

THE VASCULAR FLORA OF THE MISSISSIPPI PALISADES STATE PARK, CARROLL COUNTY, ILLINOIS

R. P. WUNDERLIN
Southern Illinois University

ABSTRACT. — An annotated catalog of the vascular flora of the Mississippi Palisades State Park, Carroll County, Illinois, containing 569 species was compiled from data collected in the field and from five state institutional herbaria. One hundred and ninety-eight species are listed that have not been previously recorded for Carroll County.

The Mississippi Palisades State Park, composed of 1560 acres, is located in northwestern Illinois, north of Savanna, Carroll County (Fig.1). The park, which lies in the southern part of the "Driftless Area", is principally composed of a greatly dissected section of the eastern bluff of the Mississippi River. Massive cliffs of Niagaran dolomite, the underlying bedrock, with vertical columns of rock eroded from the face are conspicuous features along the western border of the park. The local relief is approximately 280 feet. Drainage is to the west to the Mississippi River. The uplands and steep slopes are covered with loess soils varying from a few inches to more than 30 feet in depth. They have weakly developed profiles and little accumulation of clay in the subsoil. The buff bases are covered with talus and silt soils. The flood plains of the large valleys and the Mississippi River have alluvial soils of silt and silty-clay loams.

The climatic data, taken from Page (1949), are from a weather station located at Mount Carroll nine miles east of the park. The average January temperature is 20.9°F., the average July temperature is 73.3°F., and the average annual temperature is 48.1°F. The total annual precipitation is 34.20 inches with June, the wettest month, receiving 4.55 inches. The total annual snowfall is 32.3 inches with the largest amount, 8.3 inches, being received in January. The average date of the last killing frost in spring is May 8th and the average date of the first killing frost in autumn is October 5th, resulting in a frost-free period averaging 150 days in length. Prevailing winds in winter are from the northwest and from the southwest in summer.

VEGETATION

The Mississippi Palisades State Park has a number of diverse habitats with a rich and correspondingly diverse vegetation. The vegetation of the uplands is composed primarily of an oak woods with small to extensive prairie openings. The oak woods tend to be mesic and rich in species of trees, although almost pure stands of *Quercus alba* do occur. Much *Betula papyrifera* occurs in

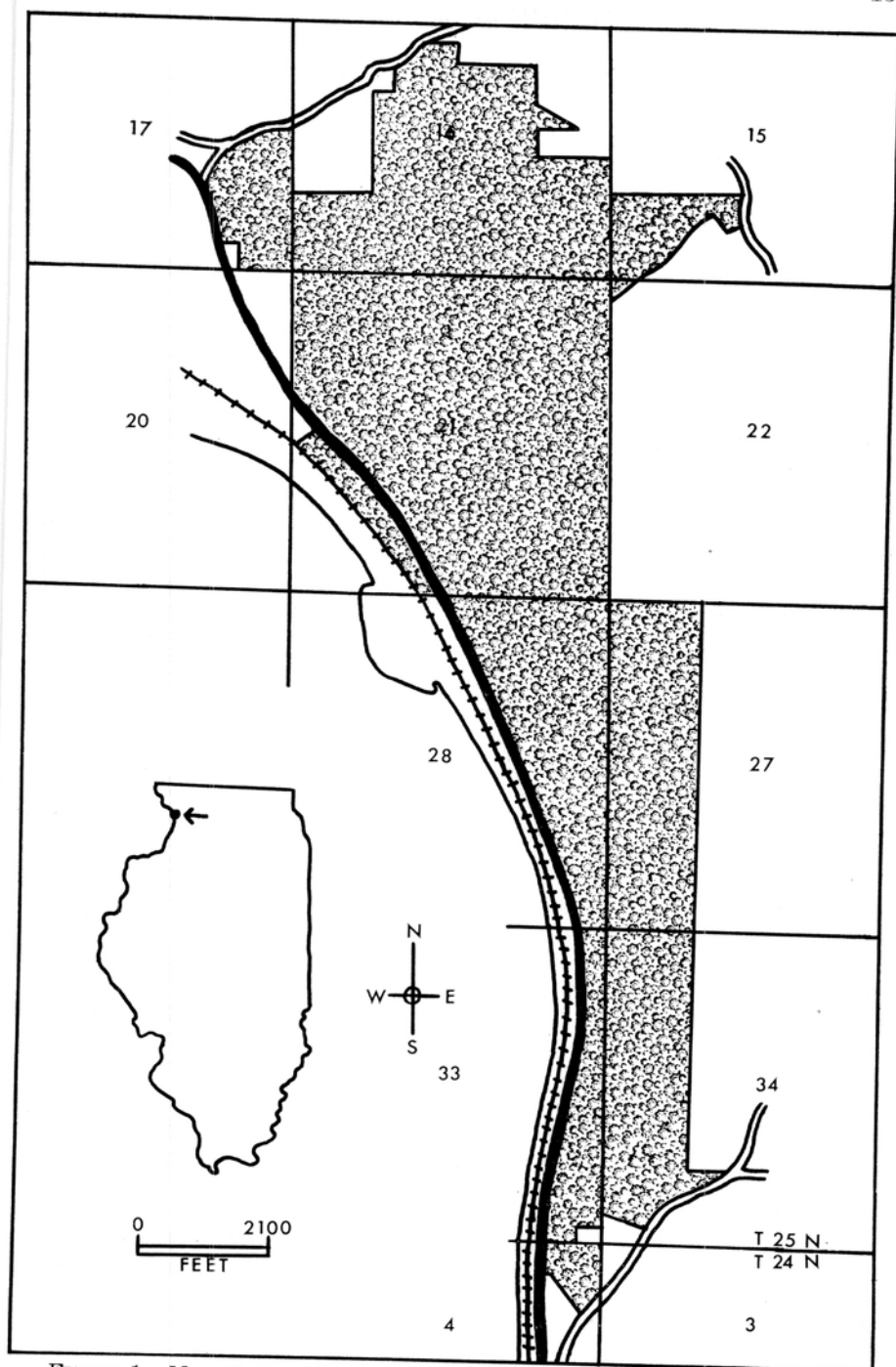


FIGURE 1.—Map of the Mississippi Palisades State Park showing location in Illinois and extent of coverage in Washington (T.25 N.-R.3 E.) and Savanna (T.24 N.-R.3 E.) Townships.

the uplands even in the dryer regions where *Juniperus virginiana* grows. The moist slopes and ravines contain a more mesic vegetation with *Acer saccharum* and *Tilia americana* as the dominant tree species. A rich herb and shrub layer is found throughout the forested regions. The prairie openings are dominated by *Andropogon furcatus* and *Sorghastrum nutans* and contain a large number of characteristic prairie forbs. In the northern part of the park are large expanses of land which were formerly cultivated and to which the native prairie vegetation is now returning. On the edge of the exposed western bluffs is a more xeric vegetation. Here *Juniperus virginiana* is abundant and several hill prairies occur with *Andropogon scoparius* and *Bouteloua curtipendula* as the dominant grasses. On the dry calcareous cliffs are growing *Solidago hispida*, *Cheilanthes feei*, *Arabis lyrata*, *Pellaea glabella*, *Campanula intercedens*, and on one high exposed cliff, *Opuntia rafinesquii*. On the shaded cliffs and rocky slopes are found *Dodecatheon amethystinum* and *Synthyris bullii* growing with numerous species of more common vascular plants. At the base of the slopes, where deep silt deposits occur, the woods grades into a lowland woods also rich in species. Here *Platanus occidentalis* and *Betula nigra* are common trees. Between the railroad track and the Mississippi River is a lowland meadow rich in herbs, scattered clumps of *Salix interior*, and an *Acer saccharinum*-*Betula nigra* lowland woods. In the meadow *Carex* spp. and *Spartina pectinata* are common with the latter often reaching over

six feet in height. The aquatic habitats are also rich in species as four species of Lemnaceae and six species of Potamogetonaceae grow in the shallow water in the park. Large beds of *Nelumbo lutea* occur in the river and *Nymphaea tuberosa* is common in one pond.

ANNOTATED CATALOG OF THE VASCULAR FLORA

The following catalog includes 569 species of native and naturalized vascular plants that are known to grow in the Mississippi Palisades State Park according to the investigator's studies conducted during the summers of 1962-1965. Also listed are 198 species not previously reported as occurring in Carroll County. This catalog has been annotated to give information on the habitats and relative abundance in the park for each species collected by the investigator, followed by the investigator's collection number(s). These specimens are deposited in the herbarium at Western Illinois University, Macomb. Specimens of species collected by other botanists and examined by the investigator are cited by the collector's name, collection number, and an abbreviation of the name of the institution in which they are deposited. Specimens were examined from the Illinois Natural History Survey (ILLS), the Illinois State Museum (ISM), Western Illinois University (WIU), Southern Illinois University (SIU), and the University of Illinois (ILL). The species preceded by an asterisk (*) are those which have not been previously reported as occurring in Carroll County. These records are based on data compiled by Jones and

Fuller (1955) and Winterringer and Evers (1960).

The order of the plant families and the nomenclature is that of Jones (1963).

Equisetaceae Rich.

Equisetum arvense L. Frequent in moist sandy soil; 165, 685.

**Equisetum fluviatile* L. Local in wet ground; 2268.

**Equisetum hyemale* L. Local in wet ground; 617.

Ophioglossaceae Presl

Botrychium virginianum (L.) Sw. Frequent in rich woods; 248.

Osmundaceae R.Br.

Osmunda claytoniana L. Frequent in rich woods; 164.

Polypodiaceae S. F. Gray

Adiantum pedatum L. Frequent in rich woods; 58.

Athyrium angustum (Willd.) Presl. Frequent in rich woods; 124, 162, 235.

Athyrium thelypteroides (Michx.) Desv. Local in rich woods; 236.

Camptosorus rhizophyllus (L.) Link. Frequent on moist limestone rocks in woods; 68.

Cheilanthes feei Moore. Frequent on dry exposed limestone cliffs; 129.

Cystopteris bulbifera (L.) Bernh. Frequent on moist rocks in rich woods; 86, 128, 187.

Cystopteris fragilis (L.) Bernh. Common in rich woods; 220.

Dryopteris hexagonoptera (Michx.) C. Chr. Local in rich woods; 705.

Dryopteris spinulosa (O. F. Muell.) Watt. Frequent in rich woods; 163, 1057.

Onoclea sensibilis L. Frequent in and along the edge of woods; 102.

Pellaea glabella Mett. Frequent on dry exposed limestone cliffs; 88.

**Polystichum acrostichoides* (Michx.) Schott. Local in rich woods; 1056.

Pteridium latiusculum (Desv.) Hieron. Frequent in and along the edge of woods; 251.

Woodсия obtusa (Spreng.) Torr. Local on moist rocks in rich woods; 2688.

Taxaceae Lindl.

Taxus canadensis Marsh. One small stand on edge of cliff; 247.

Pinaceae Lindl.

**Pinus nigra* Arnold. One mature stand planted with *Pinus sylvestris* but not reproducing spontaneously; 230.

Pinus strobus L. One small stand on open bluff top, possibly planted; 111.

**Pinus sylvestris* L. One mature stand planted with *Pinus nigra* but not reproducing spontaneously; 229.

Cupressaceae Horan.

Juniperus virginiana L. Locally abundant on exposed bluffs; 90.

Ranunculaceae Juss.

**Actaea alba* (L.) Mill. Frequent in rich woods; 250.

**Actaea rubra* (Ait.) Willd. Frequent in rich woods; 2676.

Anemone canadensis L. Frequent in open woods; 833.

Anemone cylindrica A. Gray. R. A. Evers 12736 (ILLS).

Anemone virginiana L. Frequent in open woods; 144, 668, 1062.

Aquilegia canadensis L. Frequent on rock outcrops in woods; 669.

Hepatica acutiloba DC. Common in rich woods; 621, 794.

Isopyrum biternatum (Raf.) Torr & Gray. Locally abundant in woods; 639.

Ranunculus abortivus L. Frequent in open ground; 632.

**Ranunculus pennsylvanicus* L.f. Local in wet ground; 940.

Ranunculus septentrionalis Poir. Frequent in rich woods; 650, 788.

Thalictrum dioicum L. Frequent in rich woods; 2777.

**Thalictrum revolutum* DC. Local along the edge of woods; 2762.

Nymphaeaceae DC.

**Nymphaea tuberosa* Paine. Locally abundant in shallow water; 920.

Nelumbonaceae Lindl.

**Nelumbo lutea* (Willd.) Pers. Abundant in Mississippi River; 970.

Ceratophyllaceae A. Gray

**Ceratophyllum demersum* L. Common in shallow water; 917.

Podophyllaceae DC.

Caulophyllum thalictroides (L.) Michx. Frequent in rich woods; 648.

Podophyllum peltatum L. Frequent in open woods; 981.

Menispermaceae DC.

- **Menispermum canadense* L. Common in woods; 234.

Violaceae DC.

- **Viola bernardii* Greene. Local on exposed bluff top; 2088.
 **Viola eriocarpa* Schw. Frequent in rich woods; 652.
 **Viola missouriensis* Greene. Local in open grounds; 2502.
 **Viola pedatifida* Don. Frequent in hill prairies and open woods; 2087.
 **Viola priceana* Pollard. Local in open ground; 2501.
Viola rugulosa Greene. Locally abundant in woods; 200, 624, 638.
Viola sororia Willd. Frequent in woods; 637, 787.

Cistaceae Horan.

- Helianthemum bicknellii* Fern. Local in hill prairies; 856.
Lechea villosa Ell. Local in hill prairies; 784, 867.

Papaveraceae B. Juss.

- Sanguinaria canadensis* L. Common in rich woods; 620, 721.

Fumariaceae DC.

- Dicentra cucullaria* (L.) Bernh. Common in rich woods; 622, 792.

Cruciferae B. Juss.

- **Alliaria officinalis* Andr. Locally abundant along the edge of woods; 84.
Arabis canadensis L. Local in woods; 84-1.
Arabis lyrata L. Common on limestone outcrops and cliffs; 195, 626, 629.
 **Barbarea vulgaris* R. Br. Local in waste ground; 880.
 **Brassica juncea* (L.) Cosson. Local in waste ground; 478.
 **Brassica nigra* (L.) Koch. Local in waste ground; 225.
 **Dentaria laciniata* Muhl. Frequent in rich woods; 786.
 **Descurainia sophia* (L.) Webb. Local in waste ground; 2779.
 **Draba reptans* (Lam.) Fern. Local on dry hillsides; 623.
 **Erucastrum gallicum* (Willd.) O. E. Schulz. Local in waste ground; 2778.
 **Erysimum cheiranthoides* L. Local in waste ground; 2780.
 **Erysimum inconspicuum* (Wats.) MacM. Local in waste ground; 2795.
Lepidium virginicum L. Frequent in open ground; 470.
 **Rorippa islandica* (Oeder) Borbas. Local in wet ground; 2695.

- **Rorippa sylvestris* (L.) Besser. Local in wet ground; 838, 841.

- **Sisymbrium officinale* (L.) Scop. Local in waste grounds; 477.

Hypericaceae Lindl.

- **Hypericum canadense* L. Local in wet ground; 982.
 **Hypericum perforatum* L. Frequent in open woods and prairies; 153.
Hypericum punctatum Lam. Frequent in open woods and prairies; 149, 159, 935.

Tiliaceae Juss.

- Tilia americana* L. Common in woods; 60.

Malvaceae Necker

- **Hibiscus militaris* Cav. Local in wet ground; 807.

Caryophyllaceae Reichenb.

- **Cerastium vulgatum* L. Frequent in open ground; 805, 961.
 **Silene antirrhina* L. Local in waste ground; 2661.
 **Silene nivea* (Nutt.) Otth. Local in rich woods; 2756.
 **Stellaria aquatica* (L.) Scop. Local in open ground; 491.

Portulacaceae Reichenb.

- **Claytonia virginica* L. Locally abundant in rich woods; 640.
Portulaca oleracea L. Local in waste ground; 2673.

Chenopodiaceae Dum.

- Chenopodium album* L. Frequent in waste ground; 152, 1073.
 **Chenopodium boscianum* Moq. Local in open woods; 2797.
Chenopodium hybridum L. Local in open woods and waste ground; 197.
Kochia scoparia (L.) Roth. Local in waste ground; 467.
 **Salsola pestifer* A. Nels. Local in waste ground; 2665.

Amaranthaceae J. St. Hil.

- Acnida altissima* Riddell. Frequent in wet ground; 811.
 **Amaranthus retroflexus* L. Frequent in waste ground; 476.

Nyctaginaceae Lindl.

- Mirabilis nyctaginea* (Michx.) MacM. Local in open ground; 466.

Polygonaceae Lindl.

- Polygonum aviculare* L. Frequent in waste ground; 473.

- Polygonum convolvulus* L. Local in waste ground; 489.
 **Polygonum erectum* L. Local in waste ground; 471, 672.
Polygonum pennsylvanicum L. Frequent in waste ground; 492, 806.
 **Polygonum persicaria* L. Frequent in waste ground; 137, 177.
Polygonum punctatum Ell. Frequent in waste ground; 804, 1058.
 **Polygonum scandens* L. Local in waste ground; 780.
 **Polygonum virginianum* L. Local in rich woods; 496.
Rumex acetosella L. Frequent in open ground; 683, 879.
 **Rumex altissimus* Wood. Local in open ground; 840, 966.
Rumex crispus L. Local in open ground; 2671.

Rutaceae Juss.

- Ptelea trifoliata* L. Local on rocky, wooded slopes; 465.
Zanthoxylum americanum Mill. Frequent in open woods; 65.

Geraniaceae J. St. Hil.

- Geranium maculatum* L. Frequent in rich woods; 831.

Oxalidaceae Lindl.

- Oxalis stricta* L. Common in open ground; 113.
Oxalis violacea L. Local in open woods and hill prairies; 651.

Balsaminaceae Lindl.

- **Impatiens biflora* Walt. Locally abundant in wet ground; 189.
Impatiens pallida Nutt. Locally abundant in wet ground; 239.

Polygalaceae Reichenb.

- **Polygala sanguinea* L. Local in open meadow; 2691.
Polygala senega L. R. A. Evers 10672 (ILLS).
Polygala verticillata L. R. A. Evers 61509 (ILLS).

Euphorbiaceae J. St. Hil.

- Acalypha rhomboidea* Raf. Frequent in woods; 474, 810, 817.
Acalypha virginica L. R. A. Evers 61484 (ILLS).
Chamaesyce maculata (L.) Small. Frequent in waste ground; 469.
Chamaesyce supina (Raf.) Moldenke. Frequent in waste ground; 475.
Euphorbia corollata L. Common in prairies and open woods; 123, 141.

- **Euphorbia marginata* Pursh. Local in open ground; 2727.
Poinsettia cyathophora (Murr.) Small. Local in open ground; 2719.
Poinsettia dentata (Michx.) Small. Local in open ground; 487.

Celastraceae Lindl.

- Celastrus orbiculatus* Thunb. Frequent in open woods; 710.
Celastrus scandens L. Frequent in open woods; 213.
Euonymus atropurpureus Jacq. Local on rocky, wooded slopes; 776.

Staphyleaceae (DC.) Lindl.

- Staphylea trifolia* L. Local on rocky, wooded slopes; 56, 647.

Anacardiaceae Lindl.

- Rhus arenaria* (Greene) G. N. Jones. Local on rocky slopes; 646, 828, 2678.
Rhus aromatica Ait. Local on rocky slopes; 2684.
Rhus glabra L. Common along the edge of woods; 80.
Rhus radicans L. Common in woods; 233.

Aceraceae J. St. Hil.

- Acer negundo* L. Frequent in lowland woods; 55.
Acer saccharinum L. Common in lowland woods; 510.
 **Acer saccharum* Marsh. Common in moist, wooded ravines; 59.

Rhamnaceae R. Br.

- Ceanothus americanus* L. Local in open woods and prairies; 94, 680.
Rhamnus cathartica L. Local along the edge of woods; 87, 515.
 **Rhamnus frangula* L. Local along the edge of woods; 2686.

Vitaceae Lindl.

- Parthenocissus quinquefolia* (L.) Planch. Common in woods; 101.
Vitis riparia Michx. Local in wet ground; 2790.
Vitis vulpina L. Frequent in woods; 99, 100, 829-A.

Rosaceae Juss.

- Agrimonia pubescens* Wallr. Frequent in woods; 122, 709.
Amelanchier spicata (Lam.) K. Koch. Local on exposed bluff tops; 214.
Aruncus dioicus (Walt.) Fern. Frequent in woods; 125.
 **Crataegus crusgalli* L. Local in open woods; 97.

- **Crataegus margaretta* Ashe. Along the edge of woods; 2752.
Fragaria americana (Porter) Britt. Local in open woods; 658.
 **Fragaria virginiana* Duch. Frequent in open woods; 799, 974.
Geum canadense Jacq. Frequent in woods; 161.
Malus ioensis (Wood) Britt. Local in and along the edge of open woods; 228.
 **Malus pumila* Mill. Persisting from cultivation and occasionally established along the borders of woods; 168.
Physocarpus opulifolius (L.) Maxim. Local on rocky, wooded slopes; 514.
Potentilla arguta Pursh. Frequent in prairies; 875.
Potentilla monspeliensis L. Frequent in prairies; 158, 965.
Potentilla recta L. Frequent in prairies and open ground; 154, 684.
Potentilla simplex Michx. Local in open ground; 679.
Prunus americana Marsh. Frequent along the edge of woods; 641, 706.
Prunus lanata (Sudw.) Mack. & Bush. R. M. Myers s.n. (WIU).
Prunus serotina Ehrh. Frequent in woods; 93.
Prunus virginiana L. Frequent along the edge of woods; 92, 593.
Pyrus communis L. R. A. Evers 10677 (ILLS).
Rosa carolina L. Frequent along the edge of woods and in prairies; 870.
 **Rosa setigera* Michx. Local along the edge of woods; 2687.
Rosa suffulta Greene. R. A. Evers 24467 (ILLS).
Rubus allegheniensis Porter. Common along the edge and in open woods; 107.
Rubus flagellaris Willd. Local in open ground; 947.
 **Rubus occidentalis* L. Frequent in and along the edge of woods; 66, 223.
Rubus odoratus L. G. D. Fuller 10525 (ISM).
- Leguminosae P. F. Gmel.**
Amorpha canescens Pursh. Frequent in hill prairies; 134.
Amorpha fruticosa L. Locally abundant near water; 83.
 **Amphicarpa comosa* (L.) G. Don. Common in woods; 610.
 **Apios americana* Medic. Locally abundant in wet ground; 818.
Astragalus canadensis L. Local in open woods; 871.
Baptisia leucantha T. & G. Frequent along the edge of woods and in prairies; 675.
Cassia fasciculata Michx. Locally abundant in open ground; 166.
Crotolaria sagittalis L. R. A. Evers 28206 (ILLS).
Desmodium canadense (L.) DC. Frequent in prairies; 138, 992.
Desmodium glabellum (Michx.) DC. Local in open woods; 2717.
Desmodium glutinosum (Muhl.) Wood. Common in rich woods; 109.
Desmodium illinoense A. Gray. Common in prairies; 139.
 **Desmodium longifolium* (T. & G.) Smyth. Local in open woods; 169, 989.
Gleditsia triacanthos L. Local along the edge of woods; 110.
Gymnocladus dioica (L.) K. Koch. Local in woods; 45.
Lespedeza capitata Michx. Common in prairies; 448.
 **Lespedeza cuneata* (Dum.-Cours.) G. Don. Locally abundant along the edge of woods and in prairies where apparently planted; 607.
Medicago lupulina L. Frequent in waste ground; 2781.
Medicago sativa L. Local in open ground; 2666.
Melilotus alba Desr. Frequent in open ground; 75.
Melilotus officinalis (L.) Lam. R. M. Myers s.n. (WIU).
Petalostemum candidum (Willd.). Local in hill prairies; 243.
Petalostemum purpureum (Vent.) Rydb. Frequent in hill prairies; 135.
Strophostyles helvola (L.) Britt. Local in prairies and open woods; 451, 946.
Strophostyles leiosperma (T. & G.) Piper. R. A. Evers 28207 (ILLS).
 **Trifolium agrarium* L. R. M. Myers s.n. (WIU).
Trifolium dubium Sibth. R. A. Evers 12707 (ILLS).
Trifolium hybridum L. Frequent in open ground; 1059.
Trifolium pratense L. Frequent in open ground; 155.
Trifolium procumbens L. Frequent in open ground; 89, 683, 924.
Trifolium repens L. Frequent in open ground; 224.
- Hydrangeaceae Dumort.**
 **Hydrangea arborescens* L. Persistent from cultivation near the site of old dwelling; 2767.

Grossulariaceae Dumort.

- Ribes americanum* Mill. Local in rich woods; 2694.
Ribes cynosbati L. Frequent in open woods; 181, 631.
Ribes missouriense Nutt. Frequent in open woods; 642.

Hamamelidaceae Lindl.

- **Hamamelis virginiana* L. Local in rich woods; 61.

Platanaceae Lindl.

- Platanus occidentalis* L. Frequent in lowland forest; 513.

Crassulaceae DC.

- **Sedum sarmentosum* Bunge. Local along the edge of woods where probably introduced; 2799.
 **Sedum triphyllum* (Haw.) S. F. Gray. Persistent from cultivation near the site of old dwellings; 2798.

Penthoraceae Van Tieghem

- Penthorum sedoides* L. Frequent in wet ground; 950.

Saxifragaceae DC.

- Heuchera richardsonii* R. Br. R. A. Evers 64168 (ILLS).
Mitella diphylla L. Frequent in rich woods; 643.

Fagaceae A. Br.

- **Castanea dentata* (Marsh.) Borkh. Possibly persistent from cultivation in rich wooded ravine; 2716.
Quercus alba L. Common in woods; 81.
 **Quercus ellipsoidalis* E. J. Hill. Local in woods; 704.
Quercus macrocarpa Michx. Frequent in open woods; 211.
Quercus muhlenbergii Engelm. Local on exposed bluff tops; 703, 827.
Quercus rubra L. Common in woods; 198, 215.
Quercus velutina Lam. Common in woods; 96, 179.

Betulaceae Agardh

- Betula nigra* L. Common in lowland woods; 116.
Betula papyrifera Marsh. Common in woods; 151.
Corylus americana Walt. Frequent along the edge of woods; 108, 160.
Ostrya virginiana (Mill.) K. Koch. Common in woods; 57.

Juglandaceae Lindl.

- Carya cordiformis* (Wang.) K. Koch. Frequent in open woods; 184.

Carya ovata (Mill.) K. Koch. Frequent in open woods; 193.

Juglans cinerea L. Local in woods; 98.

Juglans nigra L. Frequent in woods; 2698.

Salicaceae Lindl.

- Populus deltoides* Marsh. Frequent in lowland woods; 48.
Populus grandidentata Michx. Frequent along the edge of woods; 103.
Populus tremuloides Michx. Frequent along the edge of woods; 115.
 **Salix amygdaloides* Anders. Local in wet grounds; 500, 937.
Salix humilis Marsh. Local in prairies; 245, 865.
Salix interior Rowlee. Frequent in wet ground; 936.
 **Salix nigra* Marsh. Frequent in wet ground; 501.
Salix rigida Muhl. G. N. Jones 16365 (ISM).
 **Salix sericea* Marsh. Local in wet ground; 627.

Ulmaceae Mirb.

- Celtis occidentalis* L. Local in lowland woods; 53.
Ulmus americana L. Frequent in woods; 114.
 **Ulmus rubra* Muhl. Frequent in woods; 43.

Moraceae Lindl.

- **Morus alba* L. Local along the edge of woods; 54.
Morus rubra L. Local along the edge of woods; 64.
Morus tatarica L. Local along the edge of woods; 2510.

Cannabaceae Lindl.

- Cannabis sativa* L. Local in open ground; 173.
 **Humulus americanus* Nutt. Local along the edge of woods; 2715.

Urticaceae Reichenb.

- **Boehmeria cylindrica* (L.) Sw. Frequent in wet ground; 809.
 **Laportea canadensis* (L.) Gaud. Frequent in moist woods; 2680.
 **Parietaria pennsylvanica* Muhl. Frequent in woods; 2697.
 **Pilea pumila* (L.) A. Gray. Frequent in moist woods; 708.
Urtica gracilis Ait. Frequent in moist woods and waste ground; 1065.

Lythraceae Lindl.

- **Ammannia coccinea* Rottb. Local in moist ground; 2794.

Lythrum alatum Pursh. Frequent in wet ground; 773, 836.

Lythrum salicaria L. Locally abundant in wet ground; 440.

**Rotala ramosior* (L.) Koehne. Local in wet ground; 814.

Cactaceae Lindl.

Opuntia rafinesquii Engelm. Local on high, exposed, limestone ledge; 2800.

Cucurbitaceae B. Juss.

Echinocystis lobata (Michx.) T. & G. Local along the edge of woods; 516.

Onagraceae Dumort.

Circaea latifolia Mill. Frequent in woods; 67, 707.

**Epilobium coloratum* Muhl. Locally abundant in wet ground; 461, 499, 882.

**Gaura biennis* L. Local along the edge of woods; 509.

Oenothera biennis L. Frequent in open woods and open ground; 150, 212, 781.

Aristolochiaceae Blume

Asarum acuminatum (Ashe) Bickn. Common in rich woods; 634.

Santalaceae R. Br.

Comandra umbellata (L.) Nutt. Local in dry open woods and hill prairies; 590, 823, 975.

Cornaceae Link

Cornus alternifolia L.f. Common in rich woods; 62.

Cornus drummondii C. A. Mey. Frequent in open woods; 95, 1064.

Cornus racemosa Lam. Frequent along the edge of woods; 118, 449.

Araliaceae Vent.

Aralia nudicaulis L. G. D. Fuller 17154 (ISM).

Aralia racemosa L. Frequent in rich woods; 172, 222.

Umbelliferae Scop.

Cicuta maculata L. Local in wet ground; 171, 969.

Cryptotaenia canadensis (L.) DC. Frequent in woods; 671.

Daucus carota L. Frequent in open ground; 117.

**Eryngium yuccifolium* Michx. Local in prairies; 244.

Osmorhiza claytonii (Michx.) Clarke. Frequent in rich woods; 188.

Osmorhiza longistylis (Torr.) DC. Local in rich woods; 2685.

Sanicula canadensis L. R. A. Evers 61507 (ILLS).

**Sanicula gregaria* Bickn. Frequent in woods; 711.

Sium suave Walt. Local in wet ground; 2766.

Zizia aurea (L.) Koch. Local in open woods; 795.

Ericaceae DC.

Monotropa uniflora L. R. A. Evers 58755 (ILLS).

Pyrola elliptica Nutt. R. A. Evers 10677 (ILLS).

Primulaceae Vent.

Dodecatheon amethystinum Fassett. Locally abundant on rocky, wooded slopes and bluff tops; 628.

Lysimachia ciliata L. Frequent in moist ground; 121.

Oleaceae Lindl.

Fraxinus americana L. Local in woods; 46-A.

Fraxinus lanceolata Borkh. Local in woods; 46, 502.

**Fraxinus pennsylvanica* Marsh. Local in woods; 941.

**Ligustrum vulgare* L. Persistent from cultivation near the site of old dwellings; 2728.

**Syringa vulgaris* L. Persistent from cultivation near the sites of old dwellings; 2507.

Apocynaceae Lindl.

**Apocynum androsaemifolium* L. Local in open woods; 2683.

**Apocynum cannabinum* L. Local in open woods; 972.

**Apocynum medium* Greene. Local in open woods; 47, 712.

Asclepiadaceae Lindl.

**Asclepias exaltata* (L.) Muhl. Local in rich woods; 2755.

Asclepias incarnata L. Frequent in wet ground; 932.

**Asclepias purpurascens* L. Local in open woods; 676.

Asclepias syriaca L. Frequent in open ground; 942.

**Asclepias tuberosa* L. Frequent in open ground; 802.

Asclepias verticillata L. Frequent in prairies and open ground; 132, 443.

Polemoniaceae Juss.

Phlox divaricata L. Common in rich woods; 797, 798.

**Phlox paniculata* L. Local in open ground; 2725.

Phlox pilosa L. Local in open woods; 826.

Convolvulaceae Vent.

- **Convolvulus americanus* (Sims) Greene. Local in waste ground; 948.
 **Convolvulus arvensis* L. Local in waste ground; 2667.
 **Cuscuta compacta* Juss. Local in moist woods; 813, 1072.

Hydrophyllaceae Lindl.

- Ellisia nyctelea* L. Local in open ground; 2508.
Hydrophyllum virginianum L. Common in rich woods; 832.

Solanaceae Pers.

- **Physalis heterophylla* Nees. Local in open grounds; 468.
Physalis virginiana Mill. Local in open ground; 2663.
Solanum carolinense L. Local in open ground; 829.
Solanum nigrum L. Local in waste ground and open woods; 196, 1060.

Scrophulariaceae Lindl.

- Aureolaria grandiflora* (Benth.) Pennell. Local in open woods; 240, 445.
Castilleja coccinea (L.) Spreng. R. A. Evers 12706 (ILLS).
 **Chaenorhinum minus* (L.) Lange. Local in waste ground; 2664.
 **Gerardia tenuifolia* Vahl. Local in wet ground; 619, 812.
 **Gratiola neglecta* Torr. Local in wet ground; 991.
 **Lindernia dubia* (L.) Pennell. Local in wet ground; 1075.
Penstemon pallidus Small. Frequent in hill prairies; 677, 845.
Scrophularia marilandica L. Local in woods; 178.
Synthyris bullii (Eaton) Heller. Local on shaded bluff tops; 653.
Verbascum thapsus L. Local in waste ground; 50.
 **Veronica peregrina* L. Frequent in waste ground; 962.
Veronicastrum virginicum (L.) Farw. Local in open ground; 140, 959.

Bignoniaceae Pers.

- **Campsis radicans* (L.) Seem. Local near the site of old dwelling; 2724.

Plantaginaceae Lindl.

- Plantago aristata* Michx. Local in waste ground; 944.
 **Plantago lanceolata* L. Frequent in open ground; 105, 673.
Plantago rugelii Dec. Common in open ground; 106.

Boraginaceae Lindl.

- Cynoglossum officinale* L. R. A. Evers 10633 (ILLS).
 **Hackelia americana* (A. Gray) Fern. Local in open woods; 2753.
Hackelia virginiana (L.) I. M. Johnst. Frequent in open woods; 192.
Lithospermum canescens (Michx.) Lehm. Frequent in hill prairies and local in open woods; 592, 660, 849.
 **Mertensia virginica* (L.) Pers. Frequent in rich woods; 662.

Verbenaceae J. St. Hil.

- Phyla lanceolata* (Michx.) Greene. Frequent in wet ground; 837.
Verbena bracteata Lag. & Rodr. Frequent in waste ground; 472.
Verbena hastata L. Local in open ground; 148, 208.
Verbena stricta Vent. Common in waste ground and prairies; 49, 130.
Verbena urticifolia L. Local in open ground; 136.

Phrymaceae Schauer

- Phryma leptostachya* L. Frequent in woods; 127.

Labiatae Juss.

- **Agastache nepetoides* (L.) Ktze. Local in moist open woods; 2770.
Hedeoma hispida Pursh. Local in dry open ground; 2506.
 **Isanthus brachiatus* (L.) BSP. Local in open ground; 990.
 **Leonurus cardiaca* L. Local in open ground; 44.
Lycopus americanus Muhl. Frequent in wet ground; 174, 497.
 **Lycopus rubellus* Moench. Local in wet ground; 205.
Mentha canadensis L. Frequent in wet ground; 951.
Monarda fistulosa L. Common in prairies and open ground; 79.
Nepeta cataria L. Local in open ground; 42.
 **Physostegia speciosa* Sweet. Local in wet ground; 883.
Prunella vulgaris L. Frequent in open ground; 126.
Pycnanthemum pilosum Nutt. R. A. Evers 58767 (ILLS).
Pycnanthemum virginianum (L.) Dur. & Jacks. Frequent in prairies and open ground; 131, 953-A.
Scutellaria lateriflora L. Local in wet ground; 191.
Scutellaria leonardii Epling. Frequent on exposed bluff tops; 848.

Scutellaria ovata Hill. Frequent in woods; 74, 687.
Teucrium canadense L. Frequent in open ground; 120.

Rubiaceae B. Juss.

Cephalanthus occidentalis L. Local in wet ground; 884.
Galium circaeazans Michx. R. A. Evers 13841 (ILLS).
Galium concinnum T. & G. Frequent in open woods; 183, 678.
Galium obtusum Bigel. Frequent in moist woods; 949.
Galium triflorum Michx. Frequent in moist woods; 71, 185.

Capifoliaceae Vent.

Lonicera japonica Thunb. R. A. Evers 24474 (ILLS).
Lonicera prolifera (Kirchn.) Redh. R. M. Myers s.n. (WIU).
 **Sambucus canadensis* L. Local along the edge of woods; 63.
Symphoricarpos occidentalis Hook. Local in open woods; 508.
Triosteum aurantiacum Bickn. Local in open woods; 246.
Viburnum lentago L. R. A. Evers 10645 (ILLS).
Viburnum rafinesquianum Schultes. Local in woods; 69.

Campanulaceae Juss.

Campanula americana L. Frequent in woods; 218.
Campanula intercedens Witasek. Frequent on rocky outcrops; 91, 667.
 **Specularia perfoliata* (L.) A. DC. Local in waste ground; 876.

Lobeliaceae Dum.

Lobelia cardinalis L. Local in wet ground; 774.
Lobelia inflata L. Frequent in open ground; 442.
Lobelia siphilitica L. Frequent in moist ground; 190.
 **Lobelia spicata* Lam. Frequent in prairies; 957.

Compositae P. F. Gmel.

**Achillea lanulosa* Nutt. Local in waste ground; 2092.
Achillea millefolium L. Frequent in open ground; 147.
Ambrosia artemisiifolia L. Frequent in waste ground; 444.
Ambrosia trifida L. Frequent in waste ground; 490.
Antennaria neglecta Greene. R. A. Evers 42018 (ILLS).

Antennaria plantaginifolia (L.) Hook. Frequent in open ground; 635, 986.
Arctium minus (Hill) Bernh. Local in waste ground; 180.
Artemisia caudata Michx. Frequent on exposed limestone cliffs; 602.
Aster azureus Lindl. R. A. Evers 58752 (ILLS).
Aster ericoides L. R. A. Evers 58731 (ILLS).
Aster laevis L. Local in woods; 859.
Aster lateriflorus (L.) Britt. Frequent in woods; 857, 858, 860.
Aster novae-angliae L. Local along the edge of woods; 604.
 **Aster parviceps* (Burgess) Mack. & Bush. Local in open woods; 608, 864, 1055.
Aster pilosus Willd. Frequent along the edge of woods; 612, 815.
Aster sagittifolius Wedem. Local in open woods; 2729.
Aster shortii Lindl. Local in open woods; 609, 1068.
 **Aster simplex* Willd. Local in moist ground; 994.
Bidens comosa (A. Gray) Weig. Local in wet ground; 498, 873.
 **Bidens frondosa* L. Local in wet ground; 821, 853, 1066.
Bidens vulgata Greene. Local in wet ground; 2721.
 **Chrysanthemum leucanthemum* L. Local in open ground; 182.
Cirsium altissimum (L.) Spreng. Local along the edge of woods; 503.
Cirsium discolor (Muhl.) Spreng. Local in open ground; 603.
Cirsium vulgare (Savi) Tenore. Local in open ground; 505.
Coreopsis palmata Nutt. Local in hill prairies and open woods; 2681.
 **Erechtites hieracifolia* (L.) Raf. Local along the edge of woods; 1073.
Erigeron canadensis L. Common in open ground; 453.
Erigeron philadelphicus L. Local in open woods; 824.
Erigeron pulchellus Michx. Local in open woods; 881.
Erigeron strigosus Muhl. Frequent in open ground; 78.
Eupatorium altissimum L. Frequent along the edge of woods; 482, 777.
 **Eupatorium perfoliatum* L. Local in wet ground; 207.
Eupatorium purpureum L. Local along the edge of woods; 157.
Eupatorium rugosum Houtt. Common in woods; 219.
Eupatorium serotinum Michx. Local in wet ground; 511, 954.

- **Galinsoga parviflora* Cav. Local in waste ground; 204.
Gnaphalium obtusifolium L. Local in prairies; 450.
 **Helenium autumnale* L. Local in wet ground; 874.
 **Helianthus decapetalus* L. Local in woods; 249.
Helianthus grosseserratus Martens. Local along the edge of woods; 2658.
 **Helianthus hirsutus* Raf. Local along the edge of woods; 446.
Helianthus strumosus L. Local in open woods; 613.
 **Helianthus tomentosus* Michx. Local along the edge of woods; 241.
 **Heliotropis helianthoides* (L.) Sweet. Local in prairies; 72.
 **Hieracium canadense* Michx. Local along the edge of woods; 852.
Krigia biflora (Walt.) Blake. R. A. Evers 37770 (ILLS).
Kuhnia eupatorioides L. Local in prairies; 783, 877.
Lactuca canadensis L. Frequent in prairies; 156, 816, 854.
Lactuca floridana (L.) Gaertn. Frequent in woods; 517.
Liatris aspera Michx. Frequent in prairies; 452.
Liatris cylindracea Michx. R. A. Evers 28206 (ILLS).
Matricaria matricarioides (Less.) Porter. Local in waste ground; 872.
Parthenium integrifolium L. Local in prairies; 782.
Polymnia canadensis L. Local in woods; 73, 672.
 **Prenanthes alba* L. Frequent in woods; 779.
Ratibida pinnata (Vent.) Barnh. Common in prairies; 77.
Rudbeckia hirta L. Frequent in prairies and open ground; 76, 104.
Senecio pauperculus Michx. R. A. Evers 29909 (ILLS).
Senecio plattensis Nutt. Frequent in open ground; 878.
Silphium perfoliatum L. Local in wet ground; 142.
Solidago altissima L. Frequent along the edge of woods; 493.
 **Solidago gigantea* Ait. Frequent in wet ground; 820, 862.
Solidago glaberrima Martens. Common in prairies; 143, 226, 447.
 **Solidago hispida* Muhl. Frequent on exposed limestone cliffs; 199.
Solidago latifolia L. Frequent in woods; 495, 1067.
Solidago nemoralis Ait. Frequent in prairies; 605, 606, 869.

- Solidago rigida* L. Frequent in prairies; 616, 785.
Solidago sciaphila Steele. L. H. Shimmers (ILL).
Solidago speciosa Nutt. Frequent in prairies; 615, 868.
Solidago ulmifolia Muhl. Frequent in woods; 494, 803, 953.
 **Sonchus oleraceus* L. Frequent in waste ground; 202.
Taraxacum officinale Wiggers. Common in open ground; 206.
Tragopogon dubius Scop. Frequent in open ground; 82.
Tragopogon pratensis L. Frequent in open ground; 2726.
 **Vernonia fasciculata* Michx. Local in wet ground and along the edge of woods; 455.
 **Xanthium commune* Britt. Local in wet ground; 2723.

Alismaceae DC.

- Alisma subcordatum* Raf. Local in wet ground; 2793.
Sagittaria latifolia Willd. Frequent in shallow water; 459.

Naiadaceae Lindl.

- **Najas flexilis* (Willd.) R. & S. Frequent in shallow water; 923.

Potamogetonaceae Engler

- **Potamogeton americanus* C. & S. Frequent in shallow water; 209, 218.
 **Potamogeton crispus* L. Frequent in shallow water; 919.
 **Potamogeton foliosus* Raf. Common in shallow water; 914.
 **Potamogeton pectinatus* L. Frequent in shallow water; 518, 915.
 **Potamogeton pusillus* L. Frequent in shallow water; 958.
 **Zannichellia palustris* L. Frequent in shallow water; 922.

Liliaceae Adans.

- Allium tricoccum* Ait. Frequent in rich woods; 186.
Asparagus officinalis L. Local along the edge of woods; 221.
 **Convallaria majalis* L. Persisting from cultivation near the site of old dwelling; 2500.
 **Erythronium albidum* Nutt. Frequent in rich woods; 789.
 **Erythronium americanum* Ker. Local in rich woods; 790.
 **Heimerocallis fulva* L. Locally abundant along the edge of woods; 2674.
Hosta lancifolia (Thunb.) Engler. R. H. Mohlenbrock 7214 (SIU).

Polygonatum commutatum (Schultes) Dietr. Local along the edge of woods; 231.

Smilacina racemosa (L.) Desf. Frequent in open woods; 232.

Smilacina stellata (L.) Desf. Frequent in open woods; 591.

Smilax hispida Muhl. Frequent in open woods; 201.

Smilax lasioneura Hook. R. A. Evers 29916 (ILLS).

**Trillium grandiflorum* (Michx.) Salisb. Frequent in rich woods; 649, 654, 663.

**Trillium recurvatum* Beck. Common in woods; 630.

Uvularia grandiflora Sm. Common in woods; 688.

Juncaceae Vent.

Juncus bufonius L. Locally abundant in wet ground; 2682.

**Juncus dudleyi* Wieg. Local in wet ground; 2099.

Juncus tenuis Willd. Common in open woods; 457.

**Juncus torreyi* Coville. Local in wet ground; 441.

Commelinaceae Reichenb.

**Commelina communis* L. Local along the edge of woods; 70.

Tradescantia ohiensis Raf. Local in open ground; 939.

Pontederiaceae Dumort.

**Heteranthera dubia* (Jacq.) MacM. Locally abundant in shallow water; 916.

Amaryllidaceae Lindl.

**Hypoxis hirsuta* (L.) Coville. Local in open woods and hill prairies; 825.

Iridaceae Lindl.

Iris shrevei Small. Local in wet ground; 2672.

Sisyrinchium campestre Bickn. Local in open woods and hill prairies; 656.

Dioscoreaceae Lindl.

**Dioscorea villosa* L. Local in open woods; 2692.

Orchidaceae Lindl.

Crypripedium parviflorum Salisb. Local in rich woods; 822.

Goodyera pubescens (Willd.) R. Br. Local in woods; 227.

Liparis lilifolia (L.) Rich. R. A. Evers 58759 (ILLS).

**Spiranthes gracilis* (Bigel.) Beck. Frequent in prairies; 772.

Araceae Necker

Acorus calamus L. Locally abundant in wet ground; 2090.

Arisaema triphyllum (L.) Schott. Frequent in rich woods; 636.

Lemnaceae Dumort.

**Lemna minor* L. Common in shallow water; 1080.

**Lemna trisulca* L. Locally abundant in shallow water; 921.

**Spirodela polyrrhiza* (L.) Schleid. Common in shallow water; 800.

**Wolffia columbiana* Karst. Frequent in shallow water; 801.

Typhaceae J. St. Hil.

Typha latifolia L. Frequent in shallow water; 460, 850.

Cyperaceae J. St. Hil.

Carex bicknellii Britt. Local in prairies; 146.

Carex blanda Dewey. Frequent in open woods; 1008.

Carex cephalophora Muhl. Frequent in open woods; 842.

**Carex convoluta* Mack. Frequent in woods; 985.

**Carex cristatella* Britt. Frequent in wet ground; 976, 979, 980.

Carex eburnea Boott. Local in dry open woods; 456.

**Carex gracillima* Schw. Local in woods; 633.

Carex hystricina Muhl. Frequent in wet ground; 237.

Carex laeviconica Dewey. Local in wet ground; 2802.

**Carex lupuliformis* Sartw. Frequent in wet ground; 837, 960, 967.

Carex normalis Mack. R. A. Evers 37781 (ILLS).

Carex pennsylvanica Lam. Common in open woods; 625, 793.

Carex rosea Schk. R. A. Evers 37759 (ILLS).

**Carex scoparia* Schk. Local in wet ground; 2801.

Carex sparganioides Muhl. R. A. Evers 10645 (ILLS).

Carex sprengelii Dewey. Frequent in wet ground; 938.

**Carex tribuloides* Wahl. Frequent in wet ground; 1043.

**Carex vescaria* L. Frequent in wet ground; 835.

Carex vulpinoidea Michx. Frequent in wet ground; 834, 934.

**Cyperus acuminatus* Torr. & Hook. Local in wet ground; 983.

**Cyperus strigosus* L. Local in wet ground; 76, 1037.

- **Eleocharis acicularis* (L.) R. & S. Local in wet ground; 2839.
 **Eleocharis ovata* (Roth.) R. & S. Local in wet ground; 1077.
 **Eleocharis palustris* (L.) R. & S. Local in wet ground; 2841.
Scirpus atrovirens Willd. Frequent in wet ground; 170, 851.

Gramineae Juss.

- Agropyron repens* (L.) Beauv. Frequent in open ground; 2696.
 **Agropyron smithii* Rydb. Local in waste ground; 977.
Agrostis alba L. Common in open ground; 52.
 **Agrostis hyemalis* (Walt.) BSP. Frequent in open ground; 830.
 **Agrostis perennans* (Walt.) Tuckerm. R. A. Evers 58750 (ILLS).
Andropogon furcatus Muhl. Common in prairies; 464.
Andropogon scoparius Michx. Common in hill prairies; 601.
Aristida basiramea Englm. R. A. Evers 28186 (ILLS).
 **Aristida intermedia* Scribn. & Ball. R. A. Evers 28211 (ILLS).
Aristida oligantha Michx. Frequent in open ground; 778.
Bouteloua curtipendula (Michx.) Torr. Common in hill prairies; 133.
Bouteloua hirsuta Lag. Local in hill prairies; 454.
 **Brachyelytrum erectum* (Screb.) Beauv. Local in woods; 2787.
Bromus inermis Leyss. Frequent along the edge of woods; 204, 681.
 **Bromus latiglumis* (Shear) Hitchc. Local along the edge of woods; 510.
Bromus tectorum L. Local in waste ground; 2509.
 **Calamagrostis canadensis* (Michx.) Beauv. Frequent in wet ground; 1078.
Cenchrus pauciflorus Benth. Local in waste ground; 481.
Cinna arundinacea L. Local in wet ground; 2796.
 **Dactylis glomerata* L. Frequent in open ground; 674, 796.
 **Digitaria ischaemum* (Schreb.) Muhl. Frequent in open ground; 488.
Digitaria sanguinalis (L.) Scop. Frequent in open ground; 2718.
Echinochloa crusgalli (L.) Beauv. Frequent in wet ground; 175, 462.
 **Echinochloa walteri* (Pursh) Heller. Local in wet ground; 930, 971.
 **Eleusine indica* (L.) Gaertn. R. A. Evers 61498 (ILLS).
Elymus canadensis L. Frequent along the edge of woods; 927.
 **Elymus villosus* Muhl. Frequent along the edge of woods; 85, 666.
 **Elymus virginicus* L. Frequent along the edge of woods; 600.
 **Eragrostis capillaris* (L.) Nees. Local in open woods; 217.
Eragrostis cilianensis (All.) Lut. Local in open ground; 485.
Eragrostis pectinacea (Michx.) Nees. Local in open ground; 480.
Eragrostis spectabilis (Pursh) Steud. R. A. Evers 28192 (ILLS).
 **Glyceria striata* (Lam.) Hitchc. Frequent in wet ground; 2675.
 **Hystrix patula* Moench. Frequent in woods; 51.
Koeleria cristata (L.) Pers. Local in dry soil; 847.
 **Leersia lenticularis* Michx. Locally abundant in wet ground; 2765.
Muhlenbergia frondosa (Poir.) Fern. Frequent in open woods; 614.
 **Muhlenbergia racemosa* (Michx.) BSP. Frequent in wet ground; 611, 893.
 **Muhlenbergia schreberi* J. F. Gmel. R. A. Evers 58736 (ILLS).
 **Muhlenbergia tenuiflora* (Willd.) BSP. Local in woods; 506, 1071.
 **Panicum capillare* L. Frequent in open ground; 479.
Panicum huachucae Ashe. Frequent in open woods and prairies; 686, 843.
Panicum latifolium L. Local in moist woods; 844.
Panicum scribnerianum Nash. R. A. Evers 28177 (ILLS).
Panicum virgatum L. Common in prairies; 119, 145.
 **Paspalum pubescens* Muhl. Local in open ground; 819.
 **Phalaris arundinacea* L. Frequent in wet ground; 926, 964.
Phleum pratense L. Common in open ground; 112.
Poa compressa L. Common in open ground; 993, 2785.
Poa pratensis L. Common in open ground; 2084.
Setaria lutescens (Weigel) F. T. Hubb. Frequent in open ground; 1063.
Setaria viridis (L.) Beauv. Frequent in open ground; 484.
Sorghastrum nutans (L.) Nash. Common in prairies; 463.
Spartina pectinata Link. Frequent in wet ground; 167.
 **Sphenopholis intermedia* Rydb. R. A. Evers 24449 (ILLS).
Sporobolus asper (Michx.) Kunth. R. A. Evers 28169 (ILLS).
Sporobolus cryptandrus (Torr.) A. Gray. Local in dry soil; 952.

- **Tridens flavus* (L.) Hitchc. Local in open ground; 507.
**Triticum aestivum* L. Local in waste ground; 2660.
**Zizania aquatica* L. Local in shallow water; 210.

ACKNOWLEDGMENTS

This paper is based in part upon a thesis submitted by the author to the graduate faculty of the Department of Biological Sciences at Western Illinois University in partial fulfillment of the requirements of the master of science degree.

The author expresses his appreciation to Dr. R. M. Myers, Western Illinois University, for assistance given during this investigation, Mr. F. J. Stiles, Park Ranger of the Mississippi Palisades State Park, for his cooperation and to the curators of the herbaria whose fa-

cilities were used during this investigation.

The author wishes to acknowledge Dr. R. H. Mohlenbrock, Southern Illinois University, for his critical reading of the manuscript.

LITERATURE CITED

- JONES, G. N. 1963. Flora of Illinois. 3rd ed. Amer. Midl. Nat. Monog. 7:1-401.
———, and G. D. FULLER. 1955. Vascular plants of Illinois. University of Illinois Press, Urbana. 593pp.
PAGE, J. L. 1949. Climate of Illinois. University of Illinois Press, Urbana. 267pp.
WINTERRINGER, G. S., and R. A. EVERS. 1960. New records for Illinois vascular plants. Ill. St. Mus., Pap. Ser. 11:1-135.

Manuscript received December 3, 1966.