

JOHNSON COUNTY, IOWA — FLORA UPDATE

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ABSTRACT

The vascular plants in Johnson County, Iowa, were inventoried during a 6-year project (2018-2024) involving field work and study of previous records. Many records are vouchered, but some are not. Vouchers are primarily in herbaria and unvouchered records are from published and unpublished field work descriptions of the flora for specific regions or properties. Trustworthy and competent individuals made these latter lists, and they may include photographs, but they lack the credibility offered by vouchers. The total number of species known from the county is 1113. Reported here are 175 species new to Johnson County and 42 species that apparently are no longer present.

Thorne (1955, 1956) made a comprehensive flora list for Johnson County. Significant additions to the pteridophytes were made by Peck et al. (1997). The current report adds 175 vascular plant taxa known from the county.

Area of study

All of Johnson County is included in the study. Thorne's 1955 descriptions and observations have served as the primary base for the current updates and observations.

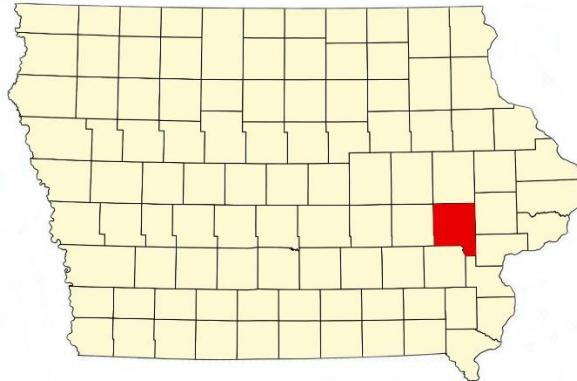


Figure 1. Location of Johnson County, Iowa.

Land preservation in parks, wildlife areas, and wildlife management areas is an active issue in Johnson County. Organizations such as the Johnson County Conservation Board (JCCB), the Bur Oak Land Trust, and the Iowa City Parks Department lead the way toward preservation and restoration with active land acquisition and management. One main reason for these acquisitions has been the presence of remnants with a rich native flora. Thus, many recent collections and reports of new plants have been from public property.

A large source of land preservation is the thousands of federally owned acres managed by the U.S. Army Corps of Engineers (USACE). Dam construction on the Iowa River started in 1949 and was completed in 1958, flooding bottomlands with the Coralville Reservoir. This large land acquisition also involved upland woods and alluvial plains that are undisturbed, other than rental agreements for croplands and food plots for wildlife. However, periodic inundation of the bottomlands and non-native invasion has undoubtedly altered the vegetation there.

The Iowa Department of Natural Resources (IDNR) also has substantial public land holdings including Lake Macbride State Park, Hanging Rock Ridge, Hawkeye, Redbird Farms, and Swan Lake Wildlife Management Areas .

Few areas in Johnson County are in their natural state. However, agencies have preserved and restored areas, with the vast majority since 1955. With their public access and with studies done before and after acquisition, these preserves have contributed a substantial proportion of the new collections. Prominent areas of collecting since 1955 have been in the northern half of the county, particularly in areas of alluvial and windblown sand deposits, in woodlands formally known as the Big Grove, and in wetlands and sedge meadows. These areas are unsuited for row crop agriculture, but generations of owners have pastured them.

Ciha Fen Preserve, owned by the JCCB, is located on a 3-mile-long windblown sand deposit along the east side of the Cedar River in Cedar Township. Approximately 40 acres of the preserve are uncultivated except for pasture and still have remnant sand savanna, sand prairie, and upland wetlands. Upland wetlands are very uncommon in Johnson County, particularly in sand deposits. Two ponds are fens, one of which has a floating sedge mat and is a nutrient poor fen. This general area has threatened and endangered plants for Iowa.

Cedar River Crossing is mostly alluvial bottomland along the Cedar River in Cedar Township and owned by the JCCB. The north end of the property is sandy and has remnant sandy prairie areas. Restoration efforts are ongoing to restore the historical wetland characteristics of the area while preserving the sand prairies that are on a slightly higher elevation.

Hawkeye Wildlife Management Area, managed by the IDNR, is in northeastern Oxford Township. This area is alluvial sand with upland areas and dunes. Studies of ornate box turtles for 30 years in this area have also generated interest in vegetation. Wetlands and ponds offer added habitat for uncommon flora.

Sand Prairie is a nature reserve owned by Iowa City and is within the southern city limits. It is a highly disturbed upland sand deposit with a small pond. It still holds interesting and unique species for Johnson County.

Williams Prairie State Preserve is managed by the JCCB, which is southwest of Hawkeye Wildlife Management Area. Botanists have studied this area for over 70 years. It is a wet and species rich sedge meadow. It also has higher sandy ground.

Malinda Reif Reilly Fen and Prairie is a property in Big Grove Township newly bought by the JCCB in 2020. A sizable portion of the property is an old pasture that has never had chemicals applied. An intact sedge meadow exists on a south facing slope — intact sedge meadows are few in Johnson County and offer unique botanical sites.

Sugar Bottom Recreation Area and the **Macbride Nature Recreation Area** are notable for their orchid species.

Turkey Creek Preserve, managed by the Bur Oak Land Trust, is in Newport Township. Limestone bluffs along Turkey Creek have been popular for botanical collectors since the early 1900's. The University of Iowa uses an area near the mouth of Turkey Creek for botanical research.

Big Grove Preserve in Newport Township, managed by the Bur Oak Land Trust, is a very representative Big Grove woodland site. Upland woods in the Big Grove stretch from Iowa City to Lake Macbride State Park in Newport and Big Grove Townships. Small streams have eroded this land into steep ravines with the uplands cropped and the ravines pastured. Developers are subdividing it into residential housing. Fortunately, government and private agencies are preserving large areas. The USACE manages large tracts of Big Grove landscape as part of the Coralville Reservoir watershed. All of this is available for public access.

Kent Park in Oxford Township, managed by the JCCB, has been another popular site for collectors. It is hilly and was pastured prior to acquisition as a park. Initially, as a park, JCCB intensely planted it to conifers and other species non-native to Johnson County. In recent years JCCB has opened areas with timber removal for prairie restoration and plantings. Sizable areas have recovered their original native prairie plants by timber and successional tree and brush removal, and burning, without having to reseed.

Other scattered areas of Johnson County have contributed to new species, but the above-mentioned areas have clusters of new species. Railroad tracks have traditionally harbored vegetation colonized by native plants from adjacent areas, but since the advent of herbicides in the 1960s they are now largely tracts of 'weeds.' Shimek made many of his collections along railroads and Thorne and Sorensen made collections along railroads into the 1960s. Trespass laws now limit access along working railroad beds, even if a natural area exists. There are public bicycle and hiking trails using abandoned rail lines that still might offer possible new plant discoveries. Other potential search sites would be private properties in the Big Grove Timber area and all around the Coralville Reservoir.

Extensive surveys of vegetation were conducted along at least 26 rural roadways from 2002 to 2011. While there are efforts to manage these roadways for habitat, they are subject to disturbance through mowing, spraying, and excavation to clear the ditches, which makes them low probability sites for the practical preservation of species.

Other than some areas of Kent Park, and disregarding sand and wet prairies, there are no extensive native mesic prairie areas left in Johnson County.

Materials and methods

Additions to the Johnson County flora incorporate inventories of natural areas, mostly for roadside and natural area preservation. Inventory lists for these areas are by organizations such as Bur Oak Land Trust (formerly Johnson County Heritage Trust), Iowa City Parks and Recreation, and the Johnson County Conservation Board, as well as private notes and lists. In addition, added vouchers for Johnson County flora are in herbaria across the country.

Dozens of plant inventory lists from Johnson County were obtained by internet search and from agencies such as the Johnson County Conservation Board, the Bur Oak Land Trust, and the Iowa City Parks Division. Personal contacts contributed individual accounts and lists of specimens to investigate. The plant inventories provided (Thorne 1953, 1955, 1956; Peck et al. 1997) have been valuable in finding those species that were once present. Thorne primarily relied upon the University of Iowa and Iowa State University Herbaria (now combined at the Ada Hayden Herbarium at Iowa State University (ISC)) for his collections. Deborah Lewis at ISC provided a list that had at least one herbarium specimen of each of the species from Johnson County that they have on file. Other herbaria with digitized collections for online use were helpful. Internet searches, communications with curators, and visits to additional herbaria in Iowa found records for Johnson County, in Appendix A.

Inventory lists included misidentified species, clerical errors, outdated binomial nomenclature, and species completely out of their known range. Old field notes, particularly by Shimek, were vague about locations. Field workers did not always collect vouchers for their finds. Even herbaria collections presented problems in identification by having new determinations that conflicted with Thorne's original list.

Floristic data have been augmented by professional and amateur botanists with the Iowa Department of Natural Resources, the Johnson County Conservation Department, various curators of

herbaria, and academics from colleges and universities. Landowners were supportive, offering suggestions and ideas and taking part in field trips. Internet searches were invaluable.

Vouchers collected by the author and others are deposited at ISC. The author did not collect certain species because he considered the populations to be too small, threatened, or endangered.

Appendix A is the list of species added since 1955 and includes species already added (Thorne 1956; Peck *et al.* 1997) for the purpose of unification in this report. Appendix B is a list of previously vouchered species without recent records.

Vouchers with missing data and questionable identification are noted in Appendices A and B. Thorne mentioned species that have been annotated since 1955 with different identification — they are in this report with the more recent names.

This report omits specific locational data to protect sensitive species. Most recent collections have GPS coordinates in their voucher labels. Older collections have varying degrees of precision of locational data that are often vague or even missing. These data are available at the appropriate herbaria. The author did not find certain species reported but not previously collected in Johnson County. They may no longer exist there or else are rare.

STATISTICAL SUMMARY OF THE FLORA

Species	Native	Naturalized	Genera
Pteridophytes	29	0	20
Conifers	1	0	1
Dicotyledons	645	153	374
Monocotyledons	252	33	111
Total	927	186	506

Total number of families represented: 116

Families represented by 15 or more species:

Asteraceae	139	Ranunculaceae	28
Poaceae	111	Scrophulariaceae	26
Cyperaceae	90	Liliaceae	24
Fabaceae	48	Apiaceae	22
Rosaceae	45	Caryophyllaceae	21
Brassicaceae	39	Orchidaceae	19
Lamiaceae	36	Salicaceae	17
Polygoniaceae	31	Euphorbiaceae	15

Genera represented by 8 or more species:

Carex	62	Viola	10
Symphyotrichium	17	Chenopodium	9
Polygonum	15	Galium	9
Salix	13	Muhlenbergia	8
Aclepias	12	Rumex	8
Solidago	11	Cyperus	8
Helianthus	10	Eleocharis	8
Euphorbia	10		

Quercus 10

Loss of species

This study has identified species previously reported in Johnson County, but not recently collected, included in recent inventory lists, or seen in all the hundreds of field hours spent searching for species new to the county. There are also species that collectors have misidentified and vouchered that have been redetermined by others. Appendix B lists these plants. Notably, most are not on the current state list for special concern, threatened, or endangered plants. The disappearance of these species might be due to habitat loss, changes in farming practices, herbicide usage, or housing developments, but evidence is not clear.

Appendix B lists the missing species with citations of their herbaria and former locations, and particularly their dates of collection in Johnson County. These are the only records for each of the species in Johnson County. All but two of these records are prior to 1927, and a good share of them are from the 1800's. The two more recent records were for *Platanthera leucophaea* from 1960 and 1973. Botanists have searched for these species without success since 1973.

The author searched herbaria for the presence of these species in surrounding counties during the last 75 years — Benton, Iowa, Jones, Linn, Louisa, Muscatine, and Washington counties (counties and recorded date appear in parenthesis at the end of the proper binomial in Appendix B). As shown in Appendix B there is scant evidence in the past 40 years for the presence of the missing species in the surrounding counties.

Appendix C is a complete list for the county that includes all the species from *Thorne* (1955), *Thorne* (1956), *Peck et al.* (1997) and Appendix A and B.

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Mark Leoschke first encouraged me to undertake this study and continued to support me with information about his collections, potential locations, field trips, help in identifications, and editing this report. Thomas Rosburg and Mark Widrlechner were particularly helpful with difficult identifications. Deborah Lewis, Curator of the Ada Hayden Herbarium, spent hours aiding in researching vouchers and helped with identification of specimens. Larry Gullet allowed special permission to access and collect specimens on all Johnson County parks and preserves. Richard Lutz deserves special mention for keeping me safe by going with me on field trips and for his help in finding and identifying specimens. In addition, I thank dozens of other individuals for granting access to private property and their help in finding and identifying specimens.

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APPENDIX A

Species added to the Johnson County flora since *Thorne* (1955). This list also includes plants added in *Thorne* (1956) and *Peck et al.* (1997). Collections are cited from the herbaria of University of Iowa (IA), Iowa State University (ISC) and the University of Northern Iowa (ISTC). The IA collection was transferred to ISC in 2004. The ISTC collection was transferred to ISC in 2024. The collector's personal record numbers in () are for vouchers at Ada Hayden Herbarium (ISC) that are not yet mounted using official file numbers. 's.n.' = without number

PTERIDOPHYTES

Dryopteridaceae

- Gymnocarpium robertianum* (Hoffm.) Newman
Macbride s.n. (IA)

Equisetaceae

- Equisetum X ferrissii* Clute
Thorne 90498 (IA)
Peck 0337479 (ISC)
Klug 143772 (IA)

Ophioglossaceae

- Ophioglossum pusillum* Raf.
Nekola and Dvorak (5989)
Peck 0337475 (ISC)
Klug 143584 (IA)
Leoschke 456205 (ISC)
Leoschke et al. (3474) (ISC)
Leoschke (3478) (ISC)
Leoschke — observation: 33 plants at Williams Prairie State Preserve, 1 Jul 2022
Roosa 30368 (ISTC)

Selaginellaceae

- Selaginella rupestris* (L.) Spring
Basten and Lutz (0140)

ANGIOSPERMS: DICOTYLEDONS

Alismataceae

- Sagittaria montevidensis* Cham. & Schlecht.
Basten and Elliot (0251)

Amaranthaceae

- Chenopodium berlandieri* Mog.
Pammel 129871 (ISC)
Pfeifer 64963 (IA)
Chenopodium berlandieri var. *bushianum* (Aellen) Cronq.
Anderson 36443 (Marshall University)

Anacardiaceae

- Rhus typhina* L.
Roberts 92112 (Northern Illinois University Herbarium)
Probably not present in Johnson Co. except as a planting.

Apiaceae

- Carum carvi* L.
Shimek 189681 (ISC)
Thaspium trifoliatum var. *aureum* (L.) Britton
S.M.B. 354 (Putnam Museum and Science Center)

Apocynaceae

- Vinca minor* L.
Sorensen 3999 (IA) Noted as escaped from cultivation.

Asclepiadaceae

- Asclepias lanuginosa* Nutt.
Hartsaw 118497 (IA)

Asteraceae

- Artemisia serrata* Nutt.
Hartley 93371 (Northern Illinois University Herbarium)
Artemisia vulgaris L.
Basten and Lutz (0215)
Bellis perennis L.
English daisy is an occasional escape or lawn weed in Iowa, though doubtfully naturalized.
"Johnson: collected in 1955 in lawns at two locations in Iowa City by Charles Sehe, May 4,
and Robert Davidson, June 19" *Thorne* (1956)
Carduus nutans L.
Basten (0092)
Cirsium flodmanii (Rydb.) Arthur
Shimek 196399 (ISC)
Coreopsis tinctoria Nutt.
Sorensen 93987 (Northern Illinois University Herbarium).
Sorensen 118532 (IA)
Morrissey 107565 (IA)
Crepis tectorum L.
Basten (0102)
Dyssodia papposa (Vent.) Hitchc.
Linden 5605 (IA)
Hitchcock 73545 (Chrysler Herbarium, Rutgers University)
Somes 671964 (Smithsonian National Museum of Natural History)

- Echinacea purpurea* (L.) Moench
 Basten (0070)
 Commonly planted throughout the county in prairie reconstructions. It is doubtful that it is native to Johnson County.
- Eupatorium serotinum* (Michx.)
 Basten and Lutz (0109)
 Basten and Lutz (0111)
- Euthamia gymnospermoides* Greene
 Fitzpatrick and Fitzpatrick 52424 (ISC)
 Somes 171710 (ISC)
 Thorne 71922 (ISC)
 Hitchcock 43231 (ISC)
 Basten (0180)
 Basten et al. (0181)
 Basten and Lutz (0184, 0185, 0186)
 Basten (0187)
- Helianthus maximiliani* Schrader
 Shimek 198178 (IA)
 Somes 172992, 173919, 173920 (IA)
 Armenta 260 (Herbarium of Cornell College)
 Basten et al. (0179)
 Basten et al. (0183)
- Helianthus petiolaris* Nutt.
 Somes 173018 (ISC)
 Cody 75531 (University of Florida Herbarium)
- Liatris cf. ligulistylis* (A. Nels.) K. Schum.
 Somes 181454 (ISC)
- Matricaria chamomilla* L.
 Shimek "is another occasional escape in Iowa. Johnson: on street near greenhouse, Iowa City." (Thorne 1956)
- Packera paupercula* (Michx.) A. Love & D. Love
 Kowal and Kolterman 261911 (Wisconsin State Herbarium, University of Wisconsin-Madison)
 Shimek 231567 (C. E. Bessey Herbarium, University of Nebraska)
- Polymnia canadensis* L.
 Basten (0073)
- Prenanthes racemosa* (Michx.) [incl. ssp. multiflora Cronq.]
 Thorne 71863 (IA)
 Sorensen 6029 (IA)
 Sorensen 95980 (Northern Illinois University Herbarium)
- Solidago juncea* Aiton
 Somes 2353335 (New York Botanical Garden.)
 B. Shimek 27872 (University of Illinois Herbarium)
 Note: Not listed in Eilers and Roosa as a species known from Iowa
- Solidago riddellii* Frank ex Riddell
 Shimek 197671 (IA)
- Vernonia gigantea* (Walter) Trel.
 Somes 173096 (ISC)

Boraginaceae

Buglossoides arvensis (L.) I. M. Johnst.

Basten (s.n.)
 Basten (s.n.)
 Basten (0001)

Onosmodium bejariense var *hispidissimum* (Mack.) Turner
 Thorne 71956 (IA) (*Thorne* 1956)
 Basten 1112 (Cornell College Herbarium)

Brassicaceae

Alliaria petiolata (Bleb.) Cavara & Grande
 Common throughout. No voucher taken.

Polansia jamesii (Torr. & A. Gray) Iltis
 Basten and Lutz (0142)

Boechera divaricarpa (A. Nelson) A. Love & D. Love
 Somes 181575 (ISC)
 Noted as present in Johnson County by *Eilers and Roosa* (1994) as *A. divaricarpa* A. Nelson.
 Noted as present on Corps of Engineer's property, Coralville Lake, Sugar Bottom and Squire
 Point. Roosa and Mutel

Descurainia sophia (L.) Webb. ex Prantl.
 Thorne 115768 (IA)

Thorne 63822 (Vascular Plant Herbarium, North Carolina State University). *Thorne* (1956)

Lepidium perfoliatum L.
 Benson 228368 (ISC)

Sisymbrium loeselii L.
 Basten (0103)

Cactaceae

Opuntia humifusa (Raf.) Raf.
 Eikleberry 105008 and 7323 (IA)
 Lammers 18630 (ISTC)
 Lammers and Seebach 272141 (California Botanic Garden Herbarium)
 Basten, et al. (0115)
 Basten, et al. (0116)
 Basten and Lutz (0192)

Caprifoliaceae

Lonicera x bella Zabel
 Basten (0160)

Lonicera maackii (Rupr.) Herder
 Basten (0084)

Lonicera sempervirens L.
 Fitzpatrick 147113 (Deam Herbarium, Indiana University Herbarium)

Caryophyllaceae

Arenaria serpyllifolia L.
 Basten (s.n.)
 Basten (0003, 0004, 0025, 0119)
 Basten and Lutz (0120, 0121)

Cerastium arvense ssp *velutinum* Raf.
 Shimek 193714 (ISC)

Cerastium semidecandrum L.

Basten (0078)

Silene csereii Baumg.

Loammasson 5142 (IA)

Stellaria graminea L.

Sorensen and Harsaw 3265 (IA)

Sorensen and Harsaw 1755982 (Arnold Arboretum Herbarium, Harvard University)

Celastraceae

Celastrus orbiculatus Thunb.

Tucker and Tucker 16499 (Stover-Ebinger Herbarium, Eastern Illinois University)

Tucker and Tucker 2085122 (Gray Herbarium, Harvard University)

Observations by Basten as a common weed throughout the county.

Cistaceae

Helianthemum canadense (L.) Michx.

Davidson and Thorne 72144 (IA) Thorne (1956)

Shimek s.n. (St. Ambrose University)

Shimek s.n. (Putnam Museum and Science Center)

Basten (0026)

Basten and Lutz (0141)

Lechea tenuifolia Michx.

Somes 181536 (ISC)

Cleomaceae

Polanisia jamesii (Torr. & A. Gray) Iltis

Basten and Lutz (0142)

Convolvulaceae

Cuscuta coryli Engelm.

Basten and Lutz (0112)

Cuscuta gronovii Willd. ex Schult

Lyness 14088 (IA)

Cuscuta pentagona Engelm.

Somes 170590, 170596 (ISC)

Cornaceae

Cornus sericea ssp sericea L.

Kantor 8124 (IA) Probable escape from cultivation

Ebenaceae

Diospyros virginiana L.

Beal 43707 (Kent State University Herbarium). "Rare se & sc: LEE, LOU, MRN & WAY. possibly only the LEE population is native." *Eilers and Roosa* (1994)

Elaeagnaceae

Elaeagnus augustifolia L.

S.M.B. (Sister Mary Benita?) (Putnam Museum and Science Center)

Elaeagnus umbellata Thunb.

Basten (0079)

Euphorbiaceae

- Acalypha gracilens* Gray
 Basten (0256)
- Croton capitatus* Michx.
 Basten (0252)
- Euphorbia hexagona* Nutt. ex Sprengel
 Leoschke and Basten 450690 (ISC)
 Basten (0137)
- Euphorbia marginata* (Pursh.)
 Himmel 8305 (IA)
 Thorne 115296 (IA)

Fabaceae

- Desmanthus illinoensis* (Michx.) MacMill. ex B.L. Rob. & Fern.
 Basten, et al. (0129)
- Lespedeza cuneata* (Dum. Cours.) G. Don
 Aaron Basten and Melloy (0132, 0132-1)
 Reported as present at Kent Park, personal communication David Wehde.
- Lotus corniculatus* L.
 Kantor 8837, 8838 (IA)
 O'Brien and Zheng 143886 (IA)
- Securigera varia* (L.) Lassen.
 Basten and Lutz (0091)
- Vicia americana* Muhl. ex Willd.
 Basten (0082)
- Vicia cracca* L.
 Somes CM192505 (Carnegie Museum of Natural History Herbarium)
- Wisteria frutescens* (L.) Poir.
 Basten and Lutz (0216)

Fagaceae

- Quercus x heterophylla* F. Michx.
 Shimek 446449 (ISC)
- Quercus x leana* Nutt.
 Basten (0212)

Gentianaceae

- Gentiana andrewsii* Griseb.
 Shimek 195973 (ISC)
 Thorne 107259 (IA)
 Morrissey 105284 (IA)
 Shimek s.n. (St. Ambrose University)
 Shimek s.n. (Putnam Museum and Science Center)
 Huang 20923 (Murray State University Herbarium)
 Personal observation at NE4 NW4 NE4 section 20 Cedar Township since 1989, Malinda Reif
 Reilly Fen and Prairie, Williams Prairie.

Geraniaceae

- Erodium cicutarium* (L.) L'Her. ex Aiton
 Basten (0163)

Hypericaceae

- Hypericum prolificum* L.
Pohl 220649 (ISC)
Triadenum fraseri (Spach) Gleason
Basten 148265 (IA)
Basten et al. (0101)

Juglandaceae

- Carya glabra* (Mill.) Sweet
Shimek s.n. (St. Ambrose University)
Shimek 106428 (Museum of Natural History Herbarium Vascular Plant Collection,
University of Colorado)
Shimek 36453 (Charles Maurer Herbarium, Colorado State University)
Shimek 6558 (Vascular Plant Herbarium, North Carolina State University)
Shimek 231409 (C. E. Bessey Herbarium, University of Nebraska State University)
Shimek 194236 (ISC)
Koch 227982 (C. E. Bessey Herbarium, University of Nebraska State University)

Lamiaceae

- Clinopodium vulgare* L.
Somes 181855 (ISC)
Hyssopus officinalis Wolden
Wolden 446514 (ISC)
Mentha aquatica L.
Bau 194336 (ISC)
Note: Not listed in Eilers and Roosa as a species known from Iowa

Lythraceae

- Ammannia coccinea* Rottb.
Sorensen et al. 118537 (IA)
OBrien and Horton 149150 (IA)

Magnoliaceae

- Liriodendron tulipifera* L.
S.M.B. (Sister Mary Benita?) 72 (Putnam Museum and Science Center)
Basten (0175)

Malvaceae

- Malva sylvestris* L.
Fitzpatrick and Fitzpatrick 31737 (ISC)
"Rare escape from cult, no records since 1924" *Eilers and Roosa* (1994)

Oleaceae

- Ligustrum vulgare* L.
Basten (0167)

Onagraceae

- Calylophus serrulatus* (Nutt.) P. H. Raven
Hartsaw 10710 (IA)
Ludwigia peploides (Kunth) P.H. Raven
Basten and Lutz (0090, 0097, 0098, 0173)
Oenothera filiformis (Small) W. L. Wagner & Hoch

Pammel 1778063 (Gray Herbarium, Harvard University)
 Pammel and Macbride 106286 (ISC)
 Somes 176302 (Carnegie Museum of Natural History Herbarium)
 Somes 171128 (ISC)

Oenothera villosa Thunb.

Cavanagh 10797 (ISC)
 Thorne 167389 (IA)
 Eilers 127498 (IA)
 Somes 171031 (ISC)
 Pfeifer 64768 (IA)
 Shimek 154447 (California Botanic Garden Herbarium)

Plantaginaceae

Callitriche heterophylla Pursh

Thorne 84485 (University of Florida Herbarium)
 Basten 147786 (IA)
 Basten (0014)
 Leoschke 3406 (ISC)

Gratiola virginiana L.

Basten 148273 (IA)

Nuttallanthus canadensis (L.) D. A. Sutton

Thorne 107469 (IA) *Thorne* (1956)

Plantago virginica L.

Basten et al. (0162)

Veronica serpyllifolia L.

Hartley 15308 (IA)
 Basten (0077)

Polemoniaceae

Phlox bifida L.C. Beck

Basten 412531, 412536 (ISC)
 Leoschke and Basten 1237 439974, 434753 (ISC)
 Leoschke and Basten 1237 3458194 (Missouri Botanical Garden)
 Leoschke and Basten 1237 1571259 (Gray Herbaria, Harvard University)

Polygonaceae

Persicaria hydropiperoides (Michx.) Small

Marie (Putnam Museum and Science Center)

Persicaria longiseta (Bruijn) Kitag.

Basten (0072)

Rumex maritimus var *fueginus* (Phil.) Dusen

Basten (0201)

Ranunculaceae

Delphinium carolinianum ssp *virescens* (Nutt.) R. E. Brooks

Thorne 107747 (IA) *Thorne* (1956)

Myosurus minimus L.

Horton and Konstantinova 147784 (IA)
 Basten 147854 (IA)
 Leoschke and Basten 1234 439976 (ISC)
 Leoschke 1234 2905791 Missouri Botanical Garden)

Leoschke and Basten 1234 356849 (Ronald L. McGregor Herbarium, University of Kansas)

Leoschke and Basten 1234 01661679 (Gray Herbaria, Harvard University)

Ranunculus repens L.

Shimek s.n. (Putnam Museum and Science Center)

Ranunculus testiculatus Crantz

Broz et al. 146250, 143947 (IA)

Broz et al. 143948, 143946. (IA)

Thalictrum revolutum DC.

S.M.B. (Sister Mary Benita?) 329 (Putnam Museum and Science Center)

Rosaceae

Agrimonia parviflora Alton

Thorne 107726. (IA) Thorne (1956)

Agrimonia striata Michx.

Shimek 178119 (ISC)

Duchesnea indica (Andrews) Focke

Basten and Melloy (0134)

Geum vernum (Raf.) Torr. & A. Gray

Horton and Cady 15256, 152496 (IA)

Horton and Cady 512268 (S.L. Welsh Herbarium, Brigham Young University)

Busch and Horton 17748 (IA)

Malus ioensis (Alph. Wood) Britton

Pfeifer 6498 (IA)

Pfeifer 174962 (Robert K. Godfrey Herbarium, Florida State University)

Potentilla argentea L.

Kantor 13249 (IA)

Basten et al. (0122)

Prunus hortulana L.H. Bailey

Fitzpatrick and Fitzpatrick 58347 (Deam Herbarium, Indiana University)

Basten et al. (0191)

Basten (0198, 0223)

Prunus pennsylvanica L. f.

Shimek 189073 (ISC)

Prunus tomentosa Thunb

Basten (0154)

Rosa multiflora Thunb.

Thorne 147443 (IA)

Kantor 13726 (IA)

Rosa setigera Michx.

Basten (0094)

Basten and Lutz (0095)

Basten (0212)

Kantor s.n. (ISC)

Rosa tomentosa Sm.

Shimek 13766 (IA)

Rubus heterophyllus Willd

Widrechner et al. (801)

Thorne 93758 (IA)

Rubus satis L.H. Bailey

Widrechner and Freidhof (802)

Rubiaceae*Galium asprellum* Michx.

Shimek s.n. (Putnam Museum and Science Center)

Galium trifidum L,

Basten (0219)

Basten (0224)

Salicaceae*Salix x rubens* Schrank

Kantor 7103 (IA)

Salix x sepucralis Simonk.

Miller 14262 (IA)

Shimek 7106 (IA)

Sapindaceae*Acer ginnala* Maxim.

S.M.B. (Sister Mary Benita?) 35 (Putnam Museum and Science Center)

Thorne 797936 (Botanic Garden Herbarium, Rancho Santa Ana)

Thorne 53206 (University of South Florida Herbarium)

Scrophulariaceae*Agalinis purpurea* (L.) Pennell

Sorensen 14797 (IA)

Sorensen et al. 118536 (IA)

Simaroubaceae*Ailanthus altissima* (Mill.) Swingle

Benita 14 (Putnam Museum and Science Center)

Basten and Elliot (0204)

Smilacaceae*Smilax illinoensis* Mangaly

Thorne 106762 (IA)

Solanaceae*Physalis pubescens* var. *integrifolia* (Dunal) Waterf.

Shimek s.n. (Putnam Museum and Science Center)

Shimek s.n. (Saint Ambrose University Herbarium)

Shimek 184394 (Marion Ownbey Herbarium, Washington State University)

Urticaceae*Pilea fontana* (Lunell) Rydb.

Basten (0217)

Valerianaceae*Valerianella radiata* (L.) Dufur.

Basten (0211)

Violaceae*Viola lanceolata* L.

- Thorne n.d. IA (voucher missing). *Thorne* (1956)
 Leoschke and Basten 440013 (ISC)
 Basten (0007)
Viola striata Aiton
 Eilers 17317 (ISTC)
 Basten (0156)
 Basten (0194)

Vitaceae

- Vitis vulpina* L.
 Hill 16383 (IA)

ANGIOSPERMS: MONCOTYLEDONS

Acoraceae

- Acorus americanus* (Raf.) Raf.
 Basten (0264)

Cyperaceae

- Carex alopecoidea* Tuck.
 Thorne 17560, 56673 (Robert K. Godfrey Herbarium, Florida State University)
Carex bushii Mack.
 Cady and Horton 152418 (IA)
 Leoschke 2179 439482 (ISC)
 Leoschke 2179 2908724 (Missouri Botanical Garden)
 Basten (0046)
Carex comosa Boott
 Shimek s.n. (Field Museum of Natural History)
 Shimek 2259756 (New York Botanical Garden)
Carex conoidea Schkuhr ex Willd. syn *C. crawei* Dew.
 "It is now also known from Johnson County: sandy, seepage slopes along small branches,
 Cedar Twp., Sec. 35, 15800, 15833." *Thorne* (1956)
 Thorne and Hulbary 138409 (Vascular Plant Herbarium, Arizona State University)
 Thorne 351783 (California Botanic Garden Herbarium)
 Sorensen 37 (IA)
 Nekola 148437 (IA)
 Leoschke and Basten (2141) 439493 (ISC)
 Leoschke and Basten (2141) 2908912 (Missouri Botanical Garden)
 Hulbary 2260466 (New York Botanical Garden)
Carex frankii Kunth.
 Cady and Horton 152405 (IA)
Carex hitchcockiana Dewey
 Basten (0127)
Carex inops ssp heliophila (Mack) Crins
 Shimek 192786 (ISC)
 Shimek 2730482 (Missouri Botanical Garden)
 Shimek s.n. c32bf519-26f0-410c-9c5f-03805ec477da (Putnam Museum and Science Center)
Carex interior L. H. Bailey
 Thorne and Hulbary 106918 (IA) *Thorne* (1956)
 Thorne and Hulbary 000141763 (Robert K Godfrey Herbarium, Florida State University)
Carex lurida Wahlenb.

- Leoschke et al. 2484 448710 (ISC)
Carex mitchelliana M.A. Curtis
 Thorne 2291865 (New York Botanical Garden)
C. mitchelliana is not noted in *Eilers and Roosa* (1994), but *C. crinata* Lam. is noted there.
 Noted in *Iowa Carex Key to Major Groups* (updated July 18, 2018, T.R. Rosburg) as *C. crinita* var. *crinita* and var. *brevicrinis*. Neither variety is shown by FNA as in Iowa. No specimens at ISC.
- Carex squarrosa* L.
 Basten et al. (0113)
- Carex tetanica* Schkuhr
 Thorne 140833 (Robert K. Godfrey Herbarium, Florida State University)
 Thorn 49037 (Vascular Plant Herbarium, North Carolina State University)
 Thorne 15800a, 15845, 15845 (IA) *Thorne* (1956)
- Eleocharis wolfii* (A. Gray) A. Gray ex Britton
 Thorne 56661 (Robert K. Godfrey Herbarium, Florida State University)
 Thorne 60605 (Vascular Plant Herbarium, North Carolina State University)
 Thorne 106693 (IA) *Thorne* (1956)
- Schoenoplectus acutus* var. *acutus* (Muhl. ex Biggelow) A. Love & D. Love
 Thorne 106757 (IA) *Thorne* (1956)
 Thorne 137535 (Robert K. Godfrey Herbarium, Florida State University)
 Thorne 52364 (Vascular Plant Herbarium, North Carolina State University)
- Scipus pendulus* Muhl.
 Basten (0124, 0125, 0126)
- Scleria triglomerata* Michx.
 Thorne s.n. (IA) Voucher missing. (*Thorne* 1956)
 Sorensen 673 (IA)
 Sorensen 99506 Northern Illinois University Herbarium
 Cady and Horton 152422 (IA)
 Leoschke (2180) 436558 (ISC)
 Leoschke (2180) 2908002 Missouri Botanical Garden.
 Basten (0047)

Hydrocharitaceae

- Najas flexilis* (Willd.) Rostk. & W.L.E. Schmidt
 Thorne 228124 (University of California, Riverside Plant Herbarium)

Iridaceae

- Sisyrinchium albidum* Raf.
 Thorne 2042 (Arizona State University, Vascular Plant Herbarium)

Juncaceae

- Juncus marginatus* Rostk.
 Basten and Lutz (0104)
 Goos 21 (Wartburg College)
 Scheiner (1)

Lemnaceae

- Lemna perpusilla* Torr.
 Shimek 19272 (ISC) *Thorne* (1955)
Lemna turionifera Landolt

Hitchcock 246638, 246756 (Ronald L. McGregor Herbarium, University of Kansas)

Liliaceae

Scilla siberica Haw.

Miller s.n. (Wartburg College)

Basten and Lutz (0117)

Basten (0118)

Najadaceae

Najas flexilis (Willd.) Rostk. & Schmidt

Thorne, et al. 228124 (Riverside Plant Herbarium, University of California)

Orchidaceae

Cypripedium candidum Muhl. ex Willd

Treat s.n. 4043763 (Steere Herbarium, New York Botanical Garden)

Collector unspecified s.n. 4043772 (Steere Herbarium, New York Botanical Garden)

Collector unspecified s.n. 4043817 (Steere Herbarium, New York Botanical Garden)

Liparis loeselii (L.) Rich.

Leoschke (3422) (ISC)

Platanthera flava var *herbiola* (R. Brown) Luer

Rhodes 150293 (IA)

Leoschke (3407) (ISC)

Platanthera leucophaea (Nutt.) Lindl.

Niemann 335223 (ISC)

Shimek 188424 (IA)

Sorensen 107392 (IA)

Sorensen 100187 (Northern Illinois University Herbarium)

Irish 35bc43e2-4c64-44b0-bcf4-452f5a324703 (Putnam Museum and Science Center)

Spiranthes magnicamporum Sheviak

Watson (Botanical Surveys of Selected Roadside Vegetation Remnants in Johnson County

Secondary Road Department Iowa City, Iowa)

Scheiner Observed SE of Ely

Basten, T. Elliot and R. Elliot Observed at Mormon Handcart Park, Iowa City

Basten 9-7-2024, 9-9-2024 Observed two locations in pasture in section 36 Cedar Township

Spiranthes ovalis Lindl.

Reported by Randall Scheiner 9-28-2018 in e-mail to [IOWA-NATIVE

PLANTS@LIST.UIOWA.EDU] as present in “cold, wet oak uplands of Sugar Bottoms Recreation Area, Army Corps of Engineers property.

Leoschke (3501) (ISC)

Sugar Bottom Recreation Area 9-30-2019, Observed by Aaron Basten, Richard Lutz.

Macbride Nature Recreation Area 9-23-2021, Observed by Aaron Basten, Richard Lutz,

Tamra Elliot

Section 4 Newport Township 9-25-2021, Observed by Aaron Basten, Richard Lutz, Tamra

Elliot, Ryan Elliot, Erin Melloy.

Frytown Conservation Area 9-21-2022, Observed by Aaron Basten

Poaceae

Andropogon virginicus L.

Basten and Lutz (0074)

Bouteloua hirsuta Lag.

Basten and Rhodes 148268 (IA)

Basten 149145 (IA)

Chasmanthium latifolium (Michx.) H.O. Yates

Elliot s.n. (ISC) Two unmounted vouchers

Basten (0178)

Festuca paradoxa Desv.

Thorne 17371 115338 (IA)

Pohl 9685 0320159 (ISC)

Smith 654 240122 (ISC)

Leoschke et al. 3516 442220 (ISC)

Leoschke 2483 5873566 (Missouri Botanical Garden)

Sorensen 520 95930 (Northern Illinois University Herbarium)

Hartley 520 95932 (Northern Illinois University Herbarium)

Hitchcock 2572586 (Missouri Botanical Garden)

Glyceria fluitans (L.) R. Brown

Hitchcock 314545WIS (Wisconsin State Herbarium, University of Wisconsin-Madison)

Hitchcock 2574907 (Missouri Botanical Garden)

Hitchcock 2574676 (Missouri Botanical Garden)

Microstegium vimineum (Trin.) A. Camus

Pearson 143584 (ISC)

Basten (0138)

Basten and Rosburg (0255)

Muhlenbergia bushii R.W. Pohl

"M. brachyphylla Bush, 17507, like the preceding an addition to the Johnson County flora"

(Thorne 1956)

Muhlenbergia sobolifera (Muhl.) Trin.

Thorne 228589, 446038 (ISC) Thorne (1956)

Panicum miliaceum L.

O'Brien 146467 (IA)

O'Brien 149108 (IA)

Sylwester 238802 (ISC)

Piptatherum racemosum Ricker ex Hitchc.

Sorensen 96579 (Northern Illinois University Herbarium)

Potamogetonaceae*Potamogeton diversifolius* Raf.

Shimek 11823 (IA) "Grown from material out of Clear Lake, Iowa." B. Shimek Mar. 17, 1908.

Noted as present at Ciha Fen. No recent report.

Potamogeton natans L.

Basten and Lutz (0089, 0100)

Typhaceae*Typha augustifolia* L.

Trexel 19043 (Robert W. Freckmann Herbarium, University of Wisconsin-Stevens Point)

Basten (0066)

Basten and Lutz (0099)

APPENDIX B

Previously vouchered plants without recent records that have disappeared or were mis-identified in Johnson County. Herbaria searches identified their presence in any of the surrounding counties during the last 75 years. Those counties and recorded date appear in parenthesis at the end of the appropriate binomial. The surrounding counties include Benton, Iowa, Jones, Linn, Louisa, Muscatine, and Washington.

Agalinis auriculata (Michx.)

Shimek 8-23-1923 0200573 (ISC)

Shimek 8-17-1923 3482 (Whitewater Herbarium, University of Wisconsin)

(Washington 2001)

Agrimonia striata Michx.

Shimek 8-20-1927 0178119 (ISC)

Agrostemma githago L.

Linden n.d. 00007749 (IA)

Amelanchier alnifolia Nutt.

Shimek 1906-07-00 bba11ddb-7d70-4e0e-a7d6-ebe3d53f83ef (Putnam Museum and Science Center) “Based on leaf shape and serration pattern, they are not a good fit for *A. alnifolia*. If I were annotating them, I would write cf. *humilis* (lacks infructescence) ...” Personal communication, Mark Widrlechner 6-30-2022

Shimek s.n. (St. Ambrose University) ID Remarks: Anonymous note on label: not *alnifolia* according to description of leaves in Gray 8 page 763.

Shimek s.n. Jun 1898 01097880 (Museum of Natural History Herbarium, Univ. of Colorado)

Rare nw & nc: DIC, EMM, HAN & LYO.” *Eilers and Roosa* (1994)

A. alnifolia is unlikely to have been in Johnson Co. (pers. comm. with Mark Widrlechner)

Asclepias quadrifolia Jacq.

Shimek May 1896 00144395 (IA)

(Washington 1962)

Bromus kalmii A. Gray

Hitchcock Jun 1887 0006298 (ISC)

(Linn 1962, 1990, 1991, Jones 1956) Could just be under collected in Johnson County.

Calopogon oklahomensis D. H. Goldman

Hitchcock 1889 00002262 (ISC)

Carex duriuscula C.A. Mey

Linder 1889 v0285689, v0323656 (Wisconsin State Herbarium, University of Wisconsin – Madison)

GPS location now in middle of housing development – questionable if currently extant.

Carex inops ssp heliophila (Mack.) Crins

Shimek 6-1-1917 192786 (ISC)

Shimek as *C. heliophila* Mack. 5-9-1895 2730482 Missouri Botanical Garden.

Shimek s.n. (Putnam Museum and Science Center)

(Benton 1948, Iowa 1950, Linn 1992)

Carex straminea Willd. ex Schkuhr

B.S. 5-12-1895 55646 Notation – “possibly *C. subrecta* PRI 1-98” (Friesner Herbarium, Butler University)

This species has not been reported in *Eilers and Roosa* or FNA in Iowa.

Cirsium flodmanii (Rydb.) Arthur

Shimek 7-5-1902 196399 (ISC)

(Cedar 1950)

Clinopodium vulgare L.

Somes 8-28-1907 181855 (ISC)

Cuscuta pentagona Engelm.

- Somes 9-12-1908 170590, 170596 (ISC)
Cyripedium candidum Muhl. ex Willd
 Treat s.n. 1865 4043763.
 Collector unspecified s.n., 1869 4043772.
 Collector unspecified s.n. 4043817.
 All the specimens are in the Steere Herbarium at the New York Botanical Garden and labeled Iowa City.
- Cyripedium reginae* Walter
 Shimek 7-5-1902 188398 (ISC)
 (Jones 1957)
- Dactylorhiza viridis* (L.) R. M. Bateman, Pridgeon & M. W. Chase
 Linder n.d. 10823 (IA)
 Linder n.d. 10826 (IA)
 Shimek 6-6-1891 17433 (IA)
 Shimek 5-21-1892 17433 (IA)
 All collected as *Habenaria bracteata*, annotated as *Coeloglossum viride*.
 (Cedar 1952, Muscatine 1999, Washington 1997, 1999)
- Dalea leporina* (Aiton) Bullock
 Somes 9-8-1907 0171044, 474425 (ISC)
 Somes 8-28-1907 181855 (ISC)
 Fitzpatrick 8-1894 09486 (IA)
- Dyssodia papposa* (Vent.) Hitchc.
 Linden n.d. 005605 (IA)
 Hitchcock n.d. 73545 (Chrysler Herbarium, Rutgers University)
 Somes 9-9-1909 671964 (Smithsonian National Museum of Natural History)
 (Muscatine 1953, 1954)
- Euthamia graminifolia* (L.) Nutt.
 Somes 9-1-1909 672546 (United States National Herbarium)
 Shimek 8-7-1926 106278 (University of Colorado Herbarium)
 Shimek 9-27-1931 3689 (Grinnell College Herbarium)
 Thorne 9-22-1956 44451 (R.K. Godfrey Herbarium, Florida State University)
 In 2018 Marisa B. Szubryt (SUI) decided that all the collections of *E. graminifolia* from Johnson County at the Ada Hayden Herbarium are *E. gymnospermoides*. In addition, all other vouchers for *E. graminifolia* are in northern Iowa. Given this information, the above-mentioned vouchers should be reviewed using current identification criteria (see further information in Appendix A under *E. gymnospermoides*). It is likely that *E. graminifolia* was never present in Johnson Co.
- Glyceria fluitans* (L.) R. Br.
 Hitchcock 1880's v0314545 (Wisconsin State Herbarium, University of Wisconsin-Madison)
 Hitchcock n.d. 2574907 (Missouri Botanical Garden)
 Hitchcock 1888 2574676 (Missouri Botanical Garden)
 Pammel 1874-08-00 2574593 (Missouri Botanical Garden)
 (Jones 1956, Louisa 1954, Linn 1953)
- Gymnocarpium robertianum* (Hoffm.) Newman
Macbride s.n. (IA)
- Helianthus petiolaris* Nutt.
 Somes 9-5-1907 0173018 (ISC)
 (Jones 1956, Louisa 1954, Muscatine 1983, 1977, 1985, 1999)
- Lechea tenuifolia* Michx.
 Somes 9-14-1908 0181536 (ISC)
 (Muscatine 1952, 1977)

- Lemna perpusilla* Torr.
Shimek 11-6-1915 019272 (ISC)
Possibly just overlooked and under collected.
- Liatris cylindracea* Michx.
Shimek 8-17-1915 0198232 (ISC) 05950 (IA)
(Cedar 1950, Jones 1948)
- Liatris ligulistylis* (A. Nelson) K. Schum.
Somes 9-4-1908 0181454, 181469 (ISC)
- Lilium philadelphicum* L.
Linder 1889 17449 (IA)
Shimek 7-2-1904 0191512 (ISC)
Somes 6-22-1909 671997 (United States National Herbarium)
(Benton 1977, Cedar 1950, 1976, Jones 1956)
- Linum sulcatum* Riddell
Shimek 7-21-1917 0188193 (ISC) 10494 (IA)
(Cedar 1950, Jones 1948, Linn 1969, Washington 1998)
- Lonicera sempervirens* L.
Fitzpatrick 5-29-1900 147113 (Deam Herbarium, Indiana University)
- Malaxis unifolia* Michx.
Shimek 8-9-1907 188389 (IA)
- Orobanche uniflora* L.
Cavanagh 5-16-1921 s.n. (Putnam Museum and Science Center)
Linder 1889 s.n. (Putnam Museum and Science Center)
Linder n.d. 10909 (IA)
Shimek 5-31-1927 10910 (IA)
(Washington 1996)
- Parnassia glauca* Raf.
Linder 1889 14651 (IA)
Fitzpatrick and Fitzpatrick 8-25-1900 67894 (Deam Herbarium, Indiana University)
Fitzpatrick and Fitzpatrick 9-1-1898 71748 (IA)
- Plantanthera leucophaea* (Nutt.) Lindl.
Shimek 7-12-1903 188424 (IA)
Sorensen 7-8-1960 107392 (IA)
Niemann 7-10-1973 0335223 (ISC)
Irish 18__ (Putnam Museum and Science Center)
- Poa chapmaniana* Scribn.
Hitchcock 5-17-1889 0010413 (ISC)
Hitchcock 18__ 0010414 (ISC)
- Polygala incarnata* L.
Shimek Jun 1885 00011230 (IA)
(Cedar 1950, Linn 1981, Muscatine 1929)
- Polytaenia nuttallii* DC
Linder Jun 1889 00144181 (IA)
(Linn 1948, Muscatine 1947)
- Prunus pennsylvanica* L. f.
Shimek 6-26-1923 0189073 (ISC)
Thorne and Wailes 5-7-1953 09603 (IA)
- Ruellia strepens* L.
Shimek 7-25-1903 00003596 (IA)
(Cedar 1950, Washington 1963, 1995, 1997, 1998)
- Solidago juncea* Aiton

- Somes 8-19-1909 2353335 (New York Botanical Garden)
 Shimek 7-14-1911 027872 (University of Illinois Herbarium)
Vernonia gigantea (Walter) Trel.
 Somes 8-28-1908 0173096 (ISC)
Vicia cracca L.
 Somes 6-8-1908 192505 (Carnegie Museum of Natural History Herbarium)
 (Only one record in Clay Co. 1945. Non-native)
Vitis vulpina L.
 Hill 5-18-1880 16383 (IA) Collected as *V. cordifolia* Michx. - unknown determination as *V. vulpina*.
 Also, found in alluvial bottomlands of River Junction, Freemont Township, Johnson County, May 9, 1902, by unknown author (possibly B. Shimek) of field notes. Field notes erased and written over by an unknown person.
 (Muscatine 1950, 1955, Cedar 2024)

APPENDIX C

Johnson County vascular plant flora. This list includes all the plants from *Thorne* (1955), *Thorne* (1956), *Peck et al.* (1997) and Appendix A. Plants from Appendix B are included even though they seem to be currently missing from the county. Family, genus, and species names have been updated to more modern nomenclature using FNA and the Grasses of Iowa as a basis for reference. Plant names in capital letters are introduced species.

PTERIDOPHYTES

Azollaceae

Azolla mexicana Presl

Aspidiaceae

Athyrium filix-femina (L.) Roth var. *michauxii* Mett.
Cystopteris bulbifera (L.) Bernh.
Cystopteris fragilis (L.) Bernh.
Deparia acrostichoides (Swartz) M. Kato
Matteuccia struthiopteris (L.) Todaro
Onoclea sensibilis L.
Polystichum acrostichoides (Michx.) Schott
Thelypteris hexagonoptera (Michx.) Weatherby
Thelypteris palustris Schott
Woodsia obtusa (Spreng.) Torr.

Aspleniaceae

Asplenium platyneuron (L.) Oakes
Asplenium rhizophyllum L.

Dryopteridaceae

Dryopteris cristata (L.) Gray
Dryopteris carthusiana (Vill.) H.P. Fuchs
Gymnocarpium dryopteris (L.) Newm.
Gymnocarpium robertianum (Hoffm.) Newman

Equisetaceae

Equisetum arvense L.
Equisetum hyemale L.

Equisetum laevigatum A. Br.
Equisetum x ferrissii Clute

Lycopodiaceae

Diphasiastrum digitatum (Dill.) Hollub
Huperzia lucidulum (Michaux) Trevisan
Lycopodium clavatum L.

Osmundaceae

Osmunda claytoniana L.

Ophioglossaceae

Botrychium dissectum Spreng.
Botrychium virginianum (L.) Sw.
Ophioglossum pusillum Raf.

Selaginellaceae

Selaginella rupestris (L.) Spring

GYMNOSPERMS

Cupressaceae

Juniperus virginiana L.

ANGIOSPERMS: DICOTYLEDONS

Acanthaceae

Ruellia humilis Nutt.
Ruellia strepens L.

Aceraceae

Acer negundo L.
Acer saccharinum L.
Acer saccharum Marsh.

Aizoaceae

MOLLUGO VERTICILLATA L.

Amaranthaceae

Amaranthus albus L.
AMARANTHUS GRAECIZANS L.
AMARANTHUS HYBRIDUS L.
AMARANTHUS RETROFLEXUS L.
Amaranthus tuberculatus (Moq.) J. D. Sauer
Chenopodium berlandieri Mog.
Chenopodium berlandieri var. *bushmanum* (Aellen) Cronq.
Froelichia floridana campestris (Small) Fernald

Anacardiaceae

Rhus aromatica Ait.
Rhus glabra L.
Rhus typhina L.

Toxicodendron radicans (L.) Kuntze
 Toxicodendron rydbergii (Small ex Rydb.) Greene

Apiaceae

ANETHUM GRAVEOLENS L.
 Carum carvi L.
 Chaerophyllum procumbens (L.) Crantz Chervil.
 Cicuta maculata L.
 CONIUM MACULATUM L.
 Cryptotaenia canadensis (L.) DC.
 DAUCUS CAROTA L.
 Eryngium yuccifolium Michx.
 Heracleum lanatum Michx.
 Osmorhiza claytonii (Michx.) C. B. Clark
 Osmorhiza longistylis (Torr.) DC.
 Oxypolis rigidior (L.) C. & R.
 PASTINACA SATIVA L.
 Polytaenia nuttallii DC.
 Sanicula canadensis L.
 Sanicula gregaria Bickn.
 Sanicula marilandica L.
 Sium suave Walt.
 Taenidia integerrima (L.) Drude.
 Thaspium barbinoide (Michx.) Nutt.
 Thaspium trifoliatum var. aureum (L.) Britton
 Zizia aurea (L.) W. D. J. Koch

Apocynaceae

Apocynum androsaemifolium L.
 Apocynum cannabinum L.
 Apocynum sibiricum Jacq.
 Vinca minor L.

Araliaceae

Aralia nudicaulis L.
 Aralia racemosa L.
 Panax quinquefolius L.

Aristolochiaceae

Asarum canadense L.

Asclepiadaceae

Asclepias amplexicaulis Sm.
 Asclepias exaltata L.
 Asclepias hirtella (Pennell) Woodson
 Asclepias incarnata L.
 Asclepias lanuginosa Nutt.
 Asclepias purpurascens L.
 Asclepias quadrifolia Jacq.
 Asclepias sullivantii Engelm.
 Asclepias syriaca L.

Asclepias tuberosa L.
Asclepias verticillata L.
Asclepias viridiflora Raf.
Cynanchum laeve (Michx.) Pers.

Asteraceae

Achillea millefolium subsp. *lanulosa* (Nutt.) Piper
Ambrosia artemisiifolia L.
Ambrosia psilostachya DC.
Ambrosia trifida L.
Antennaria neglecta Greene
Antennaria plantaginifolia (L.) Hook.
 ANTHEMIS COTULA L.
 ARCTIUM MINUS (Hill) Bernh.
 ARTEMESIA BIENNIS Willd.
Artemisia ludoviciana Nutt.
Artemisia serrata Nutt.
Artemisia vulgaris L.
Bellis perennis L.
Bidens cernua L.
Bidens frondosa L.
Bidens polylepis Blake.
Bidens tripartita L.
Bidens vulgata Greene.
Boltonia asteroides (L.) L'Her.
Brickellia eupatorioides (L.) Shinners
Cacalia atriplicifolia L.
Cacalia muhlenbergii (Sch. Bip.) Fern.
Cacalia plantaginea (Rafin.) Shinn.
Carduus nutans L.
 CENTAUREA CYANUS L.
 CICHORIUM INTYBUS L. Chicory.
Cirsium altissimum (L.) Spreng. (incl. *C. iowense* (Pammel) Fern.)
 CIRSIUM ARVENSE (L.) Scop.
Cirsium discolor (Muhl.) Spreng.
Cirsium flodmanii (Rydb.) Arthur
Cirsium hillii (Canby) Fern.
 CIRSIUM VULGARE (Savi) Airy-Shaw
Conyza canadensis (L.) Cronquist
Conyza ramosissima Cronquist
Coreopsis palmata Nutt.
Coreopsis tinctoria Nutt.
Coreopsis tripteris L.
Crepis tectorum L.
 CYCLACHAENA XANTHIFOLIA (Nutt.) Fresen.
Doellingeria umbellata (Miller) Nees
Dyssodia papposa (Vent.) Hitchc.
Echinacea pallida Nutt.
Echinacea purpurea (L.) Moench
Eclipta alba (L.) Hassk.
Erechtites hieracifolia (L.) Raf.

Erigeron annuus (L.) Pers.
Erigeron philadelphicus L.
Erigeron pulchellus Michx.
Erigeron strigosus Muhl.
Eupatorium altissimum L.
Eupatorium maculatum L.
Eupatorium perfoliatum L.
Eupatorium purpureum L.
Eupatorium rugosum Houtt.
Eupatorium serotinum (Michx.)
Euthamia gymnospermoides Greene
 FILAGO GERMANICA (L.) Huds.
 GALINSOGA QUADRIRADIATA Ruiz & Pav.
Gnaphalium obtusifolium L.
Helenium autumnale L.
Helianthus annuus L.
Helianthus decapetalus L.
Helianthus giganteus L.
Helianthus grosseserratus Martens
Helianthus maximiliani Schrader
Helianthus occidentalis Riddell
Helianthus pauciflorus subsp. *subrhomboideus* (Rydb.) Spring & Schilling
Helianthus petiolaris Nutt.
Helianthus strumosus L.
Helianthus tuberosus L.
Heliopsis helianthoides (L.) Sweet
Hieracium canadense Michx.
Hieracium scabrum Michx.
 INULA HELENIUM L.
Krigia biflora (Walt.) Blake
Lactuca canadensis L.
Lactuca floridana (L.) Gaertn.
Lactuca ludoviciana (Nutt.) Riddell
 LACTUCA SERRIOLA L.
 LEUCANTHEMUM VULGARE Lam.
Liatis aspera rom.
Liatis ligulistylis (A. Nels.) K. Schum.
Liatis cylindracea Michx.
Liatis pycnostachya Michx.
Matricaria chamomilla L.
 MATRICARIA MATRICARIOIDES (Less.) Porter
Packera paupercula (Michx.) A. Love & D. Love
Parthenium integrifolium L.
Polymnia canadensis L.
Prenanthes alba L.
Prenanthes aspera Michx.
Prenanthes racemosa (Michx.)
Ratibida columnifera (Nutt.) Wooten & Standl.
Ratibida pinnata (Vent.) Barnh.
Rudbeckia hirta L.
Rudbeckia laciniata L.

Rudbeckia subtomentosa Pursh
Rudbeckia triloba L.
Senecio aureus L.
Senecio plattensis Nutt.
Silphium integrifolium Michx.
Silphium laciniatum L.
Silphium perfoliatum L.
Solidago altissima L.
Solidago canadensis L.
Solidago flexicaulis L.
Solidago gigantea Ait.
Solidago juncea Aiton
Solidago missouriensis Nutt.
Solidago nemoralis Ait.
Solidago riddellii Frank ex Riddell
Solidago rigida L.
Solidago speciosa Nutt.
Solidago ulmifolia Muhl.
SONCHUS ARVENSIS L. Perennial
SONCHUS ASPER (L.) Hill
SONCHUS OLERACEUS L.
Symphyotrichum cordifolium (L.) G.L. Nesom
Symphyotrichum drummondii (Lindl.) G.L. Nesom
Symphyotrichum ericoides (L.) G.L. Nesom
Symphyotrichum laeve (L.) Å. Löve & D. Löve
Symphyotrichum lanceolatum (Willd.) G.L. Nesom
Symphyotrichum lateriflorum (L.) Å. Löve & D. Löve
Symphyotrichum novae-angliae (L.) G.L. Nesom
Symphyotrichum oblongifolium (Nuttall) G.L. Nesom
Symphyotrichum ontarionis (Wiegand) G.L. Nesom
Symphyotrichum oolentangiense (Riddell) G.L. Nesom
Symphyotrichum parviceps (E.S. Burgess) G.L. Nesom
Symphyotrichum pilosum (Willdenow) G.L. Nesom
Symphyotrichum praealtum (Poiret) G.L. Nesom
Symphyotrichum prenanthoides (Muhl. ex Willd.) G.L. Nesom
Symphyotrichum puniceum (L.) Å. Löve & D. Löve
Symphyotrichum sericeum (Ventenat) G.L. Nesom
Symphyotrichum shortii (Lindley) G.L. Nesom
TANACETUM VULGARE L.
TARAXACUM LAEVIGAUM (Willd.) DC.
TARAXACUM OFFICINALE Weber
TRAGOPOGON DUBIUS Scop.
TRAGOPOGON PORRIFOLIUS L.
TRAGOPOGON PRATENSIS L.
Verbesina alternifolia (L.) Britt.
Vernonia fasciculata Michx.
Vernonia gigantea (Walter) Trel.
Xanthium strumarium L.

Balsaminaceae

Impatiens capensis Meerb.

Impatiens pallida Nutt.

Berberidaceae

BERBERIS THUNBERGII DC.

BERBERIS VULGARIS L.

Caulophyllum thalictroides (L.) Michx.

Podophyllum peltatum L.

Betulaceae

Betula nigra L.

Carpinus caroliniana Walt.

Corylus americana Walt.

Ostrya virginiana (Mill.) K. Koch

Bignoniaceae

CAMPSIS RADICANS (L.) Seem.

CATALPA BIGNONIOIDES Walt.

CATALPA SPECIOSA (Warder) Warder ex Engelm.

Boraginaceae

BUGLOSSOIDES ARVENSIS (L.) I. M. Johnst.

CYNOGLOSSUM OFFICINALE L.

Hackelia virginiana (L.) I. M. Johnston

LAPPULA ECHINATA Gilib.

LAPPULA REDOWSKII (Hornem.) Greene var. OCCIDENTALIS (Wats.) Rydb.

Lithospermum canescens (Michx.) Lehm.

Lithospermum caroliniense (J. F. Gmel.) MacMill.

Lithospermum incisum Lehm.

Lithospermum latifolium Michx.

Mertensia virginica (L.) Pers.

Myosotis verna Nutt.

Onosmodium bejariense var. *hispidissimum* (Mack.) Turner

Brassicaceae

Alliaria petiolata (Bleb.) Cavara & Grande

ALYSSUM ALYSSOIDES L.

Arabis canadensis L.

Arabis drummondii Gray

Arabis glabra (L.) Benth.

Arabis hirsuta (L.) Scop. var. *pyncocarpa* (M. Hopkins) Rollins

Arabis perstellata E. L. Br. var. *shortii* Fem.

ARMORACEA RUSTICANA Gaertn.

BARBAREA VULGARIS R. Br.

BERTEROA INCANA (L.) DC.

Boechera divaricarpa (A. Nelson) A. Love & D. Love

BRASSICA KABER (DC.) L. C. Wheeler

BRASSICA NIGRA (L.) Koch

CAMELINA MICROCARPA Andrz.

CAPSELLA BURSA-PASTORIS (L.) Medic.

Cardamine bulbosa (Schreb.) Britton, Sterns & Poggenb.

Cardamine douglassii (Torr.) Britt.

Cardamine parviflora L. var arenicola (Britt.) O. E. Schulz
 Cardamine pensylvanica Muhl.
 CONRINGIA ORIENTALIS (L.) Dumort
 Dentaria laciniata Muhl.
 Descurainia pinnata (Walt.) Britt. var. brachycarpa (Rich.) Fem.
 Descurainia sophia (L.) Webb. ex Prantl.
 Draba reptans (Lam.) Fern.
 ERYSIMUM CHEIRANTHOIDES L.
 HESPERIS MATRONALIS L.
 Iodanthus pinnatifidus (Michaux) Steud.
 LEPIDIUM CAMPESTRE (L.) R. Br.
 LEPIDIUM DENSIFLORUM Schrad.
 Lepidium perfoliatum L.
 Lepidium virginicum L.
 NESLIA PANICULATA (L.) Desv.
 Rorippa islandica (Oeder) Borbas
 Rorippa sessiliflora (Nutt.) Hitchc.
 RORIPPA SYLVESTRIS (L.) Bess.
 SISYMBRIUM ALTISSIMUM L.
 Sisymbrium loeselii L
 SISYMBRIUM OFFICINALE (L.) Scop.
 THLASPI ARVENSE L.

Cactaceae

Opuntia humifusa (Raf.) Raf.

Campanulaceae

Campanula americana L.
 Campanula aparinoides Pursh
 CAMPANULA RAPUNCULOIDES L.
 Campanula rotundifolia L.
 Lobelia cardinalis L.
 Lobelia inflata L.
 Lobelia siphilitica L.
 Lobelia spicata Lam.
 Triodanis perfoliata (L.) Nieuwl.

Caprifoliaceae

Adoxa moschatellina L.
 Lonicera maackii (Rupr.) Herder
 Lonicera prolifera (Kirchn.) Rehd.
 Lonicera sempervirens L.
 LONICERA TATARICA L.
 Lonicera x bella
 Sambucus canadensis L.
 Symphoricarpos orbiculatus Moench
 Triosteum aurantiacum Bickn.
 Triosteum perfoliatum L.
 Viburnum lentago L.
 VIBURNUM OPULUS L.
 Viburnum rafinesquianum Schultes

Caryophyllaceae

AGROSTEMMA GITHAGO L.
 Arenaria serpyllifolia L.
 Cerastium arvense ssp velutinum Raf.
 Cerastium nutans Raf.
 Cerastium semidecandrum L.
 CERASTIUM VULGATUM L.
 DIANTHUS ARMERIA L.
 Moehringia lateriflora (L.) Fenzl
 Paronychia canadensis (L.) Wood
 Paronychia fastigiata (Raf.) Fern.
 SAPONARIA OFFICINALIS L.
 Silene antirrhina L.
 Silene csereii Baumg.
 SILENE DICHOTOMA Ehrh.
 Silene nivea (Nutt.) Otth.
 SILENE PRATENSIS (Rafn) Godr.
 Silene stellata (L.) Ait. f.
 SILENE VULGARIS (Moench) Garcke
 Stellaria longifolia Muhl.
 Stellaria graminea L.
 STELLARIA MEDIA (L.) Cyrille

Celastraceae

Celastrus orbiculatus Thunb.
 Celastrus scandens L.
 Euonymus atropurpureus Jacq,

Ceratophyllaceae

Ceratophyllum demersum L.

Chenopodiaceae

Atriplex patula L. Orach.
 CHENOPODIUM ALBUM L.
 CHENOPODIUM AMBROSIOIDES L.
 CHENOPODIUM BOTRYS L.
 CHENOPODIUM BUSHIANUM Aellen
 CHENOPODIUM CAPITATUM (L.) Aschers.
 CHENOPODIUM GLAUCUM L.
 Chenopodium hybridum L.
 CHENOPODIUM POLYSPERMUM L.
 Chenopodium standleyanum Aellen
 Cycloloma atriplicifolium (Spreng.) Coult.
 KOCHIA SCOPARIA (L.) Roth
 SALSOLA TRAGUS L.

Cistaceae

Helianthemum bicknellii Fern.
 Helianthemum canadense (L.) Michx.
 Lechea stricta Leggett

Lechea tenuifolia Michx.

Cleomaceae

Polanisia jamesii (Torr. & A. Gray) Iltis

Convolvulaceae

Calystegia sepium (L.) R. Br.

CONVOLVULUS ARVENSIS L.

Cuscuta cephalanthi Engelm.

Cuscuta coryli Engelm.

Cuscuta glomerata Choisy

Cuscuta gronovii Willd. ex Schult

Cuscuta pentagona Engelm.

Cuscuta polygonorum Engelm.

IPOMOEA COCCINEA L.

IPOMOEA HEDERACEA (L.) Jacq.

Ipomoea pandurata (L.) G. F. W. Mey.

IPOMOEA PURPUREA (L.) Roth

Cornaceae

Cornus alternifolia L. f.

Cornus drummandii Meyer

Cornus obliqua Raf

Cornus foemina subsp. *racemosa* (Lam.) J.S. Wilson

Cornus rugosa Lam.

Cornus sericea ssp. *sericea* L.

Cucurbitaceae

Echinocystis lobata (Michx.) T. & G.

Sicyos angulatus L.

Ebenaceae

Diospyros virginiana L.

Elaeagnaceae

Elaeagnus augustifolia L.

Elaeagnus umbellata Thunb.

Ericaceae

Monotropa uniflora L.

Pyrola elliptica Nutt.

Euphorbiaceae

Acalypha gracilens Gray

Acalypha rhomboidea Raf.

Acalypha virginica L.

Croton capitatus Michx.

Croton glandulosus L. var. *septentrionalis* Muell. Arg.

Euphorbia corollata L.

EUPHORBIA CYPARISSIAS L.

Euphorbia dentata Michx.

Euphorbia geyeri Engelm.
Euphorbia glyptosperma Englem.
Euphorbia heterophylla L.
Euphorbia hexagona Nutt. ex Sprengel
Euphorbia maculata L.
Euphorbia marginata (Pursh.)
Euphorbia spathulate Lam.

Fabaceae

Amorpha canescens Pursh
Amorpha fruticosa L.
Amphicarpa bracteata (L.) Fern.
Apios americana Medic.
Astragalus canadensis L.
Baptisia bracteata var. *glabrescens* (Larisey) D.Isely
Baptisia lactea (Raf.) Thieret
Cassia marilandica L.
Cercis canadensis L.
Chamaecrista fasciculata (Michx.)
Crotalaria sagittalis L.
Dalea candida Michx. ex Willd.
Dalea leporina (Ait.) Bullock
Dalea purpurea (Vent.)
Desmanthus illinoensis (Michx.) MacMill. ex. B.L. Rob. & Fern.
Desmodium canadense (L.) DC.
Desmodium canescens (L.) DC.
Desmodium cuspidatum (Muhl.) Loud.
Desmodium illinoense Gray
Desmodium nudiflorum (L.) DC.
Desmodium paniculatum (L.) DC.
Gleditsia triacanthos L.
Gymnocladus dioica (L.) K. Koch
Lathyrus palustris L.
Lespedeza capitata Michx.
Lespedeza cuneata (Dum. Cours.) G. Don
 LESPEDEZA STIPULACEA Maxim.
Lespedeza violacea (L.) Pers.
Lotus corniculatus L.
 MEDICAGO LUPULINA L.
 MEDICAGO SATIVA L.
 MELILOTUS ALBA Desr.
 MELILOTUS OPTICINALIS (L.) Lam.
Robinia pseudo-acacia L.
Securigera varia (L.) Lassen.
Strophostyles helvola (L.) Ell.
Strophostyles leiosperma (T. & G.) Piper
Tephrosia virginiana (L.) Pers.
 TRIFOLIUM ARVENSE L.
 TRIFOLIUM CAMPESTRE Schreb.
 TRIFOLIUM HYBRIDUM L.
 TRIFOLIUM PRATENSE L.

Trifolium reflexum L.
 TRIFOLIUM REPENS L.
 Vicia americana Muhl. ex Willd.
 Vicia cracca L.
 VICIA VILLOSA Roth
 Wisteria frutescens (L.) Poir.

Fagaceae

Quercus alba L.
 Quercus bicolor Willd.
 Quercus imbricaria Michx.
 Quercus macrocarpa Michx.
 Quercus muehlenbergii Engelm.
 Quercus palustris Muenchh.
 Quercus rubra L.
 Quercus velutina Lam.
 Quercus x heterophylla F. Michx. (pro. sp.)
 Quercus x leana Nutt.

Gentianaceae

Gentiana alba Muhl. ex Nutt.
 Gentiana andrewsii Griseb.
 Gentiana puberulenta J.S. Pringle
 Gentiana X billingtonii Farw.
 Gentianella quinquefolia subsp. occidentalis (A. Gray) J.M. Gillet
 Gentianopsis crinita (Froel.) Ma

Geraniaceae

Geranium carolinianum L.
 Geranium maculatum L.
 Erodium cicutarium (L.) L'Her. ex Aiton

Hippocastanaceae

Aesculus glabra Willd.

Hydrophyllaceae

Ellisia nyctelea L.
 Hydrophyllum appendiculatum Michx.
 Hydrophyllum virginianum L.

Hypericaceae

Hypericum majus (Gray) Britt.
 Hypericum mutilum L.
 HYPERICUM PERFORATUM L.
 Hypericum prolificum L.
 Hypericum punctatum Lam.
 Hypericum pyramidatum Ait.
 Hypericum sphaerocarpum Michx.
 Triadenum fraseri (Spach) Gleason

Juglandaceae

Carya cordiformis (Wang.) K. Koch
Carya glabra (Mill.) Sweet
Carya laciniosa (Michx.) Loud.
Carya ovata (Mill.) K. Koch
Juglans cinerea L.
Juglans nigra L.

Lamiaceae

Agastache nepetoides (L.) Ktze.
Agastache scrophulariifolia (Willd.) Ktze.
 AJUGA REPTANS L.
Blephila hirsuta (Pursh) Benth.
Clinopodium vulgare L.
Dracocephalum parviflorum Nutt.
 GLECHOMA HEDERACEA L.
Hedeoma hispidum Pursh
Hedeoma pulegioides (L.) Pers.
Hyssopus officinalis Wolden
 LAMIUM AMPLEXICAULE L.
 LEONURUS CARDIACA L.
 LEONURUS MARRUBIASTRUM L.
Lycopus americanus Muhl.
Lycopus uniflorus Michx.
Lycopus virginicus L.
Mentha aquatica L.
Mentha arvensis L.
Monarda fistulosa L.
Monarda punctata L.
 NEPETA CATARIA L.
PERILLA FRUTESCENS (L.) Britt.
Physostegia parviflora Nutt.
 PRUNELLA VULGARIS L.
Pycnanthemum pilosum Nutt.
Pycnanthemum tenuifolium Schrad.
Pycnanthemum virginianum (L.) Durand & Jackson
Scutellaria galericulata L.
Scutellaria lateriflora L.
Scutellaria ovata Hill
Scutellaria parvula Michx.
Stachys aspera Michx.
Stachys pilosa L.
Stachys tenuifolia Willd.
Teucrium canadense L.
Trichostema brachiatum L.

Lentibulariaceae

Utricularia gibba L.
Utricularia vulgaris L.

Linaceae

Linum sulcatum Riddell

Lythraceae

Ammannia coccinea Rottb.
 Lythrum alatum Pursh
 Didiplis diandra (Nutt. ex DC.) Alph. Wood
 Rotala ramosior (L.) Koehne

Magnoliaceae

Liriodendron tulipifera L.

Malvaceae

ABUTILON THEOPHRASTI Medik.
 ALTHAEA ROSEA Cav.
 Callirhoe involucrata (T. & G.)
 Hibiscus laevis All.
 HIBISCUS TRIONUM L.
 MALVA NEGLECTA Wallr.
 Malva sylvestris L.
 SIDA SPINOSA L.

Menispermaceae

Menispermum canadense L.

Moraceae

CANNABIS SATIVA L.
 HUMULUS JAPONICUS Sieb. & Zucc.
 Humulus lupulus L.
 MACLURA POMIFERA (Raf.) Schneid.
 MORUS ALBA L.
 Morus rubra L.

Nyctaginaceae

Mirabilis nyctaginea (Michx.) MacM.

Nymphaeaceae

Brasenia schreberi Gmel.
 Nelumbo lutea (Willd.) Pers.
 Nymphaea tuberosa Paine

Oleaceae

Fraxinus americana L.
 Fraxinus nigra Marsh.
 Fraxinus pennsylvanica Marsh. (incl. F. lanceolata Borkh.)
 Ligustrum vulgare L.

Onagraceae

Calylophus serrulatus (Nutt.) P. H. Raven
 Circaea lutetiana subsp. Canadensis (L.) Asch. & Magnus
 Epilobium coloratum Muhl.
 Gaura biennis L.
 Ludwigia alternifolia L.

Ludwigia palustris (L.) Ell. var. americana (DC.) Fern. & Grise.
 Ludwigia peploides (Kunth) P.H. Raven
 Ludwigia polycarpa Short & Peter
 Oenothera biennis L. (incl. O. parviflora L.)
 Oenothera filiformis (Small) W. L. Wagner & Hoch
 Oenothera villosa Thunb.

Orobanchaceae

Orobanche uniflora L.

Oxalidaceae

OXALIS CORNICULATA L.
 Oxalis stricta L.
 Oxalis violacea L.

Papaveraceae

CHELIDONIUM MAJUS L.
 Corydalis micrantha (Engelm.)
 Dicentra cucullaria (L.) Benth.
 Sanguinaria canadensis L.

Phrymaceae

Phryma leptostachya L.

Phytolaccaceae

Phytolacca americana L.

Plantaginaceae

Callitriche heterophylla Pursh
 Gratiola virginiana L.
 Nuttallanthus canadensis (L.) D. A. Sutton
 Plantago aristata Michx.
 PLANTAGO LANCEOLATA L.
 PLANTAGO MAJOR L.
 Plantago patagonica Jacq.
 Plantago rugelii Dene.
 Plantago virginica L.
 Veronica serpyllifolia L.

Platanaceae

Platanus occidentalis L.

Polemoniaceae

Collomia linearis Nutt.
 IPOMOPSIS RUBRA (L.) Heller
 Phlox bifida L.C. Beck
 Phlox divaricata L.
 Phlox maculata L.
 PHLOX PANICULATA L.
 Phlox pilosa L.
 Polemonium reptans L.

Polygonaceae

FAGOPYRUM ESCULENTUM Moench.
 Persicaria amphibia (L.) Gray
 Persicaria hydropiperoides (Michx.) Small
 Persicaria longiseta (Bruijn) Kitag.
 Polygala incarnata L.
 Polygala sanguinea L.
 Polygala senega L.
 Polygala verticillata L.
 POLYGONUM AVICULARE L.
 POLYGONUM CONVOLVULUS L.
 POLYGONUM CUSPIDATUM Sieb. & Zucc.
 Polygonum erectum L.
 Polygonum hydropiper L.
 Polygonum lapathifolium L.
 POLYGONUM ORIENTALE L.
 Polygonum pensylvanicum laevigatum Fern
 POLYGONUM PERSICARIA L.
 Polygonum punctatum Ell.
 Polygonum ramosissimum Michx.
 Polygonum sagittatum L.
 Polygonum scandens L.
 Polygonum tenue Michx.
 Polygonum virginianum L.
 RUMEX ACETOSELLA L.
 Rumex altissimus Wood
 RUMEX CRISPUS L.
 Rumex maritimus var fueginus (Phil.) Dusen
 Rumex mexicanus Meisn.
 RUMEX OBTUSIFOLIUS L.
 Rumex orbiculatus Gray
 Rumex verticillatus L.

Portulacaceae

Claytonia virginica L.
 PORTULACA OLERACEA L.

Primulaceae

Androsace occidentalis Pursh
 Dodecatheon meadia L.
 Lysimachia ciliata L.
 LYSIMACHIA CLETHROIDES Duby
 Lysimachia hybrida Michx.
 LYSIMACHIA NUMMULARIA L.
 LYSIMACHIA PUNCTATA L.
 Lysimachia quadriflora Sims
 Lysimachia terrestris (L.) Britton, Sterns & Poggenb.
 Lysimachia thyrsoflora L.

Ranunculaceae

Actaea pachypoda Ell.
Actaea rubra (Ait.) Willd.
Anemone canadensis L.
Anemone cylindrica Gray
Anemone quinquefolia L.
Anemone virginiana L.
Anemonella thalictroides (L.) Spach
Aquilegia canadensis L.
Caltha palustris L.
Clematis pitcheri T. & G.
Clematis virginiana L.
Delphinium carolinianum ssp *virescens* (Nutt.) R. E. Brooks
Hepatica nobilis var. *acuta* (Pursh) Steyerl.
Isopyrum biternatum (Raf.) T. & G.
Myosurus minimus L.
Ranunculus abortivus L.
 RANUNCULUS ACRIS L.
Ranunculus fascicularis Muhl.
Ranunculus flabellaris Raf.
Ranunculus longirostris Godr.
Ranunculus pensylvanicus L.f.
Ranunculus recurvatus Poir.
Ranunculus repens L.
Ranunculus sceleratus L.
Ranunculus septentrionalis Poir.
Ranunculus testiculatus Crantz
Thalictrum dasycarpum Fisch. & Lall.
Thalictrum revolutum DC.

Rhamnaceae

Ceanothus americanus L.
Rhamnus lanceolata Pursh

Rosaceae

Agrimonia gryposepala Wallr.
Agrimonia parviflora Alton
Agrimonia pubescens Wallr.
Agrimonia striata Michx.
Amelanchier arborea (Michx. f.) Fern.
Crataegus calpodendron (Ehrh.) Medik.
Crataegus crus-galli L.
Crataegus margaretta Ashe
Crataegus mollis (T. & G.) Scheele
Duchesnea indica (Andrews) Focke
Fragaria vesca L. var. *americana* Porter
Fragaria virginiana Miller
Geum canadense Jacq.
Geum laciniatum Murr.
Geum vernum (Raf.) Torr. & A. Gray
 MALUS DOMESTICA Borkhausen
Malus ioensis (Alph. Wood) Britton

Physocarpus opulifolius var. intermedius (Rydb.) B.L. Rob
 Potentilla argentea L.
 Potentilla arguta Pursh
 Potentilla norvegica L.
 Potentilla recta L.
 Potentilla rivalis Nutt.
 Potentilla simplex Michx.
 Prunus americana Marsh.
 Prunus hortulana L.H. Bailey
 Prunus pennsylvanica L. f.
 Prunus serotina Ehrh.
 Prunus tomentosa Thumb.
 Prunus virginiana L.
 PYRUS COMMUNIS L.
 Pyrus ioensis (Alph. Wood) Britton
 Rosa arkansana var. suffulta (Greene) Cockerell
 Rosa blanda Ait.
 Rosa carolina L.
 ROSA EGLANTERIA L.
 Rosa multiflora Thunb.
 Rosa setigera Michx.
 Rosa tomentosa Sm.
 Rubus allegheniensis Porter
 Rubus flagellaris Willd.
 Rubus heterophyllus Willd
 Rubus occidentalis L.
 Rubus satis L.H. Bailey
 Spiraea alba Du Roi

Rubiaceae

Cephalanthus occidentalis L.
 Galium aparine L.
 Galium asprellum Michx.
 Galium boreale L.
 Galium circaezans Michx.
 Galium concinnum T. & G.
 Galium obtusum Bigel.
 Galium tinctorium L.
 Galium trifidum L,
 Galium triflorum Michx.
 Houstonia minima Beck

Rutaceae

Ptelea trifoliata L.
 Zanthoxylum americanum Mill.

Salicaceae

POPULUS ALBA L.
 Populus deltoides Marsh.
 Populus grandidentata Michx.
 Populus tremuloides Michx.

SALIX ALBA L.*Salix amygdaloides* Andersson*Salix candida* Flugge*Salix discolor* Muhl.*Salix exiqua* Nuttall**SALIX FRAGILIS L.***Salix humilis* Marsh.*Salix nigra* Marsh.*Salix petiolaris* Sm.*Salix rigida* Muhl.*Salix sericea* Marsh.*Salix x rubens* Schrank*Salix x sepucralis* Simonk.**Santalaceae***Comandra umbellata* (L.) Nutt.**Sapindaceae***Acer ginnala* Maxim.**Saxifragaceae***Heuchera richardsonii* R. Br.*Mitella diphylla* L.*Micranthes pennsylvanica* (L.) Haw.*Ribes americanum* Mill.*Ribes cynosbati* L.*Ribes missouriense* Nutt.*Penthorum sedoides* L.**Scrophulariaceae***Agalinis purpurea* (L.) Pennell*Agalinis tenuifolia* (Vahl.) Raf.*Aureolaria grandiflora* (Benth.) Pennell*Castilleja coccinea* (L.) Spreng.*Chaenorrhinum minus* (L.) Lange*Chelone glabra* L.*Dasistoma macrophylla* (Nutt.) Raf.*Gratiola neglecta* Torr.**LINARIA VULGARIS Hill***Lindernia dubia* (L.)*Mimulus ringens* L.*Pedicularis canadensis* L.*Pedicularis lanceolata* Michx.*Penstemon digitalis* Nutt.*Penstemon grandiflorus* Nutt.*Scrophularia lanceolata* Pursh*Scrophularia marilandica* L.*Tomanthera auriculata* (Michx.) Raf.**VERBASCUM BLATTARIA L.****VERBASCUM PHLOMOIDES L.****VERBASCUM THAPSUS L.**

VERONICA ANAGALLIS-AQUATICA L.
 VERONICA ARVENSIS L.
 Veronica peregrina L.
 VERONICA PERSICA Poir.
 Veronicastrum virginicum (L.) Farw.

Simaroubaceae

Ailanthus altissima (Mill.) Swingle

Smilacaceae

Smilax illinoensis Mangaly

Solanaceae

DATURA STRAMONIUM L.
 LYCIUM BARBARUM L.
 Physalis heterophylla Ness
 Physalis longifolia Nutt.
 Physalis pubescens var. integrifolia (Dunal) Waterf.
 Physalis virginiana Mill.
 SOLANUM AMERICANUM Mill.
 SOLANUM CAROLINENSE L.
 SOLANUM DULCAMARA L.
 SOLANUM PSEUDOCAPSICUM L.
 SOLANUM ROSTRATUM Dunal.

Staphyleaceae

Staphylea trifolia L.

Thymelaeaceae

Dirca palustris L.

Tiliaceae

Tilia americana L.

Ulmaceae

Celtis occidentalis L.
 Ulmus americana L.
 ULMUS PUMILA L.
 Ulmus rubra Muhl.

Urticaceae

Boehmeria cylindrica (L.) Sw.
 Laportea canadensis (L.) Wedd.
 Parietaria pensylvanica Muhl.
 Pilea fontana (Lunell) Rydb.
 Pilea pumila (L.) Gray
 Urtica dioica L. var. procera (Muhl.) Wedd.

Valerianaceae

Valerianella radiata (L.) Dufur.

Verbenaceae

Phyla lanceolata (Michx.) Greene
 Verbena bracteata Lag. & Rodr.
 Verbena hastata L.
 Verbena simplex Lehm.
 Verbena stricta Vent.
 Verbena urticifolia L.

Violaceae

Viola lanceolata L.
 Viola missouriensis Greene
 Viola nephrophylla Greene
 Viola papilionacea Pursh
 Viola pedata L.
 Viola pedatifida G. Don
 Viola pubescens Ait.
 Viola sagittata Ait.
 Viola sororia Willd.
 Viola striata Aiton

Vitaceae

Parthenocissus quinquefolia (L.) Planch.
 Parthenocissus vitacea (Knerr) Hitchc.
 Vitis riparia Michx.
 Vitis vulpina L.

Zygophyllaceae

TRIBULUS TERRESTRIS L.

ANGIOSPERMS: MONCOTYLEDONS**Acoraceae**

Acorus americanus (Raf.) Raf.

Alismataceae

Alisma subcordatum Raf.
 Echinodorus berteroi (Spreng.) Fassett
 Sagittaria cuneata Sheldon
 Sagittaria brevirostra Mack. & Bush
 Sagittaria graminea Michx.
 Sagittaria montevidensis Cham. & Schlecht.
 Sagittaria rigida Pursh

Araceae

ACORUS CALAMUS L.
 Arisaema dracontium (L.) Schott
 Arisaema triphyllum (L.) Schott

Commelinaceae

COMMELINA COMMUNIS L.
 Tradescantia bracteata
 Tradescantia ohiensis Raf.

Cyperaceae

Carex albursina Sheldon
Carex alopecoidea Tuck.
Carex annectens Bickn.
Carex atherodes Spreng.
Carex bebbii Olney
Carex bicknellii Britt.
Carex blanda Dew.
Carex brevior (Dew.) Mack.
Carex bushii Mack.
Carex buxbaumii Wahl.
Carex cephaloidea Dew.
Carex cephalophora Muhl.
Carex comosa Boott
Carex conjuncta Boott
Carex conoidea Schkuhr ex Willd.
Carex crawei Dew.
Carex cristatella Britt.
Carex davisii Schwein. & Torr.
Carex festucacea Schkuhr
Carex frankii Kunth.
Carex gracillima Schw.
Carex granularis Muhl.
Carex gravida Bailey
Carex grayi Carey
Carex haydenii Dew.
Carex hirtifolia Mack.
Carex hitchcockiana Dew.
Carex hystericina Muhl.
Carex inops ssp heliophila (Mack) Crins
Carex interior L. H. Bailey
Carex jamesii Schw.
Carex lacustris Willd.
Carex laevivaginata (Kuk.) Mack.
Carex lasiocarpa Ehrh.
Carex laxiculmis Schwein.
Carex leavenworthii Dew.
Carex lupulina Muhl.
Carex lurida Wahlenb.
Carex meadii Dew.
Carex mitchelliana M.A. Curtis
Carex molesta Mack.
Carex muhlenbergii Schkuhr ex Willd.
Carex muskingumensis Schwein.
Carex normalis Mack.
Carex oligocarpa Schkuhr
Carex pennsylvanica Lam.
Carex rosea Schkuhr ex Willd.
Carex sartwellii Dew.
Carex scoparia Schkuhr

Carex shortiana Dew.
Carex sparganioides Muhl. ex Willd.
Carex sprengelii Dew.
Carex squarrosus L.
Carex stipata Muhl.
Carex stricta Lam.
Carex suberecta (Olney) Britt.
Carex tetanica Schkuhr
Carex tribuloides Wahl.
Carex trichocarpa Muhl.
Carex typhina Michx.
Carex vesicaria L.
Carex vulpinoidea Michx.
Cyperus bipartitus Torr.
Cyperus erythrorhizos Muhl.
Cyperus esculentus L.
Cyperus filiculmis Vahl
Cyperus odoratus L.
Cyperus schweinitzii Torr.
Cyperus squarrosa L.
Cyperus strigosus L.
Dulichium arundinaceum (L.) Britt.
Eleocharis acicularis (L.) Roem. & Shult.
Eleocharis compressa Sulliv.
Eleocharis erythropoda Steud.
Eleocharis obtusa (Willd.) Schultes
Eleocharis olivacea Torr.
Eleocharis smallii Britt.
Eleocharis tenuis (Willd) Schultes
Eleocharis wolfii (A. Gray) A. Gray ex Britton
Eriophorum angustifolium Roth
Fimbristylis autumnalis (L.) Roem. & Shult.
Lipocarpha micrantha (Vahl) G.C. Tucker
Schoenoplectus acutus (Muhl. ex Bigelow) Å. Löve & D. Löve
Schoenoplectus heterochaetus (Chase) Soják
Scirpus pendulus Muhl.
Scirpus atrovirens Willd.
Scirpus cyperinus (L.) Kunth
Scirpus fluviatilis (Torr.) Gray
Scirpus validus Fernald
Scleria triglomerata Michx.

Dioscoreaceae

Dioscorea villosa L.

Hydrocharitaceae

Elodea nuttallii (Planch.) H.St.John

Iridaceae

Iris virginica L.

Sisyrinchium albidum Raf.

Sisyrinchium angustifolium Mill.
Sisyrinchium campestre Bickn.

Juncaceae

Juncus acuminatus Michx.
Juncus canadensis J. Gay ex Laharpe
Juncus dudleyi Wieg.
Juncus interior Wieg.
Juncus marginatus Rostk.
Juncus tenuis Willd.
Juncus torreyi Coville

Lemnaceae

Lemna perpusilla Torr.
Lemna turionifera Landolt

Liliaceae

Allium canadense L.
Allium tricoccum Ait.
 ASPARAGUS OFFICINALIS L.
 CONVALLARIA MAJALIS L.
Erythronium albidum Nutt.
 HEMEROCALLIS FULVA L.
Hypoxis hirsuta (L.) Coville
Lilium michiganense Farw.
Lilium philadelphicum (L.) L.
Maianthemum canadense Desf.
Melanthium virginicum L.
Polygonatum biflorum (Walter) Elliott
Scilla siberica Haw.
Smilacina racemosa (L.) Desf.
Smilacina stellata (L.) Desf.
Smilax ecirrhata (Engelm.) S. Wats.
Smilax herbacea L.
Smilax tamnoides L.
Trillium cernuum L.
Trillium flexipes Raf.
Trillium navale Riddell
Trillium recurvatum Beck
Uvularia grandiflora Sm.
Uvularia sessiliflora L.

Najadaceae

Najas flexilis (Willd.) Rostk. & W.L.E. Schmidt

Orchidaceae

Aplectum hyemale (Muhl.) Torr.
Calopogon tuberosus var. *tuberosus* (L.) Britton, Sterns & Poggenb.
Coeloglossum viride (L.) Hartm. var. *virescens* (Muhl.) Luer
Corallorhiza odontorhiza (Willd.) Nutt.
Cypripedium candidum Muhl. ex Willd

Cypripedium parviflorum Salisb. var. *pubescens* (Willd.) Knight
Cypripedium reginae Walt.
Galearis spectabilis (L.) Raf.
Goodyera pubescens (Willd.) R. Br.
Liparis liliifolia (L.) Rich.
Liparis loeselii (L.) Rich.
Malaxis unifolia Michx.
Platanthera flava var. *herbiola* (R. Brown) Luer
Platanthera leucophaea (Nutt.) Lindl.
Spiranthes incurva (Jenn.) M.C.Pace (Formerly *S. cernua* (L.) Rich.)
Spiranthes lacera (Raf.) Raf.
Spiranthes magnicamporum Sheviak
Spiranthes ovalis Lindl.
Triphora trianthophoros (Sw.) Rydb.

Poaceae

AGROSTIS GIGANTEA Roth
Agrostis hyemalis (Walter) Britton, Sterns & Poggenb.
Agrostis perennans (Walt.) Tuckerm.
Alopecurus aequalis Sobol.
Alopecurus carolinianus Walt.
Andropogon gerardii Vitman
Andropogon virginicus L.
Aristida basiramea Engelm.
Aristida dichotoma var. *curtissii* (A. Gray) Michx.
Aristida longespica Poir.
Aristida oligantha Michx.
 AVENA SATIVA L.
Bouteloua curtipendula (Michx.) Torr.
Bouteloua hirsuta Lag.
Brachyelytrum erectum (Schreb.) Beauv.
 BROMUS INERMIS Leyss.
 BROMUS JAPONICUS Thunb.
Bromus kalmii Gray
Bromus latiglumis (Scribner ex Shear) Hitchc.
 BROMUS SECALINUS L.
 BROMUS TECTORUM L.
Calamagrostis canadensis (Michx.) Nutt.
Cenchrus longispinus (Hack.) Fern.
Chasmanthium latifolium (Michx.) H.O. Yates
Cinna arundinacea L.
 DACTYLIS GLOMERATA L.
Diarrhena obovata (Gleason) Brandenburg
Dichantherium acuminatum (Sw.) Gould and C.A. Clark subsp. *implicatum* (Scribn.) Freckmann & Lelong
Dichantherium latifolium (L.) Harvill
Dichantherium leibergii (Vasey) Freckmann
Dichantherium oligosanthos (Schultes)
Dichantherium ovale (Elliott) Gould & C. A. Clark spp. *praecocius* (Hitchcock & Chase) Freckmann & Lelong
Dichantherium ovale (Elliott) Gould & C. A. Clark spp. *pseudopubescens* (Nash) Freckmann &

Lelong

Dichanthelium perlongum (Nash) Freckmann
 Digitaria cognata (Schultes) Pilg.
 DIGITARIA ISCHAEMUM (Schreb.) Muhl.
 DIGITARIA SANGUINALIS (L.) Scop.
 ECHINOCHLOA CRUSGALLI (L.) Beauv.
 Echinochloa muricata (P.Beauv.) Fernald
 ELEUSINE INDICA (L.) Gaertner
 Elymus canadensis L.
 ELYMUS REPENS (L.) Gould
 Elymus villosus Muhl.
 Elymus virginicus L.
 ERAGOSTIS CILIANENSIS (All.) Vignolo ex Janch.
 Eragrostis frankii C.A. Meyer ex Steudel
 Eragrostis hypnoides (Lam.) Britton, Sterns, & Poggenb.
 Eragrostis pectinacea (Michx.) Nees
 ERAGROSTIS PILOSA (L.) P. Beauv.
 Eragrostis spectabilis (Pursh) Steudel
 FESTUCA OVINA L.
 Festuca paradoxa Desv.
 Festuca subverticillata (Pers.) E.B. Alexeev
 Glyceria septentrionalis Hitchc.
 Glyceria striata (Lam.) Hitchc.
 Hesperostipa spartea (Trin.) Barkworth
 Hierochloa odorata (L.) Beauv.
 Hordeum jubatum L.
 Hordeum pusillum Nutt.
 Hystrix patula Moench.
 Koeleria macrantha (Ledeb.) Schult.
 Leersia lenticularis Michx.
 Leersia oryzoides (L.) Sw.
 Leersia virginica Willd.
 LOLIUM PERENNE L.
 Melica nitens Nutt.
 Microstegium vimineum (Trin.) A. Camus
 MISCANTHUS SACCHARIFLORUS (Maxim.) Hack.
 Muhlenbergia bushii R.W. Pohl
 Muhlenbergia frondosa (Poir.) Fern.
 Muhlenbergia mexicana (L.) Trin.
 Muhlenbergia racemosa (Michx.) Britton, Sterns & Poggenb.
 Muhlenbergia schreberi J. F. Grueh.
 Muhlenbergia sobolifera (Muhl.) Trin.
 Muhlenbergia sylvatica Torr.
 Muhlenbergia tenuiflora (Willd.) Britton, Sterns & Poggenb.
 Panicum capillare L.
 PANICUM MILIACEUM SPP. MILIACEUM L.
 Panicum virgatum L.
 Pascopyrum smithii (Rydb.) Å. Löve
 Paspalum setaceum Michx.
 Phalaris arundinacea L.
 PHALARIS CANARIENSIS L.

PHLEUM PRATENSE L.
 Phragmites australis (Cav.) Trin. ex Steud.
 Piptatherum racemosum (Sm.) Eaton
 POA ANNUA L.
 Poa chapmaniana Scribn.
 POA COMPRESSA L.
 Poa palustris L.
 POA PRATENSIS L.
 Poa sylvestries A. Gray
 Schedonorus pratensis (Hudson) P. Beauv.
 Schizachyrium scoparium (Michx.) Nash
 SETARIA FABERI Herrm.
 SETARIA PUMILA (L.) SPP. PUMILA (Poiret) Roemer & Schultes
 SETARIA VERTICILLATA (L.) P. Beauv.
 SETARIA VIRIDIS (L.) Beauv.
 Sorghastrum nutans (L.) Nash
 SORGUM HALEPENSE (L.) Pers.
 Spartina pectinata Link
 Sphenopholis intermedia (Rydb.) Rydb.
 Sphenopholis obtusata (Michx.) Scribn.
 Sporobolus compositus (Michx.) Kunth
 Sporobolus cryptandrus (Torrey) A. Gray
 Sporobolus heterolepis (A. Gray) A. Gray
 Sporobolus vaginiflorus (Torr. ex Gray) Alph. Wood
 Tridens flavus (L.) Hitchc.
 Triplasis purpurea (Walter) Chapm.
 Vulpia octoflora (Walter) Rydb.
 Zizania aquatica L.

Pontederiaceae

Heteranthera dubia (Jacq.) MacM.
 Pontederia cordata L.

Potamogetonaceae

Potamogeton diversifolius Raf.
 Potamogeton foliosus Raf.
 Potamogeton natans L.
 Potamogeton nodosus Poir.

Sparganiaceae

Sparganium americanum Nutt.
 Sparganium eurycarpum Engelm.

Typhaceae

Typha augustifolia L.
 Typha latifolia L.

Zannichelliaceae

Zannichellia palustris L.