaceae — Rose Family

§*Agrimonia parviflora* Aiton
Southern agrimony; frequent in Wesley Wet Area; BSUH 8266.

Agrimonia pubescens Wallr.
Downy agrimony; frequent; mesic woods; BSUH 8267.

§*Amelanchier arborea* (Michx. f.) Fern.
Downy serviceberry; rare; mesic woods next to Southern Pond; BSUH 8268.

§*Crataegus mollis* (Torr. & Gray) Scheele
Downy hawthorn; infrequent; Wesley Wet Area and woods' edge; BSUH 8269.

§*Crataegus punctata* Jacq.
Dotted hawthorn; infrequent; mesic woods and edge; BSUH 8270.

§*Fragaria virginiana* Duchnesne
Thick-leaved wild strawberry; abundant; Wesley Wet Area; BSUH 8271.

Geum canadense Jacq.
White avens; abundant; mesic woods; BSUH 8272.

§*Geum laciniatum* Murr.
Rough avens; frequent; Wesley Wet Area; BSUH 8273.

Geum vernum (Raf.) T. & G.
Spring avens; frequent; Wesley Wet Area and Lily Meadow; BSUH 8274.

§*Potentilla norvegica* L.
Rough cinquefoil; infrequent; Farmer's Field and *Gymnopilus* Meadow; BSUH 8275.

Potentilla recta L.
Sulfur five-fingers; infrequent; Wesley Wet Area; BSUH 8276.

Potentilla simplex Michx.
Old-field five-fingers; frequent; east edge; BSUH 8277.

Prunus serotina Ehrh.
Wild black cherry; frequent; mesic woods; BSUH 8278.

Prunus virginiana L.
Choke-cherry; frequent; mesic woods; BSUH 8279.

§+*Pyrus malus* L.
Apple; rare; east edge north of East Meadow (one tree); BSUH 8280.

*§*Rosa multiflora* Thunb.
Multiflora rose; frequent; woods' edge; BSUH 8281.

Rosa palustris Marshall
Swamp rose; rare; Wesley Wet Area; BSUH 8282.

Rosa setigera Michx.
Climbing prairie rose; frequent; Wesley Wet Area and woods' edge; BSUH 8283.

Rubus allegheniensis T.C. Porter
Common blackberry; frequent; woods' edge and Wesley Wet Area; BSUH 8129.

Rubus occidentalis L.
Black raspberry; frequent; woods' edge; BSUH 8285.

§*Rubus pensilvanicus* Poir.
Pennsylvania blackberry; frequent; woods' edge; BSUH 8286.

Rubiaceae — Madder Family

Cephalanthus occidentalis L.
Buttonbush; infrequent; West Vernal Pool and the edge of Southern Pond; BSUH 8287.

Galium aparine L.
Cleavers; abundant; mesic woods; BSUH 8288.

Galium circaezans Michx.
Forest bedstraw; infrequent; mesic woods; BSUH 8289.

§*Galium concinnum* T. & G.
Shining bedstraw; frequent; mesic woods and edge; BSUH 8290.

Galium obtusum Bigelow
Bluntleaf bedstraw; frequent; road's edge and mesic woods; BSUH 8291.

Galium triflorum Michx.
Sweet-scented bedstraw; infrequent; road's edge; BSUH 8292.

Salicaceae — Willow Family

§*Populus deltoides* Marshall
Cottonwood; frequent; north edge of Wesley Wet Area and mesic woods; BSUH 8293.

§*Salix discolor* Muhl.
Pussy willow; infrequent; north edge of Wesley Wet Area; BSUH 8294.

§*Salix nigra* Marshall
Black willow; infrequent; woods' edge and large stand at east end of Wesley Wet Area; BSUH 8295.

Saxifragaceae — Saxifrage Family

Mitella diphylla L.
Two-leaved mitrewort; frequent; mesic woods; BSUH 8296.

Penthorum sedoides L.
Ditch stonecrop; infrequent; alluvial plain and wet areas in Farmer's Field; BSUH 8297.

Scrophulariaceae — Figwort Family

§*Agalinis tenuifolia* (Vahl.) Raf.
Common agalinis; infrequent; Farmer's Field; BSUH 8298.

§*Chelone glabra* L.
White turtlehead; rare; marshy area; BSUH 8299.

Collinsia verna Nutt.
Eastern blue-eyed Mary; rare; mesic woods northeast of West Vernal Pool; BSUH 8300.

§*Lindernia dubia* (L.) Pennell
False pimpernel; frequent; wet areas of mesic woods and Southern Pond; BSUH 8301.

Mimulus alatus Aiton
Sharpwing monkey flower; frequent; mesic woods; BSUH 8302.

Mimulus ringens L.
Allegheny monkey flower; frequent; Farmer's Field and edges (plants bearing white flowers were common in Farmer's Field); BSUH 8303.

§ *Penstemon digitalis* Nutt.
Tall white beard-tongue; infrequent; woods' edge at marshy area; BSUH 8304.

* *Verbascum blattaria* L.
Moth mullein; infrequent; east edge and Farmer's Field; BSUH 8305.

* *Verbascum thapsus* L.
Common mullein; rare; road's edge; BSUH 8306.

* *Veronica arvensis* L.
Corn speedwell; infrequent; road's edge; BSUH 8307.

§ *Veronica catenata* Pennell
Water speedwell; rare; marshy area; BSUH 8308.

§ *Veronica serpyllifolia* L.
Thyme-leaved speedwell; frequent; road's edge and fields; BSUH 8309.

Smilacaceae — Catbrier Family

§ *Smilax ecirrhata* (Engelm.) Wats.
Upright smilax; infrequent; *Gymnopilus* Meadow and mesic woods; BSUH 8310.

Smilax herbacea L.
Carrion flower; infrequent; road's edge along Eaton-Wheeling Pike and east edge; BSUH 8311.

Smilax hispida Muhl.
Bristly greenbrier; frequent; woods' edge and mesic woods; BSUH 8312.

Solanaceae — Nightshade Family

Physalis longifolia Nutt. var. *subglabrata* (Mackenzie & Bush) Cronq.
Longleaf ground cherry; infrequent; Farmer's Field and east edge; BSUH 8313.

§ *Solanum carolinense* L.
Horse nettle; infrequent; Farmer's Field (disturbed areas); BSUH 8314.

* *Solanum nigrum* L.
Black nightshade; infrequent; east edge; BSUH 8315.

Staphyleaceae — Bladder-Nut Family

Staphylea trifolia L.
Bladdernut; frequent; woods' edge; BSUH 8316.

Tiliaceae — Linden Family

Tilia americana L.
Basswood; abundant; mesic woods and edge; BSUH 8317.

Typhaceae — Cat-Tail Family

§*Typha angustifolia* L.
Narrow-leaved cattail; rare; north end of Farmer's Field just south of Lily Meadow; BSUH 8318.

Typha latifolia L.
Common cat-tail; rare; marshy area and southwest corner of the Wesley Wet Area; BSUH 8319.

Ulmaceae — Elm Family

Celtis occidentalis L.
Northern hackberry; frequent; mesic woods and edge; BSUH 8320.

Ulmus americana L.
American elm; frequent; mesic woods; BSUH 8321.

Ulmus rubra Muhl.
Slippery elm; frequent; mesic woods and edge; BSUH 8322.

Urticaceae — Nettle Family

§*Boehmeria cylindrica* (L.) Sw.
False nettle; frequent; mesic woods; BSUH 8323.

Laportea canadensis (L.) Weddell
Wood nettle; abundant; mesic woods; BSUH 8324.

Pilea pumila (L.) Gray
Clearweed; abundant; mesic woods; BSUH 8325.

*§*Urtica dioica* L.
Nettle; infrequent; mesic woods, primarily near their edge; BSUH 8326.

Valerianaceae — Valerian Family

Valeriana pauciflora Michx.
Long-tube valerian; infrequent; alluvial plain; BSUH 8327.

Valerianella umbilicata (Sulliv.) Wood
Corn salad; infrequent; marshy area; BSUH 8328.

Verbenaceae — Vervain Family

Phryma leptostachya L.
Lopseed; frequent; mesic woods; BSUH 8329.

§*Phyla lanceolata (*Michx.) Greene
Fogfruit; infrequent; between woods' edge and Southern Pond as well as east end of West Vernal Pool; BSUH 8330.

Verbena hastata L.
Common vervain; frequent; Farmer's Field and east edge of woods; BSUH 8331.

Verbena urticifolia L.
White vervain; frequent; east edge of woods, marshy area, and northeast of road's edge; BSUH 8332.

Violaceae — Violet Family

Hybanthus concolor (Forster) Sprengel
Green violet; infrequent; mesic woods; BSUH 8333.

Viola pubescens Aiton
Yellow forest violet; abundant; mesic woods; BSUH 8334.

Viola sororia Willd.
Dooryard violet; abundant; mesic woods; BSUH 8335.

Viola striata Aiton
Creamy violet; abundant; mesic woods; BSUH 8336.

Vitaceae — Grape Family

Parthenocissus quinquefolia (L.) Planchon
Virginia creeper; abundant; mesic woods; BSUH 8337.

Vitis riparia Michx.
Riverbank grape; rare; northeast corner of woods on edge next to agricultural field; BSUH 8338.

Vitis vulpina L.
Frost grape; frequent; common along woods' edge and in open areas in mesic woods (6-7); BSUH 8339.