

ANGIOSPERM FLORA OF MILLER-ANDERSON WOODS NATURE PRESERVE BUREAU AND PUTNAM COUNTIES, ILLINOIS

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ABSTRACT

The angiosperm flora of Miller-Anderson Woods Nature Preserve was studied during the growing seasons of 1982 and 1983. Fifteen sample areas located on five natural habitat sites of the Nature Preserve yielded 277 flowering plant taxa, and 67 new county records. Threatened species of *Aster schreberi*, *A. undulatus*, *Filipendula rubra*, *Hydrastis canadensis*, and *Panax quinquefolius* were found in the Nature Preserve. One endangered species of *Castanea dentata* is also reported. The tree canopy consisted of various *Quercus* and *Carya* species. The understory was 70-80% *Acer saccharum*. The dominant shrubs were *Ribes missouriense* and *Rubus occidentalis*. Herbaceous plant taxa were quite diverse. One hill prairie contained *Andropogon gerardi*, various other grasses, and other flowering species.

INTRODUCTION

Miller-Anderson Woods Nature Preserve consists of old growth uplands, ravines, and valley forests of the Grand Prairie Section of the Grand Prairie Natural Division of Illinois (Schwegman, 1973). The original 258 acres of the land were obtained by the Illinois Department of Conservation (IDOC) in 1969. Additional land acquisitions have increased the Nature Preserve to approximately 300 acres. Miller-Anderson Woods is located west of Illinois Route 29 between the junction of Putnam and Bureau Counties (SW 1/4, Sec. 36, T15N, R9E, 4th P.M. and part of W 1/4, Sec. 6, T14N, R10E, 4th P.M.). The Nature Preserve is situated on glacial loess

approximately 13 1/2 miles southeast of the Bloomington Moraine. Soils of the area are predominantly of the Fayette-Strawn-Larson and Dorchester-Calco-Houghton associations.

Miller-Anderson Woods was surveyed by the IDOC in 1977. Five natural habitats were designated by the surveyors as being dry mesic upland forest, mesic upland forest, sedge meadow, successional field, and glacial hill prairie. A brief list of the flowering plants that occurred within the Nature Preserve was included with the survey report. Three threatened taxa were reported for Miller-Anderson Woods; they are: *Panax quinquefolius*, *Hydrastis canadensis*, and *Filipendula rubra*. The cursory angiosperm floral list for Miller-Anderson Woods suggested that a more complete study of the area was needed.

The objectives of the study were to (1) determine the angiosperm flora that occurred within the fifteen sample areas of Miller-Anderson Woods, (2) define habitat(s), (3) assess their abundance, and (4) record their flowering time(s).

MATERIALS AND METHODS

Miller-Anderson Woods was divided into ten habitats (Fig. 1). The habitats were: (A) dry mesic upland forest, (B) south- and southeast-facing wooded slopes, (C) wooded lowland, (D) north-, northeast-, and east-facing wooded slopes, (E) dry old field succession, (F) mesic regrowth forest along stream banks, (G) wet old field succession, (H) sedge meadow, (I) regrowth area along new Illinois Route 29, (J) back water bog, and (K) parking lot. Only the habitats designated A-H and K were investigated. Permanent sample plots were located in each of the previously cited habitats, the only exception being the K site. Some of the larger habitats contained more than one sample plot so as to minimize the exclusion of a particular plant. Each square-shaped plot contained 100 square meters of area. Plots were aligned in a north-south direction with a Lensatic Compass and located away from disturbed areas to avoid any edge effect.

Angiosperm plant specimens were collected on a bi-weekly basis from the middle of March until the middle of October during 1982 and 1983. Plant identifications were determined using the texts of Fernald (1950), Gleason (1952), Harlow (1946), Hitchcock (1951), Jones (1963), Mohlenbrock (1975), Mohlenbrock and Ladd (1978), Sheviak (1981), and Steyermark (1963). At the time of collection, each plant cited in the study was recorded according to habitat, relative abundance, and flowering date(s) if observed. The latter categories are found after each species name in the annotated floral list (Table 1). Relative abundance values were rare = <12, occasional = 12-25, and abundant = >25 plants/plot or area. These numbers represent species numbers within the sample plot(s) or area of the habitats and not the total abundance of the habitat(s). Additional symbols used in the annotation process are (*) threatened plants; (**) endangered plants; (+) Bureau county new record; (+ +) Putnam county new record; (+ + +) a new record for both counties. The majority of taxa cited within this paper were pressed, dried, mounted on herbarium sheets, labeled, and placed in the Bradley University Herbarium.

Three categories of plants were exempt from collection in this study. The exempt categories were: (1) endangered, (2) threatened, and (3) non-threatened but scarce species (one specimen in a plot). Colored 35 mm photographic slides were made of the exempt taxa using a Cannon AE1 camera. The photographic slides are housed in the Bradley University Herbarium.

RESULTS AND DISCUSSION

A total of 72 families, 185 genera, and 277 species of angiosperms were identified from Miller-Anderson Woods Nature Preserve. The families best represented in the Nature Preserve were the Compositae (43 spp.), the Graminae (21 spp.), and the Leguminosae (18 spp.).

There were 468 species identified from the different sample sites. These species have been collated according to habitat (Table 2). The discrepancy between species numbers recorded in Table 1 and the species habitat numbers recorded in Table 2 is due to a plant growing in more than one location.

Wooded lowland (4) and mesic regrowth forest along stream banks(8) plots contained the highest number of species. Threatened specimens of *Panax quinquefolius* L. and *Hydrastis canadensis* L. were found growing in these plots. Both of these threatened plants have been cited previously for Miller-Anderson Woods. In addition to these two taxa, an unreported and threatened species of *Aster undulatus* L. was identified in the wooded lowland (4) habitat and the parking lot (K) area. An endangered species of *Castanea dentata* (Marsh.) Borkh. was located in the wooded lowland (4) habitat. Dry mesic upland forest (1, 2, 6, 12, 13, 14,) and adjacent south-facing wooded slopes (3, 5) plots had the third and fourth highest number of species. A second unreported and threatened species of *Aster schreberi* Ness. was identified in both of the latter habitats. Reduced numbers of species were recorded for the parking lot (K), north-facing wooded slopes (11), dry old field succession (7), prairie (15), wet old field succession (9), and sedge meadow (10) plots. The threatened *Filipendula rubra* (Hill) Robins was located in the sedge meadow (10) as it had been cited by the survey crew. A total of five threatened and one endangered species of angiosperms were identified from the various sampled areas. In addition, there was a total of 67 new records cited in the study for either Putnam and/or Bureau Counties in Illinois. Table 2 indicates the frequency of species as they occurred in the sample plots of the ten habitats. The largest number of species per habitat occurred in the occasional plant category. The second largest number of species were observed in the abundant category; the lowest in the rare category.

ACKNOWLEDGEMENTS

The authors would like to thank the Illinois Nature Preserves Commission (INPC), Illinois Department of Conservation for their permission to conduct this investigation of Miller-Anderson Woods Nature Preserve. This study would not have been possible without the financial support provided by the Board of Research and Creativity of Bradley University. We thank Dr. Richard Bjorklund for his critical review of the manuscript.

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Table 1. Annotated checklist of angiosperm taxa collected from ten habitat locations within Miller-Anderson Woods Nature Preserve

 ACANTHACEAE

Ruellia humilis Nutt. Prairie. Occasional. July.

ACERACEAE

Acer negundo L. Mesic regrowth forest along stream banks and parking lot. Occasional. May.

A. saccharum Marsh. Dry mesic upland forest and dry old field succession. Abundant. Apr.-May.

ANACARDIACEAE

Rhus glabra L. Dry mesic upland forest. Rare. June-July. (Observed but not collected).

Toxicodendron radicans (L.) Kuntze. Dry mesic upland forest, north-facing wooded slopes, mesic regrowth forest along stream banks, and wet old field succession. Abundant. July.

APOCYNACEAE

+ *Apocynum androsaemifolium* var. *medium* Greene. Prairie. Abundant. June.

ARACEAE

Arisaema atrorubens (Ait.) Blume. Dry mesic upland forest, wooded lowland, and south-facing wooded slopes. Abundant. May.

A. dracontium (L.) Schott. Wooded lowland. Rare. May-June. (Observed but not collected).

Symplocarpus foetidus (L.) Nutt. South-facing wooded slopes and sedge meadow. Abundant. May.

ARALIACEAE

+ *Aralia racemosa* L. Wooded lowland. Occasional. Sept.

**Panax quinquefolius* L. Dry mesic upland forest and wooded lowland. Occasional to rare. July.

ARISTOLOCHIACEAE

Asarum canadense L. Wooded lowland and dry old field succession. Occasional. May.

ASCLEPIADACEAE

Asclepias syriaca L. Dry old field succession and mesic regrowth forest along stream banks. Abundant. June.

A. verticillata L. Prairie. Occasional. July.

+ *A. viridiflora* Raf. Prairie. Rare. July.

BALSAMINACEAE

Impatiens biflora Walt. Sedge meadow. Abundant. Aug.-Sept. (Observed but not collected).

I. pallida Nutt. Dry mesic upland forest and wooded lowland. Occasional. Aug.-Sept.

BERBERIDACEAE

Caulophyllum thalictroides L. South- and north-facing wooded slopes. Rare. May.

Podophyllum peltatum L. Dry mesic upland forest and north-facing wooded slopes. Abundant. May.

BETULACEAE

Ostrya virginiana (Mill.) K. Koch. Wooded lowland. Occasional. Mar.-Apr.

BORAGINACEAE

Lithospermum canescens (Michx.) I. chm. Prairie. Abundant. May.

Mertensia virginica (L.) Pers. Wooded lowland. Rare. May.

CAMPANULACEAE

Campanula americana L. Wooded lowland, mesic regrowth forest along stream banks, and wet old field succession. Occasional. July.

Lobelia siphilitica L. Wooded lowland and wet old field succession. Occasional. Aug.

+ *L. spicata* Lam. Prairie. Occasional. May.

+ *L. spicata* var. *leptostachys* (A. DC.) Machenz. & Bush. Prairie. Occasional. May.

+ *Specularia perfoliata* (L.) A. DC. Mesic regrowth forest along stream banks, and parking lot. Occasional. June.

CAPPARIDACEAE

Polanisia doedecandra (L.) DC. Prairie. Rare. Aug.

CAPRIFOLIACEAE

+ *Diervilla lonicera* Mill. Dry mesic upland forest, south- and north-facing wooded slopes, and mesic regrowth forest along stream banks. Abundant. Aug.

CARYOPHYLLACEAE

Cerastium vulgatum L. Parking lot. Occasional. July.

CHENOPODIACEAE

Chenopodium hybridum L. South-facing wooded slopes. Occasional. July.

COMMELINACEAE

Tradescantia ohioensis Raf. Prairie, south- and north-facing slopes. Occasional. May.

COMPOSITAE

Achillea millefolium L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. July-Aug. (Observed but not collected).

Ambrosia artemisiifolia L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. Aug.

A. trifida L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. Sept. (Observed but not collected).

Antennaria plantaginifolia (L.) Hook. North-facing wooded slopes. Occasional. Apr.-May. (Observed but not collected).

+ *Aster cordifolius* L. Wooded lowland and parking lot. Occasional. Sept.

+ *A. laevis* L. Wooded lowland, mesic regrowth forest along stream banks, parking lot. Occasional. Sept. (Observed but not collected).

A. novae-angliae L. Wet old field succession and sedge meadow. Occasional. Sept.

A. sagittifolius var. *drummondi* Shin. South- and north-facing wooded slopes. Occasional. Sept. (Observed but not collected).

**A. schreberi* Nees. Dry mesic upland forest, south- and north-facing wooded slopes. Occasional. Sept.

+ *A. sericeus* Vent. Prairie. Abundant. Sept.

A. shortii Lindl. Wooded lowland and parking lot. Occasional. Sept.

* + *A. undulatus* L. Wooded lowland and parking lot. Rare. Sept.

Bidens discoidea (Torr. & Gray) Britt. Sedge meadow. Occasional. Sept.

+ - + *Boltonia latisquama* var. *decurrens* (Torr. & Gray) Fern. & Griseb. Wet old field succession and sedge meadow. Occasional. Sept.

Brickellia eupatorioides (L.) Shinn. Wet old field succession. Occasional. Sept.

+ *Cacalia atriplicifolia* L. Dry mesic upland forest. Occasional. Sept. (Observed but not collected).

Cirsium discolor (Muhl.) Spreng. Wet old field succession and sedge meadow. Rare. Sept.

+ *C. pumilum* (Nutt.) Spreng. Prairie. Occasional. June. (Observed but not collected).

C. vulgare (Savi) Tenore. Wet old field succession and mesic regrowth forest along stream banks. Occasional. Sept.

Coreopsis palmata Nutt. Prairie. Occasional. June.

Echinacea pallida Nutt. Prairie. Abundant. June.

Erigeron annuus (L.) Pers. North-facing wooded slopes, mesic regrowth forest along stream banks, and parking lot. Abundant. May.

Eupatorium fistulosum Barratt. Wet old field succession and sedge meadow. Abundant. July.

E. rugosum Houtt. Wet old field succession. Occasional. Sept.

+ *E. sessilifolium* L. Dry mesic upland forest. Occasional. Aug.

Helianthus grosseserratus Martens. Wet old field succession and sedge meadow. Occasional. Sept.

+ *H. tuberosus* L. Wet old field succession. Occasional. Aug.

+ *Hieracium scabrum* Michx. Dry old field succession and mesic regrowth forest along stream banks. Occasional. July.

Lactuca canadensis L. North-facing wooded slopes and mesic regrowth forest along stream banks. Occasional. July.

+ *Prenanthes alba* L. South-facing wooded slopes. Occasional. Sept.

Ratibida pinnata (Vent.) Barnh. Prairie. Occasional. July.

+ *Rudbeckia subtomentosa* Pursh. North-facing wooded slopes. Occasional. July.

R. triloba L. North-facing wooded slopes and mesic regrowth forest along stream banks. Occasional. July. (Observed but not collected).

+ *Senecio obovatus* Muhl. South-facing wooded slopes. Occasional. June.

S. plattensis Nutt. Dry old field succession and mesic regrowth forest along stream banks. Abundant. June.

Solidago altissima L. Prairie. Occasional. Sept.

S. canadensis L. Wet old field succession. Abundant. Sept.

S. flexicaulis L. Wooded lowland. Rare. Aug.

S. patula Muhl. Sedge meadow. Occasional. Sept.

Taraxacum laevigatum (Willd.) DC. Dry old field succession, mesic regrowth forest along stream banks and wet old field succession. Occasional. May.

T. officinale Weber. Mesic regrowth forest along stream banks and parking lot. Abundant. May.

+ *Tragopogon pratensis* L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. June.

Verbesina alternifolia (L.) Britt. Mesic regrowth forest along stream banks and parking lot. Occasional. Aug.

CONVOLVULACEAE

+ *Convolvulus sepium* L. South-facing wooded slopes, mesic regrowth forest along stream banks, wet old field succession, and parking lot. Occasional. July.

Cuscuta pentagona Engelm. Sedge meadow. Abundant. June.

+ *Ipomoea coccinea* L. Sedge meadow. Occasional. Sept.

+ *I. pandurata* (L.) G.F.W. Mey. Dry old field succession. Occasional. July.

CORNACEAE

Cornus drummondii C.A. Mey. Dry old field succession, mesic regrowth forest along stream banks, wet old field succession, and parking lot. Abundant. June.

CORYLACEAE

Corylus americana Walt. Wooded lowland. Rare. Mar.-Apr.

CRUCIFERAE

+ *Arabis laevigata* var. *laevigata* Steyererm. Dry mesic upland forest, south- and north-facing wooded slopes. Occasional. May.

+ *A. laevigata* var. *missouriensis* Steyererm. Dry mesic upland forest and south-facing wooded slopes. Rare. May.

Capsella bursa-pastoris (L.) Medic. Parking lot. Occasional. May. (Observed but not collected).

+ *Cardamine bulbosa* (Schreb.) BSP. Sedge meadow. Occasional. May.

Dentaria laciniata Muhl. Dry mesic upland forest, south- and north-facing wooded slopes, and wooded lowland. Abundant. May.

CYPERACEAE

Carex albolutescens Schw. Wooded lowland. Occasional. June. (Observed but not collected).

C. albursina Sheldon. Wooded lowland. Abundant. May.

C. artitecta Mack. Dry mesic upland forest. Occasional. May. (Observed but not collected).

C. blanda Dewey. Wooded lowland. Occasional. June.

+ *C. brunnescens* (Pers.) Poir. Dry mesic upland forest. Occasional. May.

C. convoluta Mack. Dry mesic upland forest. Occasional. May.

C. cristatella Britt. Wooded lowland. Occasional. May.

+ *C. gracilescens* Steud. South-facing wooded slopes. Occasional. May.

C. hirsutella Mack. Dry mesic upland forest. Occasional. June. (Observed but not collected).

+ *C. hirtifolia* Mack. Dry mesic upland forest. Occasional. May.

+ *C. tenera* Dewey. Dry mesic upland forest. Occasional. May.

C. tribuloides Wahl. Wooded lowland. Occasional. June.

ELAEAGNACEAE

+ *Elaeagnus umbellata* Thunb. Dry old field succession and mesic regrowth forest along stream banks. Occasional. May-June.

ERICACEAE

+ *Monotropa uniflora* L. Dry mesic upland forest and south-facing slopes. Rare. Sept.

EUPHORBIACEAE

+ *Euphorbia commutata* Engelm. Mesic regrowth forest along stream banks and parking lot. Occasional. Aug.

E. corollata L. Prairie. Abundant. July.

+ *E. heterophylla* L. Mesic regrowth forest along stream banks and parking lot. Occasional. Aug.

E. supina Raf. Mesic regrowth forest along stream banks and parking lot. Occasional. Aug.

FAGACEAE

** + *Castanea dentata* (Marsh.) Borkh. Wooded lowland. Occasional. June-July.

Quercus alba L. Dry mesic upland forest. Occasional. Apr.-May.

Q. imbricaria Michx. Dry mesic upland forest and wooded lowland. Occasional. Apr.-May.

Q. macrocarpa Michx. South- and north-facing wooded slopes, and wooded lowland. Rare. Apr.-May.

+ *Q. muhlenbergii* Engelm. Dry mesic upland forest, south- and north-facing wooded slopes, and wooded lowland. Occasional. Apr.-May.

Q. palustris Muench. Dry mesic upland forest. Occasional. Apr.-May.

Q. rubra L. Dry mesic upland forest. Occasional. Apr.-May.

Q. velutina Lam. Dry mesic upland forest. Occasional. Apr.-May.

GERANIACEAE

Geranium maculatum L. South-facing wooded slopes. Occasional. May.

GRAMINAE

- Andropogon gerardi* Vitman. Prairie. Occasional. Aug.
 + *Bouteloua curtipendula* (Michx.) Torr. Prairie. Rare. Aug.
Bromus inermis Leyss. Mesic regrowth forest along stream banks and parking lot. Occasional. May.
 + *B. nottowayanus* Fern. South- and north-facing wooded slopes. Rare. June.
B. purgans L. Dry mesic upland forest. Occasional. Aug.
Dactylis glomerata L. Dry old field succession. Occasional. Aug.
Echinochloa crusgalli (L.) Beauv. Wet old field succession. Occasional. June.
Elymus riparius Wiegand. Wooded lowland. Occasional. Aug.
 + *Eragrostis capillaris* (L.) Nees. South-facing wooded slopes. Occasional. June.
Glyceria striata var. *stricta* Fern. Parking lot. Occasional. June.
Muhlenbergia mexicana (L.) Trin. South-facing wooded slopes. Occasional. Aug.
 + *Panicum boscii* Poir. Dry mesic upland forest and south-facing wooded slopes. Occasional. June. (Observed but not collected).
P. capillare L. South-facing wooded slopes. Occasional. Aug.
 + *P. dichotomiflorum* Michx. Mesic regrowth forest along stream banks, wet old field succession, and parking lot. Occasional. Aug.
 + *P. latifolium* L. South-facing wooded slopes. Occasional. June.
P. leibergii (Vasey) Scribn. Dry mesic upland forest. Occasional. May.
Phylaris canariensis L. Wet old field succession. Occasional. Aug. (Observed but not collected).
 + *Poa nemoralis* L. South-facing wooded slopes. Occasional. May.
 + *Schizachryium scoparium* (Michx.) Nash. Prairie. Occasional. Sept.
 + *Sphenopholis nitida* (Biehler) Scribn. South-facing wooded slopes. Occasional. June.
 + *Vulpia octoflora* (Walt.) Rydb. Parking lot. Occasional. June. (Observed but not collected).

HIPPOCASTANACEAE

- Aesculus glabra* Willd. Wooded lowland. Rare. Apr.-May. (Observed but not collected).

HYDROPHYLLACEAE

- Ellisia nyctelea* L. Dry mesic upland forest, wooded lowland, and dry old field succession. Rare. May.
Hydrophyllum appendiculatum Michx. Wooded lowland. Abundant. May.
H. virginianum L. Wooded lowland and north-facing wooded slopes. Abundant. May.

HYPERICACEAE

- Hypericum punctatum* Lam. Prairie. Abundant. June.
 + *H. sphaerocarpon* Michx. Prairie. Occasional. July.

JUGLANDACEAE

- Carya cordiformis* (Wang.) K. Koch. Dry mesic upland forest, south-facing wooded slopes, and wooded lowland. Occasional. May-June.
C. ovata (Mill.) K. Koch. Dry mesic upland forest, south- and north-facing wooded slopes. Occasional. Apr.-June.

Juglans nigra L. South-facing wooded slopes and wooded lowland. Occasional. May. (Observed but not collected).

LABIATAE

+ + + *Blephila hirsuta* (Pursh) Benth. Mesic regrowth forest along stream banks, sedge meadow, and parking lot. Rare. July.

Leonurus cardiaca L. Mesic regrowth forest along stream banks and parking lot. Occasional. June.

+ *Mentha cardiaca* Gerarde ex Baker. Mesic regrowth forest along stream banks. Rare. June.

+ *M. piperita* L. Mesic regrowth forest along stream banks. Occasional. Sept.

Monarda fistulosa L. Mesic regrowth forest along stream banks and parking lot. Occasional. July.

Nepeta cataria L. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Occasional. July. (Observed but not collected).

Prunella vulgaris L. Mesic regrowth forest along stream banks, wet old field succession, and parking lot. Occasional. July.

+ *Scutellaria ovata* Hill. Dry mesic upland forest. Rare. June.

+ *S. parvula* Michx. Prairie. Rare. May.

Stachys palustris L. Dry mesic upland forest. Rare. Aug.

S. tenuifolia var. *hispidula* (Pursh) Fern. Sedge meadow. Rare. July-Sept.

Teucrium canadense L. Mesic regrowth forest along stream banks and parking lot. Occasional. July.

LAURACEAE

+ *Sassafras albidum* (Nutt.) Nees. Dry mesic upland forest. Occasional. May. (Observed but not collected).

LEGUMINOSAE

Amphora canescens Pursh. Prairie. Occasional. July.

Amphicara bracteata (L.) Fern. Wooded lowland. Occasional. Sept.

+ *Astralagus trichocalyx* Nutt. Prairie. Rare. Aug.

Cercis canadensis L. North-facing wooded slopes and mesic regrowth forest along stream banks. Occasional. May.

+ *Desmodium canadense* (L.) DC. Wet old field succession. Occasional. July.

D. cuspidatum (Muhl.) Loud. Dry mesic upland forest. Occasional. July.

D. glutinosum (Muhl.) Wood. Dry mesic upland forest. Occasional. June.

Medicago lupulina L. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Abundant. May.

M. sativa L. Dry old field succession and mesic regrowth forest along stream banks. Abundant. July. (Observed but not collected).

Melilotus alba Desr. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Abundant. June.

M. officinalis (L.) Lam. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Abundant. June.

Petalostemum purpureum (Vent.) Rydb. Prairie. Occasional. July.

+ *Psoralea tenuiflora* Pursh. Prairie. Occasional. June.

+ *Robina pseudoacacia* L. Wooded lowland. Occasional. May-June.

Tephrosia virginiana (L.) Pers. Prairie. Rare. June-July.

Trifolium campestre Schreb. Dry old field succession. Occasional. June.

T. pratense L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. June.

T. repens L. Dry old field succession. Rare. June. (Observed but not collected).

LILIACEAE

Allium tricoccum Ait. Wooded lowland. Occasional. May.

Erythronium albidum Nutt. Wooded lowland. Abundant. May.

+ *Lilium michiganense* Farw. Sedge meadow. Rare. July.

+ *L. philadelphicum* L. Wooded lowland. Rare. June. (Observed but not collected).

Smilacina racemosa (L.) Desf. Wooded lowland, south- and north-facing wooded slopes. Occasional. May-June.

+ *S. stellata* (L.) Desf. Sedge meadow. Rare. Apr.-May.

Trillium flexipes Raf. Wooded lowland. Abundant. May.

T. recurvatum Beck. Dry mesic upland forest, wooded lowland, and dry old field succession. Abundant. May.

Uvularia grandiflora Sm. Dry mesic upland forest, south- and north-facing wooded slopes. Occasional. May.

MALVACEAE

Malva neglecta Wallr. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Occasional. June-Sept. (Observed but not collected).

MENISPERMACEAE

Menispermum canadense L. Dry mesic upland forest. Occasional. Aug.

MORACEAE

Humulus lupulus L. Mesic regrowth forest along stream banks and parking lot. Rare. Sept.

+ *Morus alba* L. Wooded lowland. Rare. Aug.

M. rubra L. Wooded lowland and mesic regrowth forest along stream banks. Occasional. June.

OLEACEAE

Fraxinus pennsylvanica var. *subintegerrima* (Vahl) Fern. Wooded lowland, mesic regrowth forest along stream banks, and parking lot. Occasional. June. (Observed but not collected).

ONAGRACEAE

Circaea quadrisulcata (Maxim.) Franch. & Sav. Wooded lowland. Occasional. July.

Gaura biennis L. Mesic regrowth forest along stream banks and parking lot. Occasional. Sept.

Oenothera biennis L. Mesic regrowth forest along stream banks and parking lot. Occasional. Sept.

ORCHIDACEAE

Orchis spectabilis L. South-facing wooded slopes and wooded lowland. Rare. May.

OXALIDACEAE

Oxalis stricta L. Parking lot. Occasional. June

O. violacea L. South- and north-facing wooded slopes. Rare. May.

PAPAVERACEAE

+ *Dicentra canadensis* (Goldie) Walp. Wooded lowland and north-facing wooded slopes. Rare. May.

D. cucullaria (L.) Bernh. Dry mesic upland forest, north-facing wooded slopes, wooded lowland, and dry old field succession. Abundant. Apr.

Sanguinaria canadensis L. Dry mesic upland forest, south-facing wooded slopes, and wooded lowland. Abundant. Apr.

PHRYMACEAE

Phryma leptostachya L. Wooded lowland. Occasional. July.

PHYTOLACCACEAE

+ *Phytolacca americana* L. Dry mesic upland forest, mesic regrowth forest along stream banks, and parking lot. Occasional. July.

PLANTAGINACEAE

Plantago major L. Parking lot. Occasional. July. (Observed but not collected).

POLEMONIACEAE

+ *Phlox divaricata* var. *laphamii* (Wood) Wherry. South- and north-facing wooded slopes, and wooded lowland. Abundant. May.

POLYGALACEAE

Polygala senega L. Dry mesic upland forest, prairie, and south-facing wooded slopes. Occasional. May.

POLYGONACEAE

Polygonum pensylvanicum L. Mesic regrowth forest along stream banks and parking lot. Occasional. Aug.

+ + *P. punctatum* Ell. Sedge meadow. Occasional. July.

P. scandens L. Mesic regrowth forest along stream banks and parking lot. Rare. Sept.

+ *P. virginianum* L. Wooded lowland. Occasional. July.

Rumex crispus L. Dry old field succession and mesic regrowth forest along stream banks. Occasional. June.

+ + *R. orbiculatus* A. Gray. Sedge meadow. Rare. Sept.

PORTULACACEAE

Claytonia virginica L. Dry mesic upland forest, south- and north-facing wooded slopes, wooded lowland, and dry old field succession. Abundant. Apr.

PRIMULACEAE

Lysimachia ciliata L. Sedge meadow. Occasional. June.

RANUNCULACEAE

Actaea pachypoda Ell. Wooded lowland and north-facing wooded slopes. Occasional. May.

Anemone canadensis L. Wooded lowland. Occasional. June.

A. virginiana L. Dry mesic upland forest and south-facing wooded slopes. Rare. July.

+ *Anemonella thalictroides* L. South-facing wooded slopes. Rare. May.

Aquilegia canadensis L. North-facing wooded slopes. Rare. May.

+ + *Caltha palustris* L. Dry old field succession and sedge meadow. Occasional. Apr.

Hepatica nobilis var. *acuta* (Pursh) Steyerin. Dry mesic upland forest, wooded lowland, and north-facing wooded slopes. Occasional. Apr.

* *Hydrastis canadensis* L. Wooded lowland. Rare. May.

+ *Isopyrum biternatum* (Raf.) Torr. & Gray. South-facing wooded slopes and wooded lowland. Abundant. May.

Ranunculus abortivus L. Dry mesic upland forest, south-facing wooded slopes, wooded lowland, and dry old field succession. Occasional. May.

R. septentrionalis Poir. Wooded lowland. Occasional. May.

+ *Thalictrum dioicum* L. Wooded lowland. Rare. July.

RHAMNACEAE

Ceanothus americanus L. Dry mesic upland forest. Rare. June.

ROSACEAE

Agrimonia pubescens Wallr. Wooded lowland. Occasional. Sept.

+ *Aruncus dioicus* (Walt.) Fern. Prairie. Rare. June.

* *Filipendula rubra* (Hill) B.L. Robins. Sedge meadow. Abundant. July.

+ *Fragaria virginiana* Duch. Dry old field succession and mesic regrowth forest along stream banks. Abundant. May.

Geum canadense Jacq. Wooded lowland. Occasional. June.

Mallus pumila Mill. Dry mesic upland forest. Rare. May.

Potentilla recta L. Parking lot. Rare. May.

P. simplex Michx. Parking lot. Abundant. May.

Rosa multiflora Thunb. Dry mesic upland forest, south-facing wooded slopes, wooded lowland, dry old field succession, and wet old field succession. Abundant. June.

Rubus allegheniensis Porter. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Occasional. June. (Observed but not collected).

R. occidentalis L. Dry mesic upland forest, north-facing wooded slopes, and mesic regrowth forest along stream banks. Occasional. May. (Observed but not collected).

RUBIACEAE

Galium aparine L. Dry mesic upland forest, south- and north-facing wooded slopes. Abundant. May.

G. circaeazans Michx. Wooded lowland. Occasional. July.

G. concinnum Torr. & Gray. Dry mesic upland forest. Occasional. May.

G. triflorum L. Dry mesic upland forest. Occasional. May.

RUTACEAE

+ *Ptelea trifoliata* L. Dry mesic upland forest, south-facing wooded slopes, and wooded lowland. Rare. May.

+ *Zanthoxylum americanum* Mill. Dry mesic upland forest. Occasional. June.

SALICACEAE

- Populus deltoides* Marsh. Prairie and dry old field succession. Rare. June.
 + *Salix discolor* Muhl. Mesic regrowth forest along stream banks. Occasional. Apr.
S. nigra Marsh. Dry and wet old field succession. Abundant. May. (Observed but not collected).

SAXIFRAGACEAE

- Mitella diphylla* L. Wooded lowland. Rare. May.
 + *Ribes americanum* Mill. Dry mesic upland forest. Rare. June.
R. missouriense Nutt. Dry mesic upland forest and wet old field succession. Abundant. May.

SCROPHULARIACEAE

- + + *Chelone glabra* L. Sedge meadow. Rare. Sept.
Verbascum thapsus L. Dry mesic upland forest, dry old field succession, mesic regrowth forest along stream banks, and parking lot. Occasional. June.

SMILACACEAE

- Smilax ecirrata* (Engelm.) Wats. South- and north-facing wooded slopes. Occasional. Sept.
S. hispida Muhl. Dry mesic upland forest, south- and north-facing wooded slopes, and mesic regrowth forest along stream banks. Abundant. July.
S. lasioneuron Hook. South-facing wooded slopes. Occasional. June.
 + *S. pulverulenta* Michx. South-facing wooded slopes, wooded lowland, and mesic regrowth forest along stream banks. Rare. May.

STAPHYLEACEAE

- Staphylea trifolia* L. South-facing wooded slopes and wooded lowland. Rare. May.

TILIACEAE

- Tilia americana* L. Wooded lowland. Occasional. Aug.

TYPHACEAE

- Typha latifolia* L. Sedge meadow. Abundant. Aug.

ULMACEAE

- Ulmus americana* L. Wooded lowland. Occasional. Apr.
U. rubra Muhl. Dry mesic upland forest and wooded lowland. Abundant. Apr.

UMBELLIFERAE

- Angelica atropurpurea* L. Wet old field succession and sedge meadow. Abundant. May.
Cryptotaenia canadensis (L.) DC. Dry mesic upland forest, wooded lowland, mesic regrowth forest along stream banks, and parking lot. Abundant. May.
Daucus carota L. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Abundant. July. (Observed but not collected).
Heracleum maximum Bartr. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Occasional. May.
Osmorhiza claytonii (Michx.) Clark. Wooded lowland. Abundant. May.
 + *O. longistylis* (Torr.) DC. Wooded lowland. Abundant. June.

+ + *Oxypolis rigidior* (L.) Coulter & Rose. Sedge meadow. Occasional. Aug.

Pastinaca sativa L. Dry old field succession, mesic regrowth forest along stream banks, and parking lot. Abundant. June. (Observed but not collected).

Sanicula gregaria Bickn. South-facing wooded slopes and wooded lowland. Occasional. May.

S. trifoliata Bickn. Wooded lowland. Rare. Aug.

+ *Taenidia integerrima* (L.) Drude. South-facing wooded slopes. Rare. May.

URTICACEAE

Parietaria pensylvanica Muhl. South-facing wooded slopes. Rare. Aug.

Pilea pumila (L.) A. Gray. Dry mesic upland forest, south- and north-facing wooded slopes, and wooded lowland. Abundant. July.

Urtica dioica L. South-facing wooded slopes and wooded lowland. Abundant. July. (Observed but not collected).

U. gracilis Ait. Mesic regrowth forest along stream banks and sedge meadow. Occasional. Sept. (Observed but not collected).

VERBENACEAE

Verbena urticifolia L. North-facing wooded slopes, mesic regrowth forest along stream banks, wet old field succession, and parking lot. Occasional. July.

VIOLACEAE

+ *Viola pensylvanica* Michx. Wooded lowland. Occasional. May. (Observed but not collected).

V. sororia Willd. Dry mesic upland forest and wooded lowland. Occasional. May.

VITACEAE

Parthenocissus quinquefolia (L.) Planch. Dry mesic upland forest, south- and north-facing wooded slopes, and wooded lowland. Abundant. June-July. (Observed but not collected).

+ *Vitis aestivalis* Michx. Mesic regrowth forest along stream banks and parking lot. Abundant. June.

+ *V. vulpina* L. Wooded lowland. Occasional. June.

Table 2. Number of plant species collected from the ten habitat locations of Miller-Anderson Woods Nature Preserve

Habitat	Species number	Abundant ¹	Occasional ²	Rare ³
Wooded Lowland	80	19	42	19
Regrowth Forest	66	16	46	4
Mesic Forest	64	20	35	9
South-Facing Slopes	56	14	28	14
Parking Lot	47	9	34	4
North-Facing Slopes	37	13	18	6
Dry old Field	37	16	19	2
Prairie	30	6	16	8
Wet old Field	26	8	17	1
Sedge Meadow	25	7	11	7
Total	468	128	266	74

¹Abundant = >25, ²occasional = 12-25, and ³rare = <12 plants/habitat.

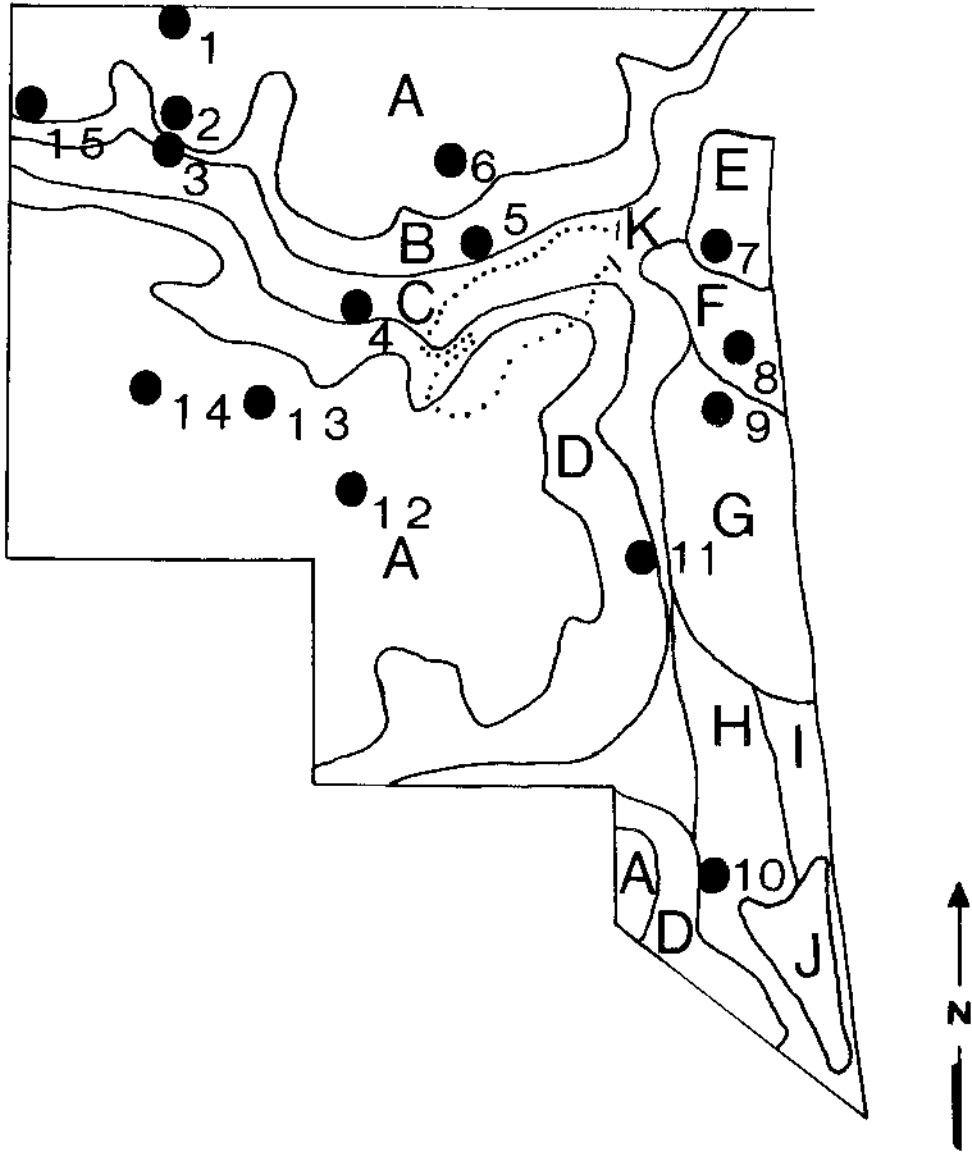


Fig. 1. Habitats and plot numbers of Miller-Anderson Woods Nature Preserve. A. Dry mesic upland forest-1, 2, 6, 12, 13, 14. B. South-facing wooded slopes-3, 5. C. Wooded lowland-4. D. North-facing wooded slopes-11. E. Dry old field succession-7. F. Mesic regrowth forest along stream banks-8. G. Wet old field succession-9. H. Sedge meadow-10. Prairie-15. Parking Lot-K.