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The Vascular Flora of the Iowan Area

LAWRENCE J. EILERS

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ABSTRACT

The Iowan area (formerly Iowan lobe) encompasses all or parts of 27 counties in northeastern Iowa. Prior to settlement, the area was largely covered with tall-grass prairie, but only remnants of the original vegetation remain. A survey of the vascular plants revealed that 1,129 species and 466 genera in 118 families inhabit the area.

The floristic survey was accomplished by intensive field work in 1962 and 1963, and by examining specimens in the major Iowa herbaria. Only native and naturalized species are reported in the Annotated Catalog. Taxa are arranged in alphabetical order. The nomenclature usually agrees with that of the most recent regional manuals; otherwise the synonymy is given. For each species, its habitats, relative frequency, distribution, and collection localities are described. An appended chart shows county distributions.

A high degree of resemblance (71% $\pm$ 3%) was shown between the flora of the Iowan area and the floras of each of four adjacent areas. Several of the areas had different glacial histories from the Iowan area, and the lack of variation in floristic resemblances indicates that enough time has elapsed since the Pleistocene glaciations for plants to have become widely disseminated. Variations in climate and habitats are probably now the controlling factors in species distributions.

INTRODUCTION

This report completes the series of major botanical studies of the vascular flora of Iowa undertaken in recent years by Iowa botanists. Many of these studies were completed at the University of Iowa at Iowa City under the direction of Dr. R. F. Thorne (now of Rancho Santa Ana Botanic Garden, Claremont, California): Fay, 1953; Van Bruggen, 1958; Davidson, 1959; Carter, 1960; Cooperrider, 1962; Hartley, 1966; and Eilers, 1964 (Fig. 1). In addition, Monson (1959) completed a study of the spermatophytes of the Des Moines (Cary) lobe of the Wisconsin glaciation under the direction of Dr. R. W. Pohl at Iowa State University at Ames.

Dr. Thorne was much interested in completing the floristic survey of Iowa, and it was largely through his own field work, and that of the students he inspired, that the work is as far along as it is. It is hoped that it will soon be possible to integrate this information with that accumulated from all the other floristic and revisionary studies of Iowa vascular plants into a single-volume, comprehensive manual of the flora of the state.

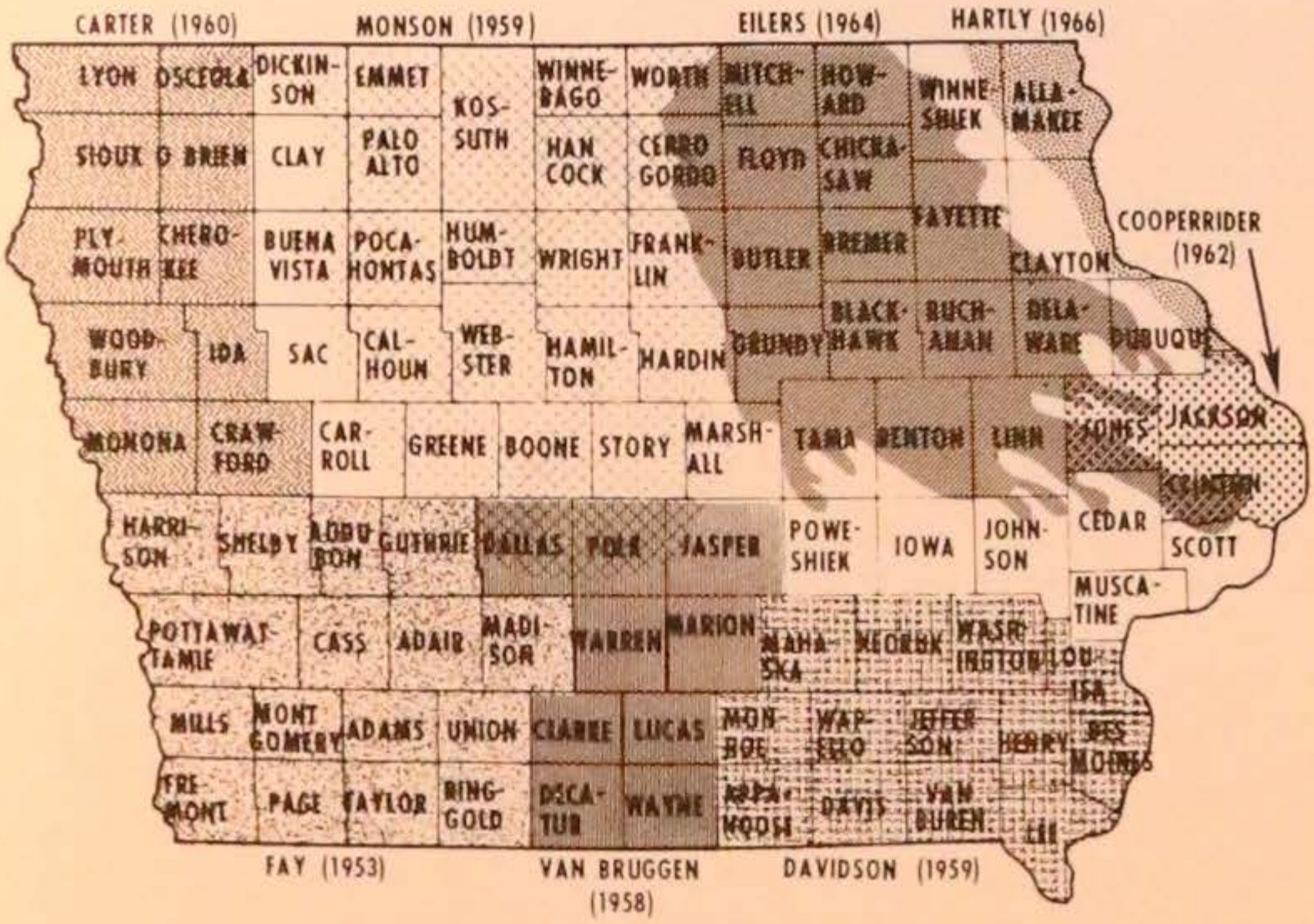

Figure 1. Major Floristic Surveys in Iowa

Although not indicated in figure one, a number of floras of counties within the Iowan area have been completed: Black Hawk (Burk, 1931), Cedar (Fay, 1951), Delaware (Cameron, 1898; Rickey, 1964), Fayette (Fink, 1898), Hardin (Pammel, 1900), Johnson (Thorne, 1955), Linn (Verink, 1915; Lazell, 1927; Bowne, 1946), and Mitchell (Tuttle, 1919). Species reports from floristic studies of counties only partially within the Iowan area were excluded unless it was possible to determine which collections were made within the area. An attempt was made to verify literature reports of rare species, and those with distributions of particular interest, by looking for voucher specimens in the major Iowa herbaria. Species which were reported in the literature but not verified by voucher specimens are reported in the List of Excluded Species.

A large number of collections had been made in the Iowan area in the past, a majority of them by Bohumil Shimek. He visited nearly every county at least once, but most of his collections are from Cerro Gordo, Floyd, Worth, Winneshiek, Black Hawk, Linn, and Johnson counties. The many collections of R. F. Thorne are also from widespread areas, but concentrated in Howard, Linn, Johnson, and Hardin counties. L. H. Pammel also collected in several counties in the Iowan area.

Local collections of importance are those of M. M. J. Burk and M. L. Grant from Black Hawk County; F. M. Tuttle from Mitchell County; C. J. Spiker from Chickasaw County; Bruce Fink from Fayette County; Ora M. Fellows from Tama and Fayette Counties; G. H. Berry, G. H. Rollins, and R. V. Drexler from Linn County; M. D. Rickey, J. E. Cameron, and T. H. Macbride from Delaware County; R. F. Thorne, H. W. Pfeifer, P. D. Sorenson, and J. E. Hartsaw from Johnson County; and W. Easterly from Iowa County.

Many people have assisted me during the course of this work. Professor R. F. Thorne, now of the Rancho Santa Ana Botanic Garden at Claremont, California, directed the initial phases of the research reported here, and continued in his interest to the present. His encouragement, assistance, and kindly criticism are very gratefully acknowledged. I am also grateful to Professors R. L. Hulbary, T. E. Melchert, and G. W. Martin of the University of Iowa for their helpful advice, and to J. C. Downey of the University of Northern Iowa for reading the manuscript and for thoughtful suggestions for improving it.

Dr. P. H. Monson of the University of Minnesota at Duluth kindly prepared for me a list of his collection sites from the Cary (Des Moines) lobe, which borders the Iowan surface on the west. I am also

indebted to him for the loan of distribution maps of the plants of the Cary lobe.

Thanks are extended to R. F. Thorne and T. E. Melchert of the University of Iowa, R. W. Pohl of Iowa State University, and Clifford McCollum of the University of Northern Iowa for permission to examine specimens in the herbaria at their respective institutions.

I am grateful to the National Science Foundation for funds obtained from a grant to Dr. R. F. Thorne which financed my field work in the summer of 1962, and also for a Cooperative Fellowship in 1962-63 which enabled me to continue my research program.

I wish to express my deep indebtedness to all of those who helped me in countless other ways: My late wife, Lucile, made a very large and important contribution to much of this work. A number of students have been of great assistance to me by compiling information, typing manuscript, proofing, etc., especially Glenn Crum.

Finally, I am particularly grateful to those good and dear friends who gave me their confidence and the unfailing support that I needed to complete this work.

DESCRIPTION OF THE REGION

GEOGRAPHICAL CLASSIFICATION

The floristic survey was conducted during the growing seasons of 1962-1964 in the area of northeastern Iowa formerly known as the Iowan drift-lobe of the Wisconsin glaciation. Recent evidence accumulated by R. V. Ruhe of the U. S. Department of Agriculture, Soil Conservation Service, indicates strongly that there was no Iowan substage during the Wisconsin time, and that the Iowan glacial drift does not exist. He states that "The Iowan *landscape* is a complex of Wisconsin-age erosion surfaces cut in Kansan and Nebraskan drifts that are mantled by Wisconsin loess" (Ruhe, 1965, p. 116).

To indicate this change in classification, in this paper I have called the area the "Iowan surface" or the "Iowan area", rather than the "Iowan lobe" as it was previously termed.

GLACIAL CHRONOLOGY

The first glacier to cover the Iowan area was the Nebraskan, which extended over the entire state. The subsequent Kansan glaciation again blanketed the state, disturbing or burying the Nebraskan till. Neither the Illinoian, nor the Wisconsin stage covered the Iowan area, but the Cary substage of the latter glaciation bounded the

Iowan area on the west, and must have had a considerable influence on the vegetation of the Iowan area at that time.

SIZE AND SHAPE

The Iowan surface encompasses all, or nearly all, of fifteen counties in northeastern Iowa, and parts of twelve others (Fig. 1). It is somewhat tongue-shaped with the long axis oriented in a NNW to SSE direction. The southern terminus of the Iowan "substage" as drawn by Kay and Graham (1943) is deeply lobed, the protrusions being upland areas between the valleys of the larger rivers and streams.

BEDROCK

The bedrock underlying the Iowan surface dips from northeast to southwest. The oldest system, the Silurian, outcrops as Niagaran dolomite along streams in Clayton, Jones, Delaware, northern Cedar, and southeastern Fayette counties. A few scattered outcrops of Devonian limestones and dolomites occur to the west of these counties, mostly in the valleys of the Wapsipinicon and Cedar Rivers. Mississippian shales and limestones along the western edge of the Iowan surface are usually buried under thick drift. Of considerable interest is the extensive outcropping of Des Moinian sandstone of the Pennsylvanian System along the Iowa River at Eldora. These outcrops support communities of plants whose phytogeographic significance is discussed in Eilers (1967).

PHYSICAL CHARACTERISTICS

Kay and Apfel (1928) state:

> From a topographic standpoint this area is more typically "gently rolling" than any other part of the state, and there is no distinct topographic datum plane to which the relief can be related as in southern Iowa. The river valleys are in most places fairly broad in relation to the streams in them, and instead of these broad valleys having wide flood-plains many of them have concave profiles. Some writers have stated that the streams flow in "sags" which extend for miles along the stream courses, the sags being best explained as partly filled broad valleys. The flood-plains in some places at least are not built of alluvial materials, but are drift flats . . .
>
> The broad sags are bordered by lines of hills, in some places with very gentle slopes, and in other places with steep slopes. Nowhere is the relief locally great. Although here and there the hills look somewhat formidable from a distance, it is seen upon close approach that the slopes are gentle. As a rule, the relief is less than 100 feet; but even such relief is sufficient to give somewhat commanding elevations in the landscapes. The divides

are usually undifferentiated either by prominence or continuity from the hills which lie along the stream valleys.

In parts of this drift mantled area the relief is very slight, and the surface for mile after mile appears to the eye to be almost level. All parts are drained, however; no lakes exist, but small ponds are formed in depressions during heavy or prolonged rainfall, and formerly extensive areas were boggy during wet seasons.

The most prominent topographic features of the Iowan surface are the paha, which are loess-capped knobs and ridges oriented in a WNW to ESE direction. These prominences, which often rise fifty feet or more above the surrounding plain, have a nucleus of Kansan till. Scholtes (1955) postulated that their thick loess caps were formed by vegetation acting as an anchorage for dust. Where not cultivated, the most prominent paha are often covered by oak-hickory woods.

Most of the interior of the Iowan surface is drained by the Cedar and Wapsipinicon Rivers (Fig. 2). The general course of the Iowa River is along the southwest margin of the Iowan surface. It evidently transported a large quantity of meltwater from the Cary glaciation, for its valley is quite wide and out of proportion to the size

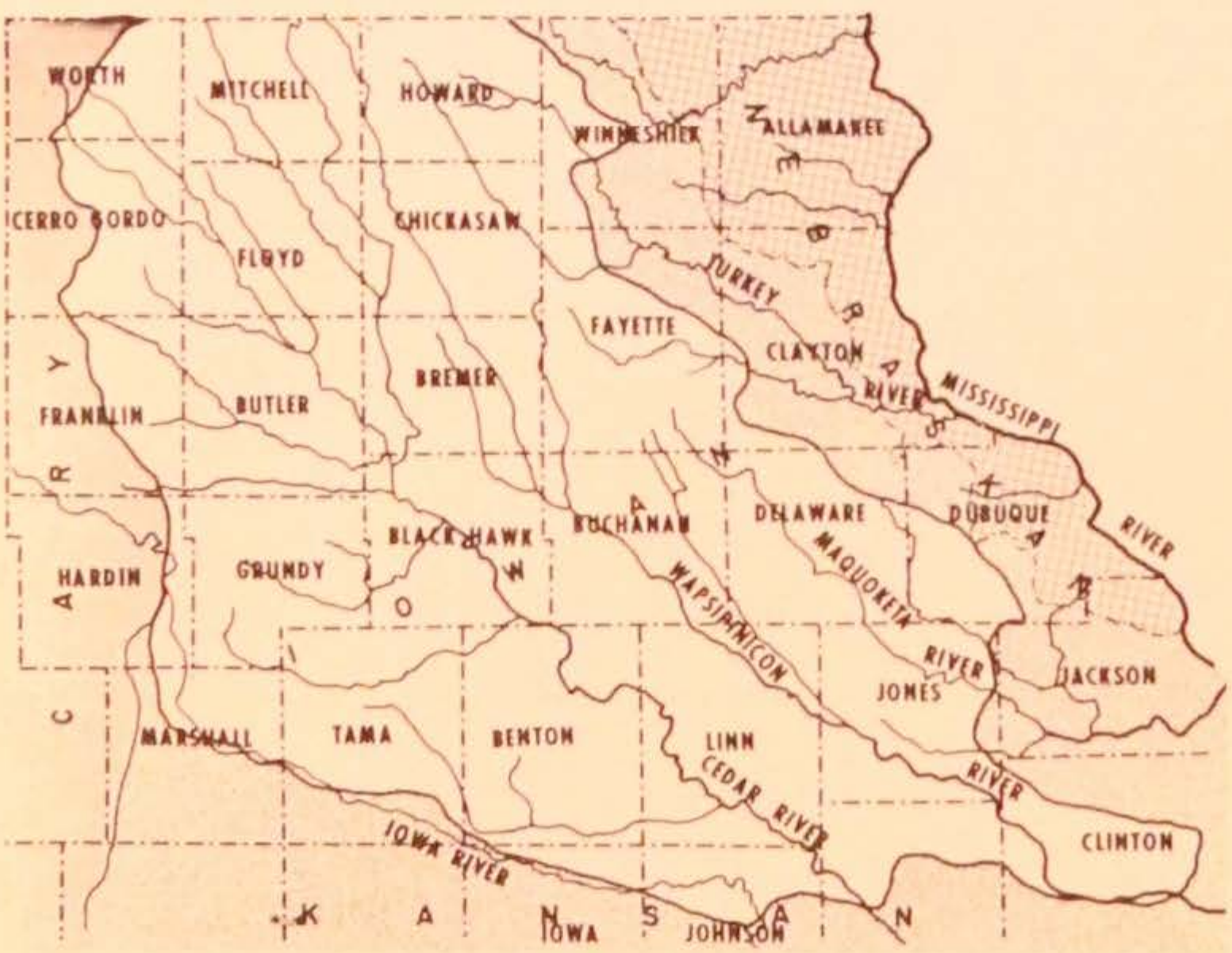

Figure 2. The Iowan Area

and work capacity of the present river. Other rivers draining parts of the Iowan surface are the Turkey River in the northeast and the Maquoketa River in the east.

The glacial drift in the Iowan area ranges from one to eight feet in depth, but with occasional pockets up to sixty feet deep. It is largely composed of an unsorted and stratified till. In the usual exposure it is yellowish to brownish in color because of oxidation and leaching near the surface, but fresh exposures of till are generally a dull gray. The bulk of the material was derived originally from the local dolomite, limestone, shale, or sandstone bedrock. These soft rocks were ground up by glacial action to form a silt and clay matrix. A varying percentage of the till is made up of sand-to-boulder-sized particles of rock transported from the north.

One very striking feature of the Iowan surface is the presence of many, sometimes enormous, granite boulders (glacial erratics) found in and on the till.

Deposits of stratified drift, usually of sand and gravel, are found along the major rivers draining the Iowan area. The streams have become entrenched since the original deposition, and these deposits remain as terraces as much as 100 feet above the present stream level (Kay and Graham, 1943).

Covering the drift to a mean depth of two to three feet, is a fine-grained aeolian material called Wisconsin loess. According to Kay and Graham (1943):

> (it) . . . is light-yellow and gray in color and shows essentially no stratification. Its particles are angular and are evidently the result of rock abrasion, grinding and impact. Their diameters range from ½ millimeter to 1/256 millimeter, but the greatest percentage falls in the size grade 1/8 millimeter to 1/64 millimeter. Quartz is by far the most common material.
>
> . . . . . .
>
> The loess is distributed generally but not uniformly over the uplands where it forms a more or less irregular veneer and is thickest at the tops of the more prominent ridges. In fact, the greater prominence of these ridges is due in large part to the accumulated loess.

The percentages of soil types for nine counties in the Iowan area are as follows:

Drift soils	65%
Loess soils	17%
Terrace soils	10%
Bottomland soils	8%
Total	100%

The percentages were obtained by averaging the data from the county soils surveys for the following counties: Benton (Stevenson and Brown, 1927a), Black Hawk (Stevenson and Brown, 1920), Buchanan (Brown et. al., 1932), Butler (Brown et. al., 1933), Chickasaw (Stevenson and Brown, 1930b), Floyd (Stevenson and Brown, 1927c), Grundy (Stevenson and Brown, 1927b), Howard (Stevenson and Brown, 1930a), and Mitchell (Stevenson and Brown, 1919).

CLIMATE

The climate of the Iowan area, like that of most of the midcontinent, is characterized by its variability, not only from season to season, but also from day to day. A primary reason for this variability is the considerable distance from any climate-moderating body of water. The winter weather is influenced by periodic cold fronts moving southeastward from the continental aretic air masses. The mean January temperature in the Iowan area increases from less than 14° F. in the north to approximately 19° F. in the south. This north-south temperature gradient continues throughout the year, though the differ-

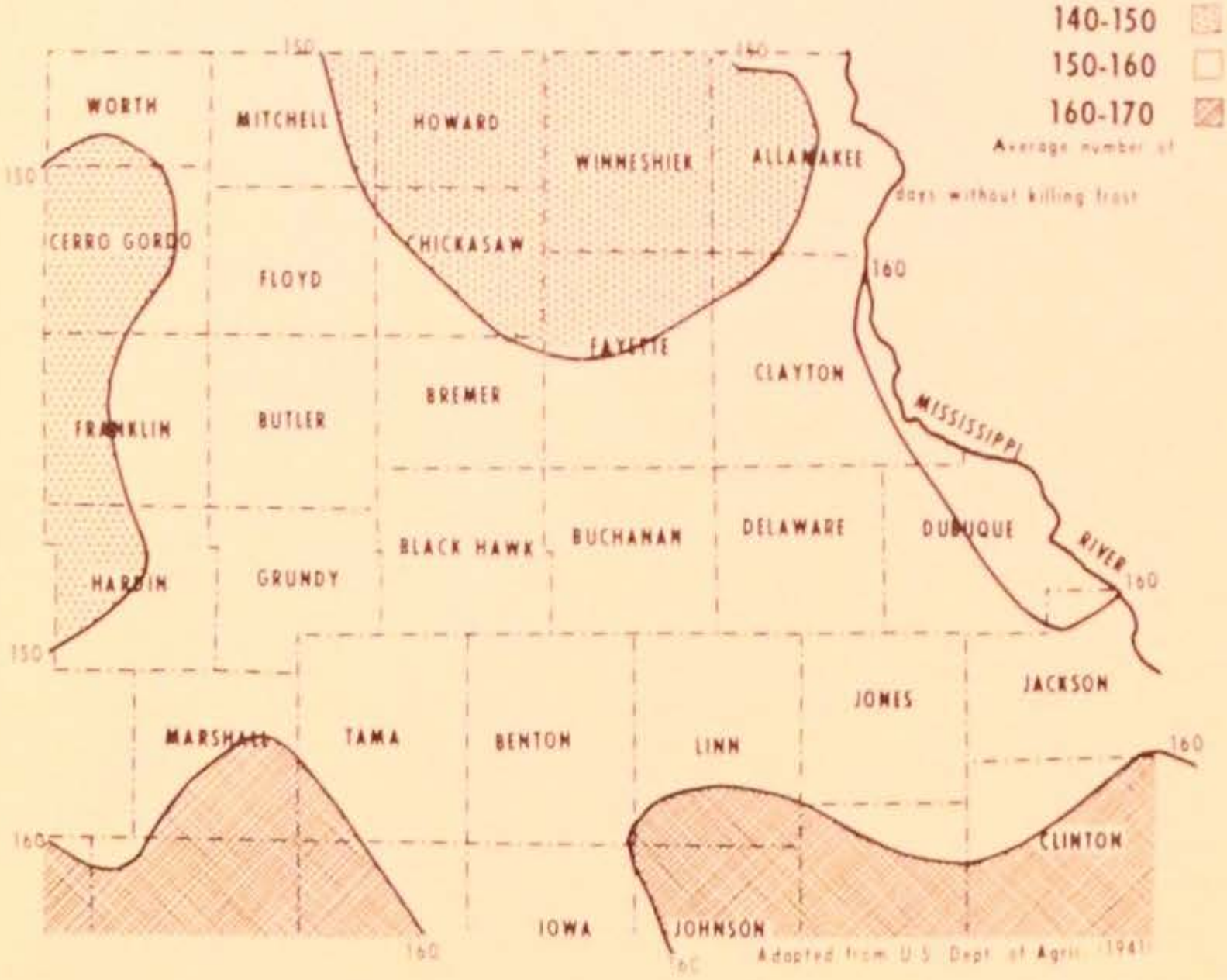

Figure 3. Average Number of Days Without Killing Frost

ence in temperature is less in the summer months. As a result of the gradient, the growing season is ten days shorter in the northern counties than it is in the southern counties (Fig. 3).

The mean annual precipitation is shown in Fig. 4. About 70% of it falls in the period from April to September.

Some of the information presented above was taken from *Climate and Man*, the United States Department of Agriculture yearbook for 1941.

VEGETATION

Prior to settlement, the Iowan area was largely covered with tall-grass prairie, except where gallery forests extended up the waterways. Because of the well-established drainage, only a few small marshes and ponds existed in the alluvial flats along the rivers. The area is now intensely cultivated with only remnants of the original vegetation remaining.

FLORISTIC SURVEY

Because of the large amount of floristic work that had already been completed in the Iowan area, my efforts in the field were concen-

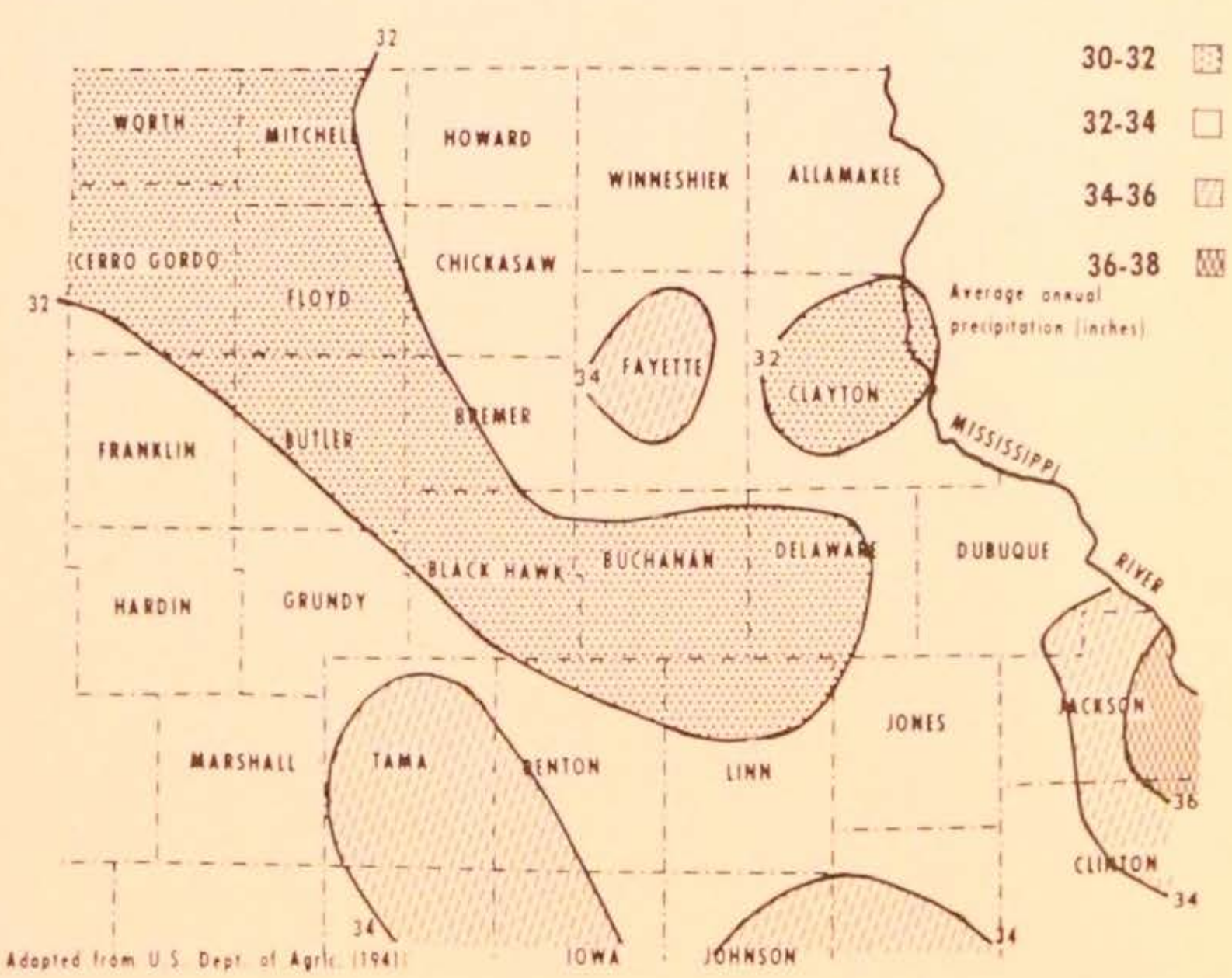

Figure 4. Average Annual Precipitation

trated on those portions of it which were poorly represented in the herbarium at the University of Iowa, and for which no recent literature had been published. For this reason, the counties of Cedar, Clinton, and Jones, which were the subjects of recent floristic studies by Fay (1951) and Cooperrider (1962), were excluded from this study except for a few collections of interest.

During the growing seasons of 1962 and 1963, I attempted to collect voucher specimens of every vascular plant growing on the Iowan surface. Common, easily-recognized species were infrequently collected, but their presence at a site was recorded. Approximately 4,200 collections were made in eighteen counties during the two seasons, many in duplicate and triplicate. A set of these specimens has been deposited in the herbarium of the University of Iowa.

In addition to identifying my own collections, the identifications of all specimens from the Iowan area in the University of Iowa herbarium were checked. Many specimens in the herbaria of Iowa State University and the University of Northern Iowa were also examined, particularly those of rare or infrequent species, or of species with distributions of interest. My collections of *Oenothera*, made during the summer of 1962, were subsequently examined and annotated by Dr. P. A. Munz of the Rancho Santa Ana Botanic Garden, Claremont, California.

All the data obtained from personal collections, herbarium specimens, and field observations were recorded on individual species distribution maps. These maps will be deposited in the herbarium at the University of Northern Iowa.

ANNOTATED CATALOG

Since there is as yet no general agreement on the phylogenetic arrangement of taxa to replace the largely outdated Englerian system, the taxonomic arrangement of the Annotated Catalog of vascular plants follows that used in the arrangement of the herbarium at the University of Iowa. Major taxa (divisions, subdivisions, classes, and subclasses) are arranged in a "phylogenetic" sequence, while families, genera, and species are arranged alphabetically.

Only native or naturalized species are included in the Annotated Catalog. Cultivated species, if reported in the literature, may be found in the List of Excluded Species.

The nomenclature usually follows that of the two most recent manuals of this region, viz., Gleason and Cronquist (1963) and Jones (1963). Fernald (1950) and Gleason (1952) were used as secondary

Equisetaceae

Equisetum arvense L.–Common. Moist, open woods, prairies, and railroad ballast. Thr.

Equisetum fluviatile L.–Rare. Sandy marshes. CERRO GORDO: Buffalo Slough, Mason City, 1917, Shimek, IA. DELAWARE: no location or date, Macbride, IA. LINN: 2.

Equisetum hyemale L.–Common. Near streams, particularly in lowland woods. Thr.

Equisetum laevigatum A. Br. (*E. kansanum* Schaffner)–Common. Moist, sandy prairies and open alluvial thickets. Thr.

Equisetum pratense Ehrh.–Rare. Shaded, wooded limestone slope. FAYETTE: 6.

Equisetum sylvaticum L.–Rare. Bogs and moist prairie swales. DELAWARE: 5. LINN: s.w.of Coggon along railroad, 1928, Shimek, IA. IOWA: above Dutch Lake in Amana Woods 1 mile n. of Homestead, 1951, Thorne #13758, IA.

Ophioglossaceae

Botrychium dissectum Spreng.–Rare. Open, upland woods. BUCHANAN: 4. IOWA: n. of Homestead, 1949, Easterly #1, IA. JOHNSON: T81N, R7W, sec.14, 1952, Drexler, IA.

Botrychium simplex E. Hitchc.–Rare. Sandy pasture near shallow pond. LINN: sec. 27 Jackson twp., 1954, Thorne #14013, IA.

Botrychium virginianum (L.) Sw.–Common. Upland woods. Thr.

Ophioglossum vulgatum L.–Rare. Sandy pasture near shallow pond. LINN: sec. 27 Jackson twp:, 1954, Thorne, Cooperrider *et al.* #14112, IA.

Osmundaceae

Osmunda claytoniana L.–Frequent. Moist, wooded ravines and alluvial bottoms. Peri.

Pteridaceae

Adiantum pedatum L.–Common. Wooded slopes and lowlands. Mostly in peripheral areas of lobe.

Cryptogramma stelleri (Gmel.) Prantl.–Rare. Moist limestone ledges. CERRO GORDO: Mason City, 1899, Shimek, IA. FAYETTE: Fayette, 1893, Fink, ISC.

Pellaea glabella Mett. (*P. atropurpurea* (L.) Link var. *bushii* Mack.) –Infrequent. Shaded, rocky ledges and slopes. Peri.

Pteridium aquilinum (L.) Kuhn–Infrequent. Thickets and open disturbed woods and borders. N & E.

Aspidiaceae

Athyrium filix-femina (L.) Roth (*A. angustum* (Willd.) Presl.)—Common. Moist woods. Thr.

Athyrium pycnocarpon (Spreng.) Tidest.—Rare. Steep, shaded slopes. DELAWARE: no location or date, Macbride, ISTC.

Athyrium thelypteroides (Michx.) Desv.—Infrequent. Sheltered, wooded ravines and slopes. SE.

Cystopteris bulbifera (L.) Bernh.—Common. Sheltered, wooded rocky bluffs. Peri.

Cystopteris fragilis (L.) Bernh.—Common. Moist, wooded bluffs and talus slopes. Peri.

Dryopteris cristata (L.) Gray—Rare. Marshes and moist, wooded ravines. BREMER: 1. DELAWARE: 8, 10.

Dryopteris goldiana (Hook.) Gray—Rare. Steep, wooded sandstone slopes. HARDIN: 3.

Dryopteris marginalis (L.) Gray—Rare. Steep, wooded sandstone talus slopes. HARDIN: 3.

Dryopteris spinulosa (O. F. Muell.) Watt—Infrequent. Moist, wooded ravines and alluvial bottoms. S.

Gymnocarpium dryopteris (L.) Newm.—Rare. Woods on shaded, rocky talus. HARDIN: 3. JOHNSON: above Turkey Creek, 1932, Shimek, IA.

Matteuccia struthiopteris (L.) Todaro (*Pteritis pensylvanica* (Willd.) Fern.)—Infrequent. Moist woods. E & S.

Onoclea sensibilis L.—Common. Moist woods, prairie swales and marshes. Thr.

Polystichum acrostichoides (Michx.) Schott—Rare. Wooded, moist ravines. BENTON: 12. IOWA: n.w. of Homestead, 1923, Shimek, IA. JOHNSON: Coufals, 1907, Shimek, IA; Lake Macbride State Park, 1954, Thorne #14100, IA.

Thelypteris hexagonoptera (Michx.) Weatherby (*Dryopteris hexagonoptera* (Michx.) C. Chr.)—Rare. Wooded ravines and slopes. DELAWARE: Backbone State Park, 1932, Malhus and Loomis, ISC. HARDIN: Steamboat Rock, 1901, Pammel, ISC. JOHNSON: n.e. of North Liberty, 1913, Shimek, IA. LINN: Palisades-Kepler State Park, sec. 14 Putnam twp., 1948, Pohl #6579, ISC.

Thelypteris palustris Schott (*Dryopteris thelypteris* (L.) Gray)—Infrequent. Marshes and moist prairie swales. S & NW.

Woodsia obtusa (Spreng.) Torr.—Rare. Moist, shaded, rocky ledges. HARDIN: n. of Eldora, 1912, Shimek, IA. IOWA: near bridge n. of Homestead, 1922, Shimek, IA. JOHNSON: Coufals, 1907, Shi-

mek, IA. LINN: along Big Creek s. of Paralta, 1913, Shimek, IA; Cedar Valley, 1927, Jones, ISC.

Aspleniaceae

Asplenium platyneuron (L.) Oakes–Rare. Moist woods. IOWA: n.w. of Homestead, 1924, Shimek, IA. JOHNSON: Coufals, 1907, Shimek, IA.

Asplenium rhizophyllum L. (*Camptosorus rhizophyllus* (L.) Link)–Rare. Moist, sheltered bluffs and talus slopes. DELAWARE: Backbone State Park, 1923, Shimek, IA. HARDIN: Steamboat Rock, 1927, Pammel, ISC. JOHNSON: Lake Macbride State Park, 1955, B.C.G., IA. LINN: 1; along Big Creek s. of Paralta, 1913, Shimek, IA.

Polypodiaceae

Polypodium vulgare L. (incl. *P. virginianum* L.)–Rare. Shaded, moist, rocky bluffs. HARDIN: 3. LINN: 1.

Salviniaceae

Azolla mexicana Presl.–Rare. Shallow water in pond. JOHNSON: Swan Lake, sec. 5 Madison twp., 1950, Thorne #10471, IA.

GYMNOSPERMS

Pinaceae

Pinus strobus L.–Rare. Protected rocky bluffs. DELAWARE: Backbone State Park, 1923, Shimek, IA: Greeley, 1897, Cameron, IA. HARDIN: along Iowa River at Steamboat Rock, 1902, Shimek, IA. HOWARD: 8.

Cupressaceae

Juniperus communis L.–Rare. Dry, wooded bluffs and rocky slopes. DELAWARE: Backbone State Park, 1923, Shimek, IA. FAYETTE: along Otter Creek 3 miles s.e. of West Union, 1925, Shimek, IA.

Juniperus virginiana L.–Common. Calcareous bluffs, slopes and lowlands. Thr.

Taxaceae

Taxus canadensis Marsh.–Infrequent. Wooded, rocky ledges and slopes. N & E.

DICOTYLEDONS

Acanthaceae

Ruellia humilis Nutt.–Infrequent. Open, sandy alluvial flats. SE.

Aceraceae

Acer negundo L.—Common. Alluvial bottoms. Thr.

Acer saccharinum L.—Common. Alluvial bottoms and stream banks. Thr.

Acer saccharum Marsh. (incl. A. *nigrum* Michx. f.)—Common. Moist, protected slopes and lowlands. Thr.

Adoxaceae

Adoxa moschatellina L.—Rare. Moist, wooded rocky talus slopes. FAYETTE: no locality or name, 1893, ISC. FLOYD: Charles City, 1896, Edna White?, ISC. HARDIN: 2. JOHNSON: Macbride State Park, 1954, Thorne #14071, IA. MITCHELL: Osage, 1917, Tuttle, ISC.

Aizoaceae

°*Mollugo verticillata* L.—Infrequent. Disturbed, open sandy areas. S. cent.

Amaranthaceae

Amaranthus albus L.—Probably common. Low, moist, sandy soil. S. cent.

Amaranthus graecizans L.—Rare. Dry, disturbed ground. BENTON: RR roadbed, Mt. Auburn, 1921, Shimek, IA. BLACK HAWK: 4, 5. JOHNSON: sec. 28 Monroe twp., 1961, Huang #2708, IA. WINNESHIEK: RR ballast, Ft. Atkinson, 1903, Shimek, IA.

°*Amaranthus retroflexus* L.—Infrequent. Roadsides, RR ballast and other disturbed habitats. S.

Amaranthus tamariscinus (Nutt.) Wood—Infrequent. Wet, open areas. S.

Amaranthus tuberculatus (Moq.) J. D. Sauer—Rare. Sandy alluvium along Maquoketa River. DELAWARE: Milo Twp., sec. 10, Bailey's Ford, 1963, Rickey #1807, IA.

Froelichia floridana (Nutt.) Moq.—Rare. Dry, sandy soil. BENTON: 5. BLACK HAWK: Waterloo, no date, Newton, ISTC. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13680, IA. LINN: Cedar Rapids, 1911, Berry, IA.

Anacardiaceae

Rhus aromatica Ait.—Infrequent. Sandy hills and thickets. S.

Rhus glabra L.—Common. Forming thickets along railroads, woodland borders, and on alluvial flats. Thr.

Rhus radicans L.—Common. Disturbed woods and waste places. Thr.

Rhus typhina L.—Rare. Dry openings in woods. DELAWARE: top of backbone in Backbone State Park, 1927, Shimek, IA. HARDIN:

near Eldora, 1927, Shimek, IA. IOWA: bluff in Amana Woods, 1 mile n. of Homestead, 1951, Thorne #13759, IA.

Apocynaceae

Apocynum androsaemifolium L.–Common. Openings in woods and upland prairie remnants. Thr.

Apocynum cannabinum L.–Infrequent. Disturbed remnant prairies. Thr.

Apocynum sibiricum Jacq.–Infrequent. Moist prairie remnants. NW & S.

Aquifoliaceae

Ilex verticillata (L.) Gray–Rare. Sandy woods in fence row. LINN: T84N, R8W, sec. 2, Drexler, 1952, IA.

Araliaceae

Aralia nudicaulis L.–Frequent. Wooded bluffs and ravines. Thr.

Aralia racemosa L.–Frequent. Upland woods. Peri.

Panax quinquefolius L.–Frequent. Upland woods and slopes. NE & S.

Aristolochiaceae

Asarum canadense L.–Common. Wooded, calcareous slopes and bluffs. Absent from N. cent. counties.

Asclepiadaceae

Asclepias amplexicaulis J. E. Smith–Rare. Sandy soil of alluvial flats and roadbanks. BLACK HAWK: along Cedar R., Elk Run, 1921, Shimek, ISC. JOHNSON: sec. 25 Cedar twp., 1955, Thorne #17379, IA; n. side of Swan Lake, Madison twp., 1952, Thorne #10642, IA. LINN: n. of Chain Lake, Palo, 1913, Berry, IA; along RR s.w. of Coggon, 1928, Shimek, IA.

Asclepias exaltata L.–Rare. Wooded bluffs and uplands. CHICKASAW: 1 mile e. of New Hampton, 1926, Spiker, ISC. FAYETTE: Fayette, ca. 1897, Fellows, IA. JOHNSON: Turkey Creek, sec. 23 Newport twp., 1955, Hartley, IA. MITCHELL: 3 miles n. and 1 mile w. of St. Ansgar, 1919, Tuttle ISC. WINNESHIEK: bluff along Upper Iowa River at Kendalville, sec. 33 Fremont twp., 1952, Thorne and Davidson #19088, IA.

Asclepias hirtella (Pennell) Woodson–Infrequent. Prairie remnants. N. & E.

Asclepias incarnata L.–Common. Wet, low ground. Thr.

Asclepias ovalifolia Dene.–Rare. Moist prairie swales. CHICKASAW: along RR e. of New Hampton, 1926, Spiker, ISC. HOWARD: 1.

IOWA: Dutch Lake n. of Homestead, 1924, Shimek, IA. MITCHELL: no location given, 1927, Tuttle, ISC.

Asclepias purpurascens L.—Rare. Roadside ditches. JOHNSON: sec. 23 Newport twp., 1952, Thorne #15713, IA; Lake Macbride State Park, 1956, Pfeifer, IA.

Asclepias quadrifolia Jacq.—Rare. Dry upland woods. JOHNSON: Newport twp., 1896, Shimek, IA.

Asclepias sullivantii Engelm.—Rare. Moist prairies. CERRO GORDO: Mason City, 1896, Shimek, IA; about 5 miles n.e. of Mason City, 1955, Hayden #3513, ISC.

Asclepias syriaca L.—Common. Prairie remnants and disturbed open areas. Thr.

Asclepias tuberosa L.—Infrequent. Dry remnant sandy or rocky prairies. N & E.

Asclepias verticillata L.—Common. Moist prairie remnants and marshes. Thr.

Asclepias viridiflora Raf.—Infrequent. Prairie openings on wooded bluffs and sandy flats. Thr.

Balsaminaceae

Impatiens biflora Walt. (*I. capensis* Meerb.)—Frequent. Lakeshores, marshes, stream banks and other moist places. Thr.

Impatiens pallida Nutt.—Frequent. Alluvial woods and low, moist, wooded ravines. Thr.

Berberidaceae

°*Berberis thunbergii* DC.—Rare. Thickets bordering woods. LINN: ½ mile w. of Central City, 1955, Rollins #19, IA.

°*Berberis vulgaris* L.—Rare. Edge of open woods. CERRO GORDO: Buffalo Slough, Mason City, 1922, Shimek, IA. CHICKASAW: Fredericksburg, no date, Howe, IA. DELAWARE: 2.

Caulophyllum thalictroides (L.) Michx.—Common. Wooded slopes and uplands. Thr. except n. cent. counties.

Podophyllum peltatum L.—Common. Upland woods. Thr.

Betulaceae

Alnus rugosa (DuRoi) Spreng.—Infrequent. Sandy soil in alluvial woods and along margins of lakes and streams. NE.

Betula lutea Michx. f.—Rare. Slopes of wooded, rocky bluffs. FAYETTE: Fayette, 1889, Baker #132, ISC. HARDIN: 3. MITCHELL: Osage, no date, Tuttle, ISC.

Betula nigra L.—Frequent. Sandy alluvial bottoms, particularly along the Wapsipinicon River and its tributaries. S 2/3.

Betula papyrifera Marsh. (*B. alba* misapplied)–Rare. Steep, sheltered, rocky bluffs. DELAWARE: Earlville, 1897, Cameron, IA. FAYETTE: Fayette, 1893, Fink, ISC. HARDIN: 2. HOWARD: 8. LINN: bluff over Buffalo Creek, T85N, R5W, sec. 5, 1951, Drexler #4814, IA. MITCHELL: Osage, 1913, Tuttle, ISC.

Betula pumila L. var. *glandulifera* Regel–Rare. Bog. CHICKASAW: New Hampton, 1940, Murley #1549, ISC.

Carpinus caroliniana Walt.–Infrequent. Protected wooded slopes and ravines. Peri.

Corylus americana Walt.–Common. Woodland openings and borders. Thr.

Corylus cornuta Marsh.–Rare. Wooded bluffs along Upper Iowa River. WINNESHIEK: Kendalville, 1903, Shimek, IA.

Ostrya virginiana (Mill.) K. Koch–Common. Wooded uplands and slopes. Thr.

Bignoniaceae

°*Catalpa speciosa* Warder–Rare. Disturbed RR right-of-way. TAMA: 3; Toledo, 1895, Fellows, IA.

Boraginaceae

°*Cynoglossum officinale* L.–Rare. Pastured bottomlands along Iowa River. HARDIN: sec. 5 Eldora twp., 1950, Thorne #9625, IA.

Hackelia americana (Gray) Fern.–Rare. Wooded, rocky bluff. DELAWARE: 1.

Hackelia virginiana (L.) Johnston–Frequent. Open woods. Thr.

°*Lappula echinata* Gilib.–Rare. Dry prairie remnants. CERRO GORDO: Buffalo Slough, Mason City, 1922, Shimek, IA. FLOYD: Nora Junction (probably near Nora Springs) 1921, Shimek, IA. FAYETTE: Fayette, ca.1897, Fellows, IA.

°*Lappula redowskii* (Hornem.) Greene–Rare. Cut and fill along RR. BLACK HAWK: s. of Washburn, 1932, Shimek, IA.

Lithospermum canescens (Michx.) Lehm.–Common. Upland prairie remnants. Thr.

Lithospermum caroliniense (Walt.) MacM. (incl. *L. croceum* Fern.) –Infrequent. Sandy prairie remnants. SE.

Lithospermum incisum Lehm.–Frequent. Sandy prairie remnants. Thr.

Lithospermum latifolium Michx.–Rare. Alluvial woods. CHICKASAW: New Hampton, 1925, Spiker, ISC. FAYETTE: Fayette, 1894, Fink, ISC. HARDIN: 3. HOWARD: 3. LINN: Cedar Rapids, 1911, Berry, IA. MITCHELL: Osage, 1929, Tuttle, ISC.

Mertensia virginica (L.) Pers.–Frequent. Moist, shaded ravines and alluvial woods. Thr.

Myosotis verna Nutt.—Rare. Moist, sandy soil. BLACK HAWK: Fisher's Lake, George Wyth Park, 1942, Murley #1610, ISC. BUCHANAN: 4. LINN: along river bank in Cedar Rapids, 1910, Berry, IA.

[1] *Onosmodium molle* Michx. var. *hispidissimum* (Mack.) Cronq.—Rare. Sandy alluvial woods. DELAWARE: Backbone Park, 1923, Shimek, ISC. FAYETTE: Fayette, 1893, Fink, ISC.

Onosmodium molle Michx. var. *occidentale* (Mack.) Johnston—Rare. Sandy lowland prairies. BLACK HAWK: 2. CERRO GORDO: Mason City, 1923, Pammel, ISC. FAYETTE: near Fayette, 1926, Spiker, ISC. FLOYD: prairie along RR, Nora Junction, 1921, Shimek, IA. JOHNSON: sec. 11 Cedar twp., 1955, Thorne #17399, IA. LINN: Bertram twp., 1911, Berry, IA. WORTH: peat bog in Wheeler Wood, 1902, Pammel, ISC.

Cactaceae

Opuntia humifusa Raf.—Rare. Sandy hilltop, old cemetery. JOHNSON: sec. 5 Madison twp., 1959, Eikleberry #21, IA.

Callitrichaceae

Callitriche heterophylla Pursh—Rare. Small ponds or marshy depressions in sand hills. JOHNSON: sec. 12 Cedar twp., 1955, Thorne #15858, IA.

Campanulaceae

Campanula americana L.—Common. Moist, open woods. Thr.

[2] *Campanula aparinoides* Pursh.—Frequent. Moist prairie swales, sloughs and marshes. Thr.

°*Campanula rapunculoides* L.—Rare escape from cultivation. FAYETTE: 8. GRUNDY: 7.

Campanula rotundifolia L.—Rare. Openings on wooded bluffs. DELAWARE: Backbone State Park, 1927, Shimek, IA. FAYETTE: Fayette, ca.1897, Fellows, IA. HOWARD: 8. JOHNSON: Turkey Creek, 1931, Anderson, IA. LINN: palisades near Mt. Vernon, 1912, Berry, IA.

Lobelia cardinalis L.—Rare. Open, low, moist habitats. BLACK

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[1] After examining the Iowa specimens of this genus and comparing them with collections from other states, I agree with Cronquist in Hitchcock et al. (1959) that *Onosmodium occidentale* and *O. hispidissimum* are best reduced to the varietal status.

[2] Although most of the collections from the Iowan Lobe appear closest to typical *C. aparinoides*, intermediate forms between this species and *C. uliginosa* occur in Iowa. Therefore, in agreement with Hartley (1962) and Gleason and Cronquist (1963), I am including *C. uliginosa in C. aparinoides*.

HAWK: Cedar Falls, 1908, Pammel, ISC. BREMER: no location, 1893, Fink, ISC. BUTLER: 2. CHICKASAW: 1. HARDIN: Steamboat Rock, 1901, King #3169, ISC. IOWA: near Dutch Lake at Amana, 1925, Shimek, ISC. LINN: Palisades-Kepler State Park, 1933, Malhus et al., ISC. TAMA: n.e. corner of T. F. Clark Park, 1926, Fisk, ISC.

Lobelia inflata L.–Infrequent. Open, often disturbed, woods. Thr.

Lobelia siphilitica L.–Frequent. Moist, open habitats. Thr.

Lobelia spicata Lam.–Common. Moist prairie remnants and openings in woods. Thr.

Triodanis perfoliata (L.) Nieuwl. (*Specularia perfoliata* (L.) A. DC.) –Rare. Low, sandy soil. BLACK HAWK: flat along river in Cedar Falls, 1932, Shimek, IA. JOHNSON: along interurban, Coufals, 1920, Shimek, IA; along Cedar R. sec. 11 Cedar twp., 1955, Thorne #17404, IA.

Capparidaceae

Cleome serrulata Pursh–Rare. Prairie remnant? LINN: Cedar Rapids, 1912, Berry, IA.

Polanisia dodecandra (L.) DC. (*P. graveolens* Raf.)–Rare. Dry, sandy soil. BENTON: 2. JOHNSON: along Cedar River, sec. 11 Cedar twp., 1955, Thorne #17388, IA; Lake Macbride State Park, 1956, Pfeifer, IA. LINN: Cedar Rapids, 1913, Berry, IA. WINNESHIEK: along RR ballast, Ft. Atkinson, 1903, Shimek, IA.

Caprifoliaceae

Diervilla lonicera Mill.–Rare. Sheltered woody limestone or sandstone slopes. BLACK HAWK: Cedar Falls, 1901, Lambert, IA. FAYETTE: Fayette, 1896, Skinner, ISC. HARDIN: 2, 3.

Lonicera dioica L.–Rare. Open, wooded, rocky slopes and bluffs. BLACK HAWK: Cedar Falls, 1897, Newton, ISTC. BREMER: no location, 1939, Murley #692, ISC. CERRO GORDO: bluffs above Buffalo Slough, Mason City, 1920, Shimek, ISC. CHICKASAW: without location, 1925, Spiker, ISC. FAYETTE: Fayette, 1893, Fink, ISC. HARDIN: 1. HOWARD: 3.

°*Lonicera morrowi* Gray–Rare. Escape from cultivation, becoming established in disturbed, open areas. DELAWARE: 5, 10. HARDIN: 1.

Lonicera prolifera (Kirchn.) Rehd.–Common. Usually in open, dry, wooded, often rocky, habitats. Thr.

°*Lonicera tatarica* L.–Infrequent. Openings in upland and alluvial woods. S.

Sambucus canadensis L.–Common. Moist roadsides and open woods. Thr.

Sambucus pubens Michx.—Rare. North-facing, wooded limestone bluff. HOWARD: 8.

Symphoricarpos occidentalis Hook.—Rare. Dry prairie remnants and openings in woods. BENTON: along RR e. of Belle Plaine, 1919, Shimek, IA. BLACK HAWK: Cedar Falls, 1896, Carver, ISC. CERRO GORDO: Buffalo Slough, Mason City, 1920, Shimek, IA. DELAWARE: Delhi, 1926, Pammel #184, ISC. FAYETTE: Fayette, 1893, Fink, ISC. FLOYD: n.w. of Rockford on Shell Rock River, 1925, Shimek, IA. MITCHELL: 3½ miles s.w. of St. Ansgar, 1919, Tuttle, ISC. WINNESHIEK: Fort Atkinson, 1903, Shimek, ISC.

Symphoricarpos orbiculatus Moench—Rare. Sandy prairies and openings in woods. BLACK HAWK: 2. JOHNSON: Macbride State Park, 1954, Thorne #14083, IA.

Triosteum aurantiacum Bickn.—Rare. Bluffs and open upland woods. FAYETTE: Fayette, ca.1897, Fellows, IA. HOWARD: 7. JOHNSON: Turkey Creek, sec. 23 Newport twp., 1953, Thorne & Fay #12279, IA. MITCHELL: along Cedar River s. of St. Ansgar, 1930, Shimek, IA.

Triosteum perfoliatum L.—Common. Open upland woods. Thr.

Viburnum lentago L.—Common. Moist open woods. Thr.

°*Viburnum opulus* L. var. *opulus*—Rare escape from cultivation. East-facing wooded bluff. HARDIN: 2.

Viburnum rafinesquianum Schultes—Frequent. Upland woods and wooded, rocky bluffs. Peri.

Caryophyllaceae

°*Agrostemma githago* L.—Rare. Cultivated field. LINN: Central City, 1907, Berry, IA.

Arenaria lateriflora L.—Frequent. Disturbed woods. E & S.

Arenaria stricta Michx.—Rare. Dry limestone ledge. DELAWARE: Delhi twp., sec. 2, 1963, Rickey #199, IA.

Cerastium nutans Raf.—Rare. Moist, open ground. JOHNSON: Coufals, 1920, Shimek, IA; Lake Macbride State Park, 1956, Walker & Hartley #164, IA.

°*Cerastium viscosum* L.—Rare. Alluvial sandpit. BUCHANAN: 4. LINN: Cedar Rapids, 1896, Quay, IA.

°*Cerastium vulgatum* L.—Frequent. Moist, sandy pastures, stream banks and other wet, disturbed places. Thr.

°*Lychnis alba* Mill.—Probably common. Roadsides, along railroads and other disturbed, open habitats. Thr.

Lychnis coronaria (L.) Desr.—Rare. Cultivated field. LINN: Cedar Rapids, 1909, Berry, IA.

Paronychia canadensis (L.) Wood—Rare. Sandy, open woods. DELA-

WARE: Backbone State Park, 1923, Shimek, IA. HARDIN: Pine Lake State Park, sec. 5 Eldora twp., 1953, Elder #379, IA. IOWA: Dutch Lake, near Amana, 1925, Shimek, IA.

Paronychia fastigiata (Raf.) Fern.—Rare. Sandy, open woods. IOWA: n.e. of Homestead, 1928, Shimek, IA. JOHNSON: sec. 35 Cedar twp., 1955, Thorne #17434, IA. LINN: near Linn Jct. T83N, R7W, sec. 7, 1910, Berry, IA.

°*Saponaria officinalis* L.—Frequent. Sandy roadsides and open alluvial woods. Thr.

Silene antirrhina L.—Frequent. Sandy soil and waste places. Thr.

°*Silene cserei* Baumg.—Rare. Wooded drainage ditch. GRUNDY: 3.

°*Silene cucubalus* Wibel—Rare. Sandy ditch near Swan Lake. JOHNSON: Madison twp., 1951, Thorne #13770, IA.

Silene nivea (Nutt.) Otth—Rare. Fencerows and low, moist ground. BLACK HAWK: along RR n. of Washburn, 1921, Shimek, ISC. BREMER: 4. CHICKASAW: e. of New Hampton, 1926, Spiker, ISC. DELAWARE: Bode, 1919, no name, ISC. FAYETTE: Fayette, 1893, Fink, ISC. IOWA: n. of Homestead, 1911, Shimek, ISC. JOHNSON: Newport twp., 1904, Shimek, ISC. LINN: Cedar Rapids, 1913, Berry, IA. MITCHELL: Osage, 1919, Tuttle, ISC. WORTH: Northwood, 1920, no name, ISC.

Silene stellata (L.) Ait. f.—Common. Prairie swales, muddy lakeshores and moist woods. Thr.

°*Stellaria aquatica* (L.) Scop.—Rare. Sandy roadside. FLOYD: 6.

Stellaria longifolia Muhl.—Infrequent. Marshes and stream banks. Thr.

°*Stellaria media* (L.) Cyrillo—Rare. Disturbed alluvial woods. HARDIN: 3. HOWARD: 3, 12. LINN: Cedar Rapids, 1895, Shimek, IA.

Celastraceae

Celastrus scandens L.—Common. Woodland openings, occasionally along fencerows. Thr.

Euonymus atropurpureus Jacq.—Frequent. Open, usually alluvial, woods. Thr.

Ceratophyllaceae

Ceratophyllum demursum L.—Rare. Shallow water of marshes and lakes. BREMER: 1. HOWARD: 5.

Chenopodiaceae

[3]°*Chenopodium album* L.—Common. Disturbed ground and waste places. Thr.

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[3] The taxonomic treatment of this genus is based mainly upon that of Wahl (1954).

°*Chenopodium ambrosioides* L.—Apparently rare. Disturbed area? JOHNSON: Turkey Creek, sec. 14 Newport twp., 1922, Shimek, IA.

°*Chenopodium berlandieri* Moq.—Rare. Prairie remnants. BUCHANAN: 2. MITCHELL: 3.

Chenopodium hybridum L.—Infrequent. Wooded, rocky bluffs. W & S.

Chenopodium pratericola Rydb. (*C. leptophyllum* Nutt. misapplied) —Rare. Open, sandy soil. BENTON: 3. BLACK HAWK: 4. JOHNSON: sec. 23 Clear Creek twp., 1952, Thorne #10925, IA; sec. 12 Cedar twp., 1953, Thorne #13641, IA.

Chenopodium standleyanum Aellen (*C. boscianum* Moq. misapplied) —Rare. Moist, open, sandy soil. HARDIN: Pine Lake State Park, sec. 5 Eldora twp., 1953, Elder #383, IA. LINN: Cedar Rapids, 1913, Berry, IA.

°*Chenopodium urbicum* L.—Rare. Wooded, rocky bluffs. HARDIN: along Iowa R., Steamboat Rock, 1902, Shimek, IA.

Cycloloma atriplicifolium (Spreng.) Coult.—Rare. Open, sandy soil. BENTON: 3. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13645, IA. LINN: Cedar Rapids, 1911, Berry, IA.

°*Kochia scoparia* (L.) Roth—Rare. Disturbed, open area. JOHNSON: Hanging Rock Ridge, sec. 28 Monroe twp. 1961, Huang #2704, IA.

°*Salsola kali* L. var. *tenuifolia* G. F. W. Meyer—Rare. Along sandy roadside and railroads. FLOYD: Nora Junction, 1 mile w. of Nora Springs, 1895, Shimek, IA. GRUNDY: 3. JOHNSON: sec. 1 Cedar twp., 1953, Thorne #13687, IA.

Cistaceae

Helianthemum bicknellii Fern.—Infrequent. Usually sandy, upland prairie. Thr.

Helianthemum canadense (L.) Michx.—Infrequent. Sandy soil. SE.

Lechea stricta Leggett—Infrequent. Sandy prairie remnants. S.

Lechea tenuifolia Michx.—Rare. Sandy, open, upland woods. DELAWARE: sec. 25 Milo twp., Turtle Creek Area, 1963, Rickey #2277, IA.

Compositae

°*Achillea millefolium* L. (incl. *A. lanulosa* Nutt.)—Common. Moist, open habitats. Thr.

Agoseris cuspidata (Pursh.) Raf.—Rare. Prairie. CERRO GORDO; n. of Buffalo Slough, Mason City, 1917, Shimek, IA.

Ambrosia artemisiifolia L.—Common. Roadsides, streambanks, and disturbed ground. Thr.

Ambrosia psilostachya DC.—Rare. Sandy prairies and roadsides. BEN-

TON: 10. BLACK HAWK: no location, 1929, Burk #882, ISTC. IOWA: south of Amana, 1926, Shimek, IA. JOHNSON: sec. 23 Clear Creek twp., 1952, Thorne #10924, IA; sec. 1 Cedar twp., 1953, Thorne #13686, IA.

Ambrosia trifida L.—Common. Disturbed areas and waste places. Thr.

Anaphalis margaritacea (L.) Benth. & Hook.—Rare. Dry, open places. FAYETTE: Fayette, ca.1897, Fellows, IA. LINN: Cedar Rapids, 1913, Berry, IA.

Antennaria neglecta Greene—Common. Relatively-dry prairie remnants. Thr.

Antennaria plantaginifolia (L.) Richards—Common. Relatively-dry prairie remnants. Thr.

°*Anthemis cotula* L.—Frequent. Variety of disturbed habitats. Thr.

°*Arctium minus* (Hill) Bernh.—Probably common. Farmyards, grazed woods and other disturbed ground. Thr.

°*Artemisia biennis* Willd.—Rare. Waste places and stream banks. BUTLER: along Shell Rock River, Shell Rock, 1925, Shimek, IA. FLOYD: Nora Junction, 1895, Shimek, IA. JOHNSON: Hanging Rock Ridge, sec. 28 Monroe twp., 1961, Huang #2703, IA.

Artemisia caudata Michx.—Infrequent. Dry, sandy soil. Thr.

Artemisia dracunculus L. (*A. glauca* Pall.; *A. dracunculoides* Pursh)—Rare. Dry, sandy prairies. BREMER: along RR in n.w. corner of county, 1926, Shimek, IA. BUTLER: below Shell Rock, 1925, Shimek, IA. CERRO GORDO: Mason City, 1925, Pammel & MacNider #1084, ISC. FAYETTE: Fayette, 1896, Fink, ISC. FLOYD: Nora Jct., 1895, Shimek, IA. WINNESHIEK: s.w. of Kendalville, 1926, Shimek, IA. WORTH: along RR e. of Manly, 1931, Shimek, IA.

Artemisia ludoviciana Nutt. (incl. *A. gnaphalodes* Nutt.) Common. Sandy prairie remnants. Thr.

Artemisia serrata Nutt.—Infrequent. Marshes and moist places. N 2/3.

[4] *Aster azureus* Lindl.—Frequent. Remnant upland prairies. Thr.

Aster cordifolius L.—Rare. Open, upland woods. DELAWARE: no location, 1897, Cameron, IA. IOWA: s. of Amana, 1950, Easterly #1122, IA. JOHNSON: along Turkey Creek, sec. 23 Newport twp., 1955, Thorne #17476A, IA.

Aster drummondii Lindl.—Infrequent. Disturbed openings in upland woods. Peri.

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[4] Rosendahl and Cronquist (1949) was used as a reference for the taxonomic treatment of this genus in addition to the general references listed in the Annotated Catalog. Several putative hybrids from the Iowan area in the State University of Iowa herbarium are not included here because of doubt concerning the parental species.

Aster ericoides L.–Common. Prairie remnants. Thr.

Aster junciformis Rydb.–Rare. Marsh. CERRO GORDO: Mason City, 1896, Shimek, IA.

Aster laevis L.–Frequent. Upland prairie remnants. Thr.

Aster lateriflorus (L.) Britt.–Infrequent. Moist prairie swales. Thr.

Aster novae-angliae L.–Common. Moist prairie swales. Thr.

Aster oblongifolius Nutt.–Infrequent. Prairie openings on wooded bluffs. Thr.

Aster ontarionis Wieg.–Frequent. Moist, open habitats. Thr.

Aster parviceps (Burgess) Mack. & Bush–Rare. Prairie remnants. IOWA: s. of Amana, 1926, Shimek, IA. JOHNSON: RR n.w. of North Liberty, 1956, Thorne #18345, IA.

Aster pilosus Willd.–Rare. Prairies and openings in woods. JOHNSON: sec. 1 Cedar twp., 1953, Thorne #13685, IA. LINN: 1, 2; along RR, Paralta, 1915, Shimek, IA.

Aster praealtus Poir.–Rare. Moist, low places. DELAWARE: no location, 1897, Cameron, IA.

Aster prenanthoides Muhl.–Rare. Wooded ravines. DELAWARE: no location, 1897, Cameron, IA. JOHNSON: Turkey Creek, sec. 23 Newport twp., 1955, Thorne #17481, IA. LINN: 1.

Aster ptarmicoides (Nees) T.&G.–Rare. Meadow. LINN: Marion, 1913, Berry, IA.

Aster puniceus L. (incl. *A. lucidulus* (Gray) Wieg.)–Infrequent. Moist prairie swales and bogs. Thr.

Aster sagittifolius Willd.–Frequent. Wooded bluffs and slopes. Thr.

Aster sericeus Vent.–Infrequent. Dry prairies. Thr.

Aster shortii Lindl.–Rare. Upland woods. BREMER: 1 mile from Sumner, no date, Murley #302, ISC. DELAWARE: Backbone State Park, 1923, Shimek, IA. FAYETTE: Fayette, 1925, Pammel, ISC. JOHNSON: Turkey Creek, sec. 14 Newport twp., 1961, Huang #2543, IA. LINN: 1.

Aster simplex Willd.–Infrequent. Marshes and moist prairies. Thr.

Aster umbellatus Mill.–Infrequent. Marshes, bogs and moist prairies. Peri.

Bidens cernua L.–Frequent. Marshes, lakeshores and sandy, moist prairies. Thr.

Bidens coronata (L.) Britt.–Rare. Riverbanks and marshes. CERRO GORDO: Buffalo Slough, 1925, Shimek, IA. FLOYD: Nora Jct., 1895, Shimek, IA.

Bidens frondosa L.–Infrequent. Marshes, streambanks and wet prairie draws. Thr.

Bidens polylepis Blake–Rare. Ponds and wet, sandy habitats. BRE-

MER: 8. BUCHANAN: 12, 13. JOHNSON: sec. 17 Madison twp., 1952, Thorne #10894, IA.

Bidens tripartita L. (incl. *B. connata* Muhl. and *B. comosa* (A. Gray) Wieg.)—Infrequent. Marshes, lake margins and moist, sandy prairies. Thr.

Bidens vulgata Greene—Infrequent. Marshes and moist, lowland prairie. Thr.

Boltonia asteroides (L.) L'Her.—Probably frequent. Marshes and low, wet prairie. Thr.

Cacalia atriplicifolia L.—Rare. Openings in woods. CERRO GORDO: s.w. of Buffalo Slough, Mason City, 1919, Shimek, ISC. JOHNSON: Turkey Creek, Newport twp., 1905, Shimek, ISC.

Cacalia muhlenbergii (Sch.-Bip.) Fern.—Rare. Moist alluvial woods. CHICKASAW: no location, 1926, Spiker, ISC. DELAWARE: n. of Manchester, 1929, Shimek, IA. FAYETTE: Fayette, 1893, Spiker, ISC. JOHNSON: Turkey Creek, sec. 14 Newport twp., 1961, Sorensen #603, IA. LINN: Cedar Rapids, 1910, Berry, IA. MITCHELL: Little Cedar River, Staceyville, 1926, Shimek, IA.

Cacalia suaveolens L.—Rare. Wooded stream banks. CHICKASAW: no location, 1926, Spiker, ISC. DELAWARE: Backbone State Park, 1920, Pammel, ISC. FAYETTE: Fayette, 1893, Fink, ISC. MITCHELL: Osage, 1914, Tuttle, ISC. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Cacalia tuberosa Nutt.—Infrequent. Moist prairie remnants. Thr.

°*Chrysanthemum leucanthemum* L.—Rare. Variety of disturbed, open habitats. CERRO GORDO: Mason City, 1896, Shimek, IA. FAYETTE: Fayette, 1897, Fellows, IA. HOWARD: 8. LINN: Cedar Rapids, 1913, Berry, IA. WINNESHIEK: between Conover and Ridgeway, 1927, Shimek, IA.

°*Cichorium intybus* L.—Rare. Roadsides and waste places. BENTON: 8. JOHNSON: Monroe twp., 1904, Shimek, IA.

Cirsium altissimum (L.) Spreng.—Rare. Open upland woods. BENTON: 1, 12. BREMER: 8. FLOYD: 3.

°*Cirsium arvense* (L.) Scop.—Infrequent. Noxious weed, in cultivated fields, roadsides and waste places. Thr.

Cirsium discolor (Muhl.) Spreng.—Frequent. Moist prairie remnants. Thr.

Cirsium flodmanii (Rydb.) Arthur—Rare. Moist prairie swales. FLOYD: Rockford, 1922, Pammel, ISC. JOHNSON: along RR. Solon, 1902, Shimek, ISC.

Cirsium hillii (Canby) Fern.—Infrequent. Open woods and remnant prairies. Thr.

Cirsium muticum Michx.—Rare. Marsh. CERRO GORDO: Buffalo Slough, Mason City, 1922, Shimek, IA.

°*Cirsium vulgare* (Savi) Tenore—Common. Open, disturbed habitats. Thr.

Conyza canadensis (L.) Cronq. (*Erigeron canadensis* L.)—Common. Open, disturbed habitats. Thr.

Conyza ramosissima Cronq.—Rare. Sandy pasture. JOHNSON: sec. 12, Cedar twp., 1953, Thorne #13656, IA.

Coreopsis palmata Nutt.—Frequent. Generally dry, upland prairie remnants. Thr.

°*Coreopsis tinctoria* Nutt.—Rare. RR ballast and dry, waste places. FAYETTE: Fayette, ca.1897, Fellows, IA. LINN: Linn twp., 1911, Berry, IA.

Dyssodia papposa (Vent.) Hitchc.—Rare. Along RR (introduced?) LINN: Cedar Rapids, 1913, Berry, IA.

Echinacea pallida Nutt.—Infrequent. Prairie remnants. Thr.

Eclipta alba (L.) Hassk.—Rare. Wet stream banks, fields and waste places. IOWA: w. of Amana, 1950, Easterly #980, IA.

Erechtites hieracifolia (L.) Raf.—Rare. Marshes and muddy lakeshores. BENTON: 5. CHICKASAW: 2. JOHNSON: Macbride State Park, 1956, Pfeifer, IA.

Erigeron annuus (L.) Pers.—Common. Marshes, upland woods and disturbed habitats. Thr.

Erigeron philadelphicus L.—Infrequent. Open bluffs, pastures and alluvial ground. Thr.

Erigeron pulchellus Michx.—Rare. Open places in upland woods. DELAWARE: Hopkinton, 1880, Macbride, IA. FAYETTE: Fayette, 1893, Fink, ISC. JOHNSON: Coufals, 1920, Shimek, IA. LINN: Cedar Rapids, 1913, Berry, IA.

Erigeron strigosus Muhl.—Common. Remnant prairies. Thr.

Eupatorium altissimum L.—Infrequent. Prairie remnants. Thr.

Eupatorium maculatum L.—Frequent. Bogs, marshes and moist, lowland prairies. Thr.

Eupatorium perfoliatum L.—Frequent. Marshes, sloughs and moist prairies. Thr.

Eupatorium purpureum L.—Frequent. Upland woods. Thr.

Eupatorium rugosum Houtt.—Common. Moist, open woods. Thr.

°*Galinsoga ciliata* (Raf.) Blake—Rare. Houseyard. DELAWARE: Sec. 32 Delaware twp., Manchester, 1963, Rickey #1254 IA.

Gnaphalium obtusifolium L.—Infrequent. Open, sandy prairie. E.

°*Grindelia squarrosa* (Pursh) Dunal—Rare. Wooded border of Little Cedar River. MITCHELL: near Staceyville, 1926, Shimek, IA.

Helenium autumnale L.—Infrequent. Marshes and moist prairies. Thr.

Helianthus annuus L.—Rare. Cultivated fields, roadside ditches and disturbed, open ground. Probably Thr.

Helianthus decapetalus L.—Infrequent. Openings in upland woods. Thr.

Helianthus grosseserratus Martens—Frequent. Usually in moist, sandy prairie remnants. Thr.

Helianthus maximiliani Schrad.—Rare. Moist prairie. BREMER: along RR, Sumner, 1937, Murley #278, ISC. BUTLER: s. of Shell Rock, 1925, Shimek, IA. FLOYD: Charles City, 1919, Pammel, ISC.

Helianthus occidentalis Riddell—Infrequent. Open, sandy woods and prairies. E.

[5] *Helianthus rigidus* (Cass.) Desf. (incl. *H. laetiflorus* Pers.)—Infrequent. Prairie remnants. Thr.

Helianthus strumosus L.—Rare. Riverbanks, disturbed openings in woods and prairie remnants. HARDIN: Steamboat Rock, 1902, Shimek, IA. LINN: 1. TAMA: 1.

Helianthus tuberosus L.—Frequent. Roadsides, fence rows, prairie remnants and alluvial woods. Thr.

Heliopsis helianthoides (L.) Sweet (incl. *H. scabra* Dunal)—Common. Prairie remnants and open, alluvial woods. Thr.

Hieracium longipilum Torr.—Rare. Sandy, disturbed prairie. DELAWARE: sec. 16 Oneida twp., 1963, Rickey # 1613, IA.

Hieracium scabrum Michx.—Rare. Upland woods and bluffs. CHICKASAW: 2 miles e. of New Hampton, 1926, Spiker, ISC. HARDIN: sec. 5 Eldora twp., Pine Lake State Park, 1953, Elder #385, IA. IOWA: Dutch Lake n. of Homestead, 1923, Shimek, ISC. JOHNSON: Turkey Creek, sec. 23 Newport twp., 1956, Thorne #18406, IA. LINN: 6 miles s.e. of Marion, 1933, Shimek, ISC. WINNESHIEK: Fort Atkinson, 1903, Shimek, ISC.

[6] *Hieracium umbellatum* L. (incl. var. *canadense* (Michx.) Breiting)—Infrequent. Prairie remnants and bluffs. Probably Thr.

°*Iva xanthifolia* Nutt.—Rare. Railroads and roadsides. LINN: Cedar Rapids, 1913, Berry, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Krigia biflora (Walt.) Blake—Frequent. Prairie remnants, along railroads and in openings in woods. N & E.

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[5] Collections of *H. rigidus* from the Iowan area, though variable, appear to fit into the limits for this species as described by Clevenger and Heiser (1963).

[6] In our area there appears to be a complete intergradation of the characteristics which separate *H. umbellatum* from *H. canadense* Michx. Therefore *H. canadense* is here treated as a variety of *H. umbellatum* following Breitung (1957), p. 67.

Kuhnia eupatorioides L.—Infrequent. Prairie remnants, chiefly in valley of Cedar River. Thr.

Lactuca canadensis L.—Common. Sandy roadsides, along railroads and openings in woods. Thr.

Lactuca floridana (L.) Gaertn.—Rare. Open upland woods. BENTON: 9. IOWA: along highway n. of Homestead, 1950, Easterly #1203, IA. JOHNSON: along Turkey Creek, sec. 22 and 23, Newport twp., 1956, Thorne #18407, IA.

°*Lactuca scariola* L.—Rare. Waste places. BLACK HAWK: 4. IOWA: along highway n. of Homestead, 1950, Easterly #1195, IA. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

Liatris aspera Michx.—Infrequent. Remnant prairies. Thr.

Liatris cylindracea Michx.—Rare. Dry prairie remnants. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, ISC. CHICKASAW: New Hampton, 1926, Spiker, ISC. FAYETTE: Fayette, 1894, Fink, ISC. FLOYD: Nora Junction, 1903, Shimek, ISC. HOWARD: 7. LINN: Cedar Rapids, 1910, Berry, IA. WINNESHIEK: s.w. of Kendalville, 1926, Shimek, IA.

Liatris ligulistylis (Nels.) K. Schum.—Rare. Sandy prairie remnants and roadsides. CHICKASAW: 5. FLOYD: 2. HOWARD: 11. MITCHELL: 3. WINNESHIEK: sec. 28 Lincoln twp., 1933, Tolstead, ISC.

Liatris pycnostachya Michx.—Frequent. Prairie remnants. Thr.

°*Matricaria matricarioides* (Less.) Porter—Infrequently collected. Roadsides and disturbed ground. Thr.

Parthenium integrifolium L.—Infrequent. Remnant prairies. Thr.

Prenanthes alba L.—Infrequent. Openings in moist, upland woods. Peri.

Prenanthes aspera Michx.—Rare. Prairie remnants. CERRO GORDO: n. of Buffalo Slough, Mason City, 1920, Shimek, IA. FLOYD: RR at Nora Junction, 1903, Shimek, IA. JOHNSON: RR 1 mile n.w. of North Liberty, 1956, Thorne #18347, IA.

Prenanthes racemosa Michx.—Infrequent. Remnant upland prairies. Thr.

Ratibida columnifera (Nutt.) Wooton and Standl.—Rare. Railroad prairies. CERRO GORDO: RR near Mason City, 1909, Shimek, ISC.

Ratibida pinnata (Vent.) Barnh.—Common. Upland prairie remnants. Thr.

Rudbeckia hirta L. (incl. *R. serotina* Nutt.)—Common. Upland prairie remnants. Thr.

Rudbeckia laciniata L.—Infrequent. Open, sandy alluvial woods. Thr.

Rudbeckia subtomentosa Pursh—Infrequent. Sandy, moist soil. Cent.

Rudbeckia triloba L.—Frequent. Open, usually alluvial woods. Thr.

Senecio aureus L.—Rare. Moist prairie swales and bogs. BUCHANAN: 2; WINTHROP, 1940, Murley #1305, ISC. JOHNSON: Turkey Creek, 1911, Shimek, IA.

Senecio pauperculus Michx.—Rare. Prairie. FAYETTE: s.w. of Arlington, 1931, no name, IA.

Senecio plattensis Nutt.—Common. Moist, open woods and prairies. Thr.

Silphium integrifolium Michx.—Infrequent. Prairie remnants. S.

Silphium laciniatum L.—Infrequent. Prairie remnants. Thr.

Silphium perfoliatum L.—Common. Alluvial woods and moist prairie swales. Thr.

[7] *Solidago canadensis* L. (incl. *S. altissima* L.)—Common. Moist, open places. Thr.

Solidago flexicaulis L. (*S. latifolia* L.)—Infrequent. Open, upland woods. S.

Solidago gigantea Ait.—Common. Various moist, open habitats. Thr.

Solidago graminifolia (L.) Salisb.—Infrequent. Prairie remnants. Thr.

Solidago missouriensis Nutt. (incl. *S. glaberrima* Martens)—Infrequent. Upland prairie remnants. Thr.

Solidago nemoralis Ait.—Frequent. Prairie remnants. Thr.

Solidago riddellii Frank—Rare. Marshes, ditches and wet prairie remnants. CERRO GORDO: Buffalo Slough, Mason City, 1921, Shimek, IA. FLOYD: RR e. of Nora Springs, 1932, Shimek, IA. HOWARD: 1.

Solidago rigida L.—Common. Prairie remnants. Thr.

Solidago speciosa Nutt.—Infrequent. Open woods and sandy prairies. N & E.

Solidago ulmifolia Muhl.—Frequent. Open, upland woods. Thr.

°*Sonchus asper* (L.) Hill—Rare. Open, disturbed places. FAYETTE: Fayette, ca.1897, Fellows, IA. JOHNSON: Penn twp., 1893, Shimek, IA.

°*Tanacetum vulgare* L.—Rare. Roadsides and waste places. FAYETTE: Fayette, ca.1897, Fellows, IA. JOHNSON: Turkey Creek, Newport twp., 1898, Shimek, IA.

°*Taraxacum erythrospermum* Andrz.—Infrequent. Moist, open ground. Thr.

°*Taraxacum officinale* Weber—Common. Moist, open ground. Thr.

°*Tragopogon dubius* Scop.—Infrequent. Roadsides, railroads, and disturbed areas. Thr.

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[7] Rosendahl and Cronquist (1945) was used as a reference for the genus *Solidago* in addition to the general references listed in the Annotated Catalog.

°*Tragopogon pratensis* L.—Rare. Waste places. FAYETTE: Fayette, ca.1897, IA.

Vernonia fasciculata Michx.—Common. Open, moist habitats. Thr.

Xanthium strumarium L.—Probably common but rarely collected. Roadsides, cultivated fields and waste places. Thr.

Convolvulaceae

°*Convolvulus arvensis* L.—Infrequent. Cultivated fields, along railroads and disturbed areas. Thr.

Convolvulus sepium L.—Common. Roadsides, disturbed woods and waste places. Thr.

Cuscuta coryli Engelm.—Rare. Along Cedar River. LINN: Cedar Rapids, 1909, Berry, IA.

Cuscuta gronovii Willd.—Rare. Edge of slough. LINN: Cedar Rapids, 1911, Berry, IA.

Cuscuta polygonorum Engelm.—Rare. Margin of marsh. WINNESHIEK: 1.

°*Ipomoea pandurata* (L.) G.F.W.Meyer—Rare. Prairies and openings in woods. LINN: Cedar Rapids, 1902, Shimek, ISC. JOHNSON: Turkey Creek, Newport twp., 1905, Shimek, IA; e. of North Liberty, 1933, Shimek, ISC.

Cornaceae

Cornus alternifolia L.—Common. Moist, upland woods. Thr.

Cornus drummondii C.A.Meyer (*C. asperifolia* Michx. misapplied)—Frequent. Moist, open lowland woods. Chiefly along Cedar River valley.

Cornus obliqua Raf. (*C. purpusi* Koehne)—Common. Wet prairie remnants, riverbanks and marshes. Thr.

Cornus racemosa Lam.—Common. Chiefly upland woods. Thr.

Cornus rugosa Lam.—Rare. Openings on wooded bluffs. CERRO GORDO: Hackberry Grove, sec. 35 Portland twp., 1896, Shimek, IA DELAWARE: Backbone State Park, 1923, Shimek, ISC. FAYETTE: Fayette, 1894, Fink, ISC. HARDIN: 2. HOWARD: 8. LINN: 1.

Cornus stolonifera Michx.—Rare. Lake and pond shores and streambanks. CERRO GORDO: Hackberry Grove, sec. 35 Portland twp., 1896, Shimek, IA. DELAWARE: no location, 1897, Cameron, IA. FAYETTE: Otter Creek s.e. of West Union, 1925, Shimek, IA. HOWARD: 5.

Crassulaceae

°*Sedum acre* L.—Rare. Rocky, gravely pasture. LINN: Cedar Rapids, 1913, Berry, IA.

[8] Cruciferae

Arabis canadensis L.—Rare. Bluffs and openings in upland woods. CERRO GORDO: Hackberry Grove, sec. 35 Portland twp., 1936, Shimek, IA. HARDIN: 1, 2. JOHNSON: Lake Macbride State Park, 1955, Thorne #15867, IA.

Arabis drummondi Gray—Rare. Prairies and openings in woods. BUCHANAN: 4. CHICKASAW: no location, 1926, Spiker, ISC. FAYETTE: Fayette, 1894, Fink, ISC. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17687, IA. JOHNSON: sec. 14 Newport twp., 1955, Thorne #15757, IA. LINN: 1 mile n. Central City, 1956, Rollins #256, IA.

Arabis glabra (L.) Bernh.—Rare. Prairies and sandy roadsides. FAYETTE: 5. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17686, IA.

Arabis hirsuta (L.) Scop. (incl. var. *pycnocarpa* (Hopkins) and var. *adpressipilis* (Hopkins) Rollins)—Rare. Wooded, rocky bluffs. DELAWARE: 1. HARDIN: 3. HOWARD: 7. LINN: 1½ mile n. Central City, 1957, Thorne #18426, IA.

Arabis lyrata L.—Rare. Dry, wooded slopes. DELAWARE: Backbone State Park, 1933, Anderson, IA. WINNESHIEK: Upper Iowa River, sec. 33 Fremont twp., 1952, Thorne #11100, IA.

Arabis shortii (Fern.) Gl. (*A. perstellata* E. L. Br. var. *shortii* Fern.) —Infrequent. Alluvial woods and shaded bluffs. Thr.

°*Armoracia rusticana* Gaertn., Mey. and Scherb. (*A. lapathifolia* Gilib.) Rare. Farmyards, roadsides and disturbed areas. BENTON: Vinton, 1899, Fischer, IA. TAMA: Toledo, 1895, Fellows, IA.

°*Barbarea vulgaris* R. Br.—Probably common. Roadsides, fields and disturbed woods. Thr.

°*Berteroa incana* (L.) DC.—Rare. Disturbed, open areas. BREMER: 5. FLOYD: 5.

°*Brassica campestris* L.—Rare. Fields and waste places. LINN: Cedar Rapids, 1894, Shimek, IA.

°*Brassica juncea* (L.) Coss.—Rare. Pastured alluvial woods. GRUNDY: 3.

°*Brassica kaber* (DC.) L. C. Wheeler—Infrequent. Fields and moist, open areas. SE.

°*Brassica nigra* (L.) Koch—Common. Sandy roadside. Thr.

°*Capsella bursa-pastoris* (L.) Medic.—Common. Fields, gardens and disturbed areas. Thr.

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[8] Fasset (1959)and Patman and Iltis (1962) were useful references for this family, particularly for specimens without mature fruit.

Cardamine bulbosa (Schreb.) BSP.—Infrequent. Bogs, marshes and moist prairie remnants. Thr.

Cardamine douglassii (Torr.) Britt.—Rare. Moist, wooded ravine bottoms. IOWA: Iowa River, 1 mile s. of Amana, 1950, Easterly #29, IA. LINN: 5½ miles s.e. Central City, 1956, Rollins #237, IA; without location, 1918, Whaley, ISC.

Cardamine parviflora L. var. *arenicola* (Britt.) Schultz.—Rare. Open, sandy soil. BENTON: 4. BUCHANAN: 4. JOHNSON: s. of Iowa River, Oxford twp., 1955, Thorne #15737, IA; sec. 12 Cedar twp., 1955, Thorne #15857, IA. LINN: sec. 27 Jackson twp., 1954, Thorne #14012, IA.

Cardamine pensylvanica Muhl.—Infrequent. Wooded, lower ravine slopes and alluvial bottoms. S & E.

Dentaria laciniata Muhl.—Frequent. Moist, wooded slopes and bottoms. Thr.

Descurainia pinnata (Walt.) Britt.—Infrequent. Sandy prairie remnants. Thr.

Draba reptans (Lam.) Fern.—Infrequent. Open, sandy soil. Thr.

°*Draba verna* L.—Rare. Sandpit in alluvial terrace. BUCHANAN: 4.

°*Erysimum asperum* (Nutt.) DC.—Rare. Sandy prairies. TAMA: Toledo, 1895, Fellows, IA.

°*Erysimum cheiranthoides* L.—Infrequent. Wooded limestone bluffs and sandy alluvial woods. Thr.

Iodanthus pinnatifidus (Michx.) Steud.—Rare. Moist, sandy alluvial woods. BREMER: 3. CERRO GORDO: Mason City, 1886, Shimek, IA. IOWA: s. of Amana, 1950, Easterly #325, IA. JOHNSON: Newport twp., 1904, Shimek, ISC. LINN: Cedar Rapids, no date, Berry, IA.

°*Lepidium campestre* (L.) R. Br.—Rare. Disturbed ground. FAYETTE: 3. LINN: 3.

°*Lepidium densiflorum* Schrad.—Common. Prairie remnants, open alluvial woods and disturbed areas.

Lepidium virginicum L.—Infrequent. Roadsides, railroads, and disturbed, open areas. SE.

°*Lobularia maritima* (L.) Desv.—Rare escape from cultivation. Roadsides. LINN: Central City, 1937, Shupp, IA. TAMA: Toledo, 1895, Fellows, IA.

°*Nasturtium officinale* R. Br.—Rare. Cold streams, margins of ponds and wet meadows. BENTON: 6. Hardin: 3.

°*Neslia paniculata* (L.) Desv.—Rare. Abandoned field. LINN: near Kenmore Golf Course, Cedar Rapids, T83N, R7W, sec. 10, 1949, Drexler #4976, IA.

Rorippa islandica (Oeder) Borbas—Frequent. Sandy marshes and alluvial woods. Thr.

Rorippa sessiliflora (Nutt.) Hitch.—Rare. Sloughs and moist, wooded lowlands. BENTON: Vinton, 1910, Knupp, IA. JOHNSON: sec. 11 Cedar twp., 1955, Thorne #15907, IA; Lake Macbride State Park, 1955, B.C.G., IA. TAMA: along Iowa River w. of Tama, 1930, Shimek, ISC.

°*Rorippa sylvestris* (L.) Besser—Rare. Wet, sandy bottom land. BLACK HAWK: 1. JOHNSON: sec. 11 Cedar twp., 1955, Thorne #17391, IA.

°*Sisymbrium altissimum* L.—Rare. Prairie remnant along RR. GRUNDY: 4.

°*Sisymbrium officinale* (L.) Scop.—Infrequent. Open, disturbed woods. Thr.

°*Thlaspi arvense* L.—Infrequent. Roadsides and disturbed ground. S.

Cucurbitaceae

Echinocystis lobata (Michx.) T.&G.—Infrequent. Low, moist woods. Thr.

Sicyos angulatus L.—Rare. Roadside prairies and disturbed areas. GRUNDY: 1. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

Elaeagnaceae

°*Elaeagnus angustifolia* L.—Rare. Disturbed alluvial woods. BLACK HAWK: 1.

Ericaceae

Chimaphila umbellata (L.) Bart.—Rare. Native timber. LINN: Jordan's Grove, Waubeek, 1911, Wagor, IA.

Gaylussacia baccata (Wang.) K. Koch—Rare. Sandy soil above bog. 2 miles s. of Coggon, 1952, Thorne #10856, IA.

Monotropa uniflora L.—Infrequent. Wooded slopes and ravines. Thr.

Pyrola elliptica Nutt.—Common. Upland woods and slopes. Absent from SW?

Euphorbiaceae

Acalypha rhomboidea Raf.—Infrequent. Ponds, marshes and moist, lowland prairies. Thr.

Acalypha virginica L.—Rare. Weed on disturbed ground. JOHNSON: Lake Macbride State Park, 1934, Fuller, IA.

Croton glandulosus L.—Rare. Sandy margin of pond. BENTON: 5.

Euphorbia corollata L.—Common. Prairie remnants, usually sandy. Thr.

Euphorbia cyparissias L.—Rare. Escape from cultivation in cemeteries and waste places. FAYETTE: Fayette, 1897, Fellows, IA. FLOYD: 5. LINN: Sylvia, 1910, Berry, IA.

Euphorbia dentata Michx. (*Poinsettia dentata* (Michx.) Small)—Rare. Roadsides, alluvial woods and prairie remnants. BLACK HAWK: 9. BUTLER: 1. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA. LINN: 6.

Euphorbia dictyosperma Fisch. & Mey.—Rare. Moist, sandy soil. LINN: 3; sandpit, Chain Lake, Monroe twp., 1958, Thorne #20188, IA.

°*Euphorbia esula* L.—Rare. Noxious weed in fields, roadsides and waste places. BLACK HAWK: 2. DELAWARE: along highway between Manchester and Earlville, 1957, Thorne #18428, IA: Delhi, 1948, R.G.B., IA.

Euphorbia geyeri Engelm. (*Chamaesyce geyeri* (Engelm.) Small)—Apparently rare. Sandy fields and roadsides. FLOYD: 6. JOHNSON: sec. 1 Cedar twp., 1953, Thorne #13690, IA.

Euphorbia glyptosperma Engelm. (*Chamaesyce glyptosperma* (Engelm.) Small)—Infrequent. Open, sandy soil. S & W.

Euphorbia heterophylla L. (*Poinsettia cyathophora* (Murr.) Small)—Rare. Open, sandy soil. BUTLER: 1. JOHNSON: sec. 12 Cedar twp., 1955, Thorne #17455, IA: Lake Macbride State Park, 1956, Pfeifer, IA. LINN: Cedar Rapids, 1917, Berry, IA.

Euphorbia hexagona Nutt.—Rare. Open, sandy soil. BENTON: 2, 3. BLACK HAWK: Cedar Falls, 1930, Shimek, IA.

Euphorbia maculata L. (*Chamaesyce maculata* (L.) Small and *Euphorbia preslii* Guss.)—Infrequent. Low, sandy prairie remnants. S. Cent.

°*Euphorbia marginata* Pursh—Rare. Moist alluvial woods and margin of pond. IOWA: w. of Amana, 1950, Easterly #973, IA. JOHNSON: along Iowa River, T81N, R8W, sec. 25, 1958, Thorne #20018, IA.

Euphorbia supina Raf. (*Chamaesyce supina* (Raf.) Moldenke)—Infrequent. Low, sandy soil. Chiefly along Cedar River Valley.

Fagaceae

Quercus alba L.—Common. Upland woods and slopes. Thr.

Quercus bicolor Willd.—Infrequent. Sandy alluvial woods. Thr., except apparently absent from Cedar River drainage.

Quercus ellipsoidalis E. J. Hill—Common. Open, upland woods. Thr.

Quercus macrocarpa Michx.—Common. A variety of open habitats, chiefly along rivers. Thr.

Quercus bicolor Willd. X *Q. macrocarpa* Michx.—Rare. Sandy alluvial woods. BREMER: 2.

Quercus muhlenbergii Engelm.—Rare. Exposed bluffs or rocky slopes. BENTON: 4. DELAWARE: Backbone State Park, 1923, Shimek, IA. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA; Turkey Creek, 1903, Shimek, IA. LINN: s. of Paralta, 1913, Shimek, IA.

Quercus rubra L. (*Q. borealis* Michx. f.)—Frequent. Open upland woods. Thr.

Quercus velutina Lam.—Common. Upland woods and sandy alluvial flat. S.

Gentianaceae

Gentiana andrewsii Griseb. (*Dasystephana andrewsii* (Griseb.) Small) —Frequent. Wet roadsides and prairie swales. Thr.

Gentiana crinita Froel.—Rare. Marshes and moist, sandy prairies. CHICKASAW: New Hampton, 1924, Spiker, ISC. FAYETTE: Fayette, 1897, Parker, ISC. JOHNSON: 4½ miles n.w. Iowa City, 1931, Shimek, IA. LINN: 2.

Gentiana flavida Gray—Rare. Prairie remnants. CERRO GORDO: Buffalo Slough, Mason City, 1918, Shimek, IA. CHICKASAW: 1 mile e. of New Hampton, 1926, Spiker, ISC. DELAWARE: e. of Lamont, 1923, Shimek, ISC. FAYETTE: Fayette, 1894, Fink, ISC. HARDIN: 1 mile n. of Eldora, 1942, Maxon, ISC. IOWA: s. of Amana, 1950, Easterly #1182, IA. JOHNSON: Penn twp., 1924, A.L.T., IA. LINN: s. of Cedar Rapids, 1933, Harrington, ISC.

Gentiana procera Holm—Rare. Marsh. CERRO GORDO: Buffalo Slough, Mason City, 1925, Shimek, ISC.

Gentiana puberula Michx.—Rare. Prairie remnants. BLACK HAWK: LaPorte City, 1928, Hawkins, ISC. BREMER: 4 miles n.e. of Sumner, 1937, Murley #323, ISC. BUCHANAN: Winthrop, 1940, Murley #1553, ISC. BUTLER: w. of New Hartford, 1927, Shimek, ISC. CERRO GORDO: n. of Buffalo Slough, Mason City, 1918, Shimek, IA. CHICKASAW: no location, 1925, Spiker, ISC. DELAWARE: 1 mile w. of Delaware, 1923, Shimek, IA. FAYETTE: 6 miles s. of West Union, 1932, Hayden #10216, ISC. FLOYD: Nora Jct., 1895, Shimek, IA. GRUNDY: 1 mile n. and 1 mile w. of Grundy Center, 1933, Hayden, ISC. HARDIN: Steamboat Rock, 1902, King, ISC. JOHNSON: 3½ miles n.w. of North Liberty, 1956, Thorne #18357, IA.

Gentiana quinquefolia L.—Infrequent. Prairie openings on bluffs. Thr.

Geraniaceae

Geranium carolinianum L.—Rare. Sandy prairies and alluvial flats.

BLACK HAWK: Elk Run, e. edge of Evansdale, 1921, Shimek, IA; Cedar Falls, 1926, Pammel #282, ISC. BUCHANAN: Independence, 1923, Skaukor, ISC. CHICKASAW: 1 mile e. ½ mile n. New Hampton, 1926, Spiker, ISC. JOHNSON: sec. 11 Cedar twp., 1955, Thorne #17392, IA. LINN: 2 miles s. of Palo, 1921, Shimek, IA.

Geranium maculatum L.—Common. Open woods, rocky slopes and sandy prairies. Thr.

Guttiferae

Hypericum boreale (Britt.) Bickn.—Rare. Margin of Marsh. LINN: 2½ miles s. Coggon, 1952, Thorne and Drexler, IA.

Hypericum majus (Gray) Britt.—Infrequent. Margins of bogs, marshes and moist, lowland prairie. E.

Hypericum mutilum L.—Rare. Wet, low places. IOWA: n. of Homestead, 1924, Shimek, IA. JOHNSON: sec. 17 Madison twp., 1952, Thorne #10888A, IA; sec. 35 Cedar twp., 1955, Thorne #17439, IA.

°*Hypericum perforatum* L.—Rare. Roadsides and sandy, disturbed prairies. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA. MITCHELL: 3.

Hypericum punctatum Lam.—Frequent. Open woods and prairie remnants. E.

Hypericum pyramidatum Ait.—Infrequent. Marshes and riverbanks. N & E.

Hypericum sphaerocarpum Michx.—Frequent. Open, wet lowlands. S.

Triadenum fraseri (Spach.) Gl. (*Hypericum virginicum* L. var. *fraseri* (Spach.) Fern.)—Rare. Marshes, sloughs and moist prairie lowlands. BENTON: 5. BREMER: 8. CERRO GORDO: Mason City, 1896, Shimek, IA. FAYETTE: Fayette, 1893, Fink, ISC. LINN: 2.

Haloragaceae

Myriophyllum spicatum L. var. *exalbescens* (Fern.) Jeps. (*M. exalbescens* Fern.)—Rare. Lake. LINN: Palo, 1913, Berry, IA.

Hydrophyllaceae

Ellisia nyctelea (L.) Britton—Frequent. Wooded alluvial flats. Thr.

Hydrophyllum appendiculatum Michx.—Rare. Low, moist woods. FAYETTE: Fayette, 1897, Fellows, IA. FLOYD: 3. HOWARD: no location, 1917, Tuttle, ISC. JONES: Wapsipinicon State Park, Anamosa, 1928, Shimek, ISC. MITCHELL: s. of St. Ansgar, 1930, Shimek, IA.

Hydrophyllum virginianum L.—Common. Moist, alluvial woods and lower ravine slopes. Thr.

Juglandaceae

Carya cordiformis (Wang.) K. Koch—Common. Upland woods and exposed slopes. Thr.

Carya ovata (Mill.) K. Koch—Common. Chiefly in upland woods. Thr.

Juglans cinerea L.—Common. Upland woods and slopes. Thr.

Juglans nigra L.—Common. Woods, chiefly lowland. Thr.

[9] Labiatae

Agastache nepetoides (L.) Ktze.—Infrequent. Open woods and sandy roadsides. S & Cent.

Agastache scrophulariaefolia (Willd.) Ktze.—Infrequent. Open woods and prairie remnants. Cent.

Blephilia hirsuta (Pursh) Benth.—Rare. Moist woods. DELAWARE: Backbone State Park, 1925, Shimek, IA. HARDIN: 1, 3. JOHNSON: Turkey Creek, Newport twp., 1909, Shimek, IA. LINN: Cedar Rapids, 1902, Shimek, IA. WINNESHIEK: Upper Iowa River, Kendallville, 1952, Thorne and Davidson, #11090, IA.

Dracocephalum parviflorum Nutt.—Rare. Dry woods. CHICKASAW: 1 mile e. of New Hampton, 1926, Spiker, ISC. MITCHELL: Osage, 1917, Tuttle, ISC.

°*Galeopsis tetrahit* L.—Rare. Open alluvial woods. HOWARD: 3.

°*Glecoma hederacea* L.—Probably common. Pastured farmyards and moist, disturbed ground. Thr.

Hedeoma hispida Pursh—Frequent. Chiefly in sandy prairie remnants. Thr.

°*Leonurus cardiaca* L.—Frequent. Farmyards, disturbed woods and waste places. Thr.

Lycopus americanus Muhl.—Common. Low, marshy ground. Thr.

Lycopus uniflorus Michx.—Infrequent. Open, low, wet ground. Cent.

Lycopus virginicus L.—Rare. Open, low, wet ground. BENTON: 10; Vinton, 1910, Knupp, IA. LINN: 1.

Mentha arvensis L. (*M. canadensis* L.)—Infrequent. Marshes, sloughs and moist alluvial ground. Probably thr.

°*Mentha gentilis* L.—Rare. Low, moist ground. LINN: 6. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Monarda fistulosa L. (incl. var. *mollis* (L.) Benth.)—Common. Prairie openings. Thr.

Monarda punctata L.—Rare. Sandy prairies and alluvial flats. BENTON: 2, 3. JOHNSON: sec. 12 Cedar twp., 1955, Thorne #17452, IA. LINN: 2.

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[9] Additional reference: Koeppen (1958)

°*Nepeta cataria* L.—Common. Farmsteads, roadsides and waste places. Thr.

Physostegia parviflora Nutt. (incl. *P. virginiana* (L.) Benth.)—Frequent. Streambanks, moist roadsides and other moist, open places. Thr.

Prunella vulgaris L.—Common. A variety of moist, open habitats. Thr.

Pycnanthemum flexuosum (Walt.) BSP.—Rare. Moist prairies. IOWA: s. of Amana, 1909, Shimek, ISC. JOHNSON: 3½ miles n.w. of North Liberty, 1956, Thorne #18358, IA. LINN: Cedar Rapids, 1902, Buchanan, ISC; s.w. of Coggon, 1928, Shimek, ISC; 2 miles s. of Palo, 1921, Shimek, ISC.

Pycnanthemum pilosum Nutt.—Rare. Dry, open woods and bluffs. IOWA: s. of Amana, 1950, Easterly #917, IA. JOHNSON: Turkey Creek, sec. 23 Newport twp., 1956, Thorne #18402, IA; Lake Macbride State Park, 1956, Pfeifer, IA.

Pycnanthemum virginianum (L.) Durand & Jackson—Common. Marshes and moist prairie remnants. Thr.

Scutellaria galericulata L. (*S. epilobiifolia* A. Hamilton)—Rare. Marshes and bogs. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, IA. LINN: s.w. of Coggon, 1929, Shimek, IA.

Scutellaria lateriflora L.—Common. Marshes, ponds and alluvial bottoms. Thr.

Scutellaria nervosa Pursh—Rare. Open alluvial woods. LINN: 3.

Scutellaria ovata Hill—Rare. Moist lowland woods. FAYETTE: Wadena, 1893, Fink, ISC. JOHNSON: Newport twp., 1902, Shimek, IA; Lake Macbride State Park, 1956, Pfeifer, IA; Turkey Creek, sec. 14 Newport twp., 1961, Sorensen #595, IA.

Scutellaria parvula Michx. (incl. *S. leonardi* Epling)—Frequent. Prairie remnants. Thr.

Stachys hispida Pursh (*S. tenuifolia* Willd. var. *hispida* (Pursh) Fern.) —Infrequent. Moist, low prairies and alluvial woods. S & Cent.

Stachys palustris L.—Frequent. Moist, open ground. Thr.

Stachys tenuifolia Willd.—Infrequent. Open, sandy alluvial woods. Along Cedar River.

Teucrium canadense L. (incl. *T. occidentale* A. Gray)—Common. Marshes, prairie remnants and open woods. Thr.

Trichostema brachiatum L. (*Isanthus brachiatus* (L.) BSP.)—Infrequent. Prairie remnants, alluvial ponds and pastures. Thr.

Leguminosae

Amorpha canescens Pursh—Frequent. Remnant prairies. Thr.

Amorpha fruticosa L.—Infrequent. Marshes and margins of ponds and lakes. Thr.

Amphicarpa bracteata (L.) Fern. (incl. *A. comosa* (L.) G. Don)—Common. Open woods. Thr.

Apios americana Medic.—Rare. Moist prairie remnants. BUCHANAN: Winthrop, 1940, Murley #1540, ISC. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, IA. HARDIN: 1. JOHNSON: T-81N, R-5W, sec. 22, 1950, Getty #334, ISC. LINN: 2 miles s. of Palo, 1921, Shimek, ISC. MITCHELL: Osage, 1916, Tuttle, ISC.

[10] *Astragalus canadensis* L.—Frequent. Prairie remnants. Thr.

Astragalus crassicarpus Nutt. (*A. caryocarpus* Ker)—Infrequent. Rocky outcrops and sandy prairies. N & Cent.

Astragalus distortus T. & G.—Rare. Sandy prairies and alluvial flats. BENTON: 6. BLACK HAWK: n. edge of East Waterloo, 1928, Shimek, IA; Fischer's Lake, Cedar Falls, 1942, Murley #1605, ISC. LINN: Cedar Rapids, 1913, Berry, IA.

Baptisia leucantha T. & G.—Frequent. Upland prairies. Thr.

Baptisia leucophaea Nutt.—Frequent. Upland prairies. Thr.

Cassia marilandica L.—Rare. Open alluvial woods. JOHNSON: Lake Macbride State Park, 1938, Laufek, ISC; Lake Macbride State Park, 1956, Pfeifer, IA. LINN: 8.

Cercis canadensis L.—Rare. Grassy meadow, escape from cultivation? JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

Chamaecrista fasciculata (Michx.) Greene (*Cassia fasciculata* Michx.)—Frequent. Roadsides and moist prairie remnants. S½.

°*Crotalaria sagittalis* L.—Rare. Prairie remnants, generally sandy. IOWA: Dutch Lake near Amana, 1925, Shimek, IA. JOHNSON: Turkey Creek, Newport twp., 1905, Shimek, IA; sec. 12 Cedar twp., 1953, Thorne #13640, IA. LINN: Paralta, 1913, Shimek, IA.

[11] *Desmodium canadense* (L.) DC.—Frequent. Prairie remnants and open alluvial woods. Thr.

Desmodium canescens (L.) DC.—Rare. Upland woods. IOWA: n. of Homestead, 1925, Shimek, IA. JOHNSON: Penn twp., 1897, Shimek, IA.

Desmodium cuspidatum (Muhl.) Loud.—Infrequent. Upland woods. Thr.

Desmodium glutinosum (Muhl.) Wood—Common. Upland woods. Thr.

Desmodium illinoense Gray—Rare. Roadside ditches and prairies.

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[10] Welsh (1960) was used as a reference for the genus *Astragalus* in addition to the general references listed in the Annotated Catalog.

[11] The taxonomic treatment of the genus *Desmodium* is based on Isely (1955).

BENTON: S. BREMER: n.w. corner of county, 1926, Shimek, IA. FAYETTE: 1897, Fellows, IA.

Desmodium nudiflorum (L.) DC.—Rare. Open upland woods. BENTON: 12. CHICKASAW: e. of New Hampton, 1926, Spiker, ISC. LINN: 1; along Wapsipinicon R. above Central City, 1933, Shimek, IA.

Desmodium paniculatum (L.) DC. (incl. *D. dillenii* Darl. and *D. glabellum* (Michx.) DC.)—Rare. Openings in upland woods. BENTON: 1, 4.

Gleditsia triacanthos L.—Common. Moist, usually lowland, woods. Thr.

Gymnocladus dioica (L.) K. Koch—Infrequent. Alluvial woods in Cedar River valley. Along Cedar River.

Lathyrus ochroleucus Hook.—Rare. Upland Woods. CERRO GORDO: Buffalo Slough, Mason City, 1917, Shimek, IA. MITCHELL: 2; s. of St. Ansgar, 1930, Shimek, IA.

Lathyrus palustris L.—Infrequent. Low, moist prairie remnants and sloughs. N & E.

Lathyrus venosus Muhl.—Infrequent. Upland prairies. NE.

Lespedeza capitata Michx.—Common. Upland prairies. Thr.

Lespedeza leptostachya Engelm.—Rare. Prairie remnants. CERRO GORDO: n. of Buffalo Slough, Mason City, 1917, Shimek, IA. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1958, Thorne #19641, IA.

°*Lespedeza stipulacea* Maxim.—Rare. Waste ground. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13674, IA; Coralville dam access road, 5 mi. n. Iowa City, 1961, Huang #2769, IA.

Lespedeza violacea (L.) Pers.—Rare. Dry sandy or stony soil. BENTON: 4. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

°*Lotus corniculatus* L.—Rare. Sandy roadsides and pastures. DELAWARE: 4. LINN: 4.

°*Medicago lupulina* L.—Frequent. Disturbed, open soil. Thr.

°*Medicago sativa* L.—Common. Roadsides, railroads and disturbed ground. Thr.

°*Melilotus alba* Desr.—Common. Roadsides, railroads and disturbed ground. Thr.

°*Meliilotus officinalis* (L.) Lam.—Common. Roadsides, railroads, and disturbed ground. Thr.

Petalostemum candidum (Willd.) Michx.—Once frequent. Upland prairie remnants. Thr.

Petalostemum purpureum (Vent.) Rydb.—Once common. Upland prairie remnants. Thr.

Petalostemum villosum Nutt.–Rare. Sandy prairies. BLACK HAWK: Waterloo, 1949, Grant #11197, IA.

Psoralea argophylla Pursh–Rare. Upland prairies. CERRO GORDO: Buffalo Slough, Mason City, 1920, Shimek, IA. FLOYD: Railroad prairie, Nora Junction, 1925, Shimek, IA. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17693, IA. MITCHELL: Osage, 1946, Hayden #3430, ISC.

°*Robinia pseudoacacia* L.–Frequent. Escape from cultivation in disturbed woods. Thr.

Schrankia uncinata Willd.–Rare. Sandy soil. TAMA: Toledo, 1895, Fellows, IA.

Strophostyles helvola (L.) Ell.–Infrequent. Sandy roadsides, railroads and prairie remnants. S.

Strophostyles leiosperma (T. & G.) Piper–Rare. Dry, sandy soil. BENTON: 3. BUCHANAN: 13. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13647, IA. LINN: Paralta, 1913, Shimek, IA.

Tephrosia virginiana (L.) Pers.–Rare. Sandy prairies. BENTON: 5. DELAWARE: no location, 1897, Cameron, IA; Delhi, 1922, Pammel and Harlon, ISC. GRUNDY: Grundy Center, 1946, Merritt, ISC. IOWA: n. of Homestead, 1920, Shimek, IA. JOHNSON: sec. 5 Madison twp., 1959, Eikleberry #22, IA. LINN: Cedar Rapids, 1909, Berry, IA; Cedar Rapids, 1942, Drexler, #4800, IA.

°*Trifolium agrarium* L.–Apparently rare. Disturbed places in prairies. DELAWARE: 5. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1958, Thorne #19642, IA.

°*Trifolium hybridum* L.–Common. Disturbed, open habitats. Thr.

°*Trifolium pratense* L.–Common. Disturbed, open habitats. Thr.

°*Trifolium procumbens* L.–Infrequent. Disturbed, open habitats, N 2/3.

Trifolium reflexum L.–Rare. Low, sandy and gravelly soil in open woods along river. LINN: Cedar Rapids, 1911, Berry, IA.

°*Trifolium repens* L.–Frequent. Roadsides, railroads and disturbed prairies. Thr.

Vicia americana Muhl.–Common. Prairie remnants and openings in woods. Thr.

°*Vicia angustifolia* Reich.–Rare. Roadside at edge of upland woods. HOWARD: 8.

°*Vicia villosa* Roth–Rare. Sandy, disturbed, open woods. DELAWARE: 8.

Lentibulariaceae

Utricularia gibba L.–Rare. Shallow water. JOHNSON: Swan Lake, sec. 5 Madison twp., 1950, Thorne #10467, IA.

Utricularia vulgaris L.—Rare. Shallow water of open ponds. JOHNSON: sec. 5 Madison twp., 1952, Thorne #10741, IA. LINN: Cedar Rapids, 1894, Shimek, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Linaceae

Linum sulcatum Riddell—Infrequent. Dry prairie remnants. Thr.

°*Linum usitatissimum* L.—Rare. Along railroads. FAYETTE: Fayette, 1897, Fellows, IA. LINN: Railroad, Cedar Rapids, 1913, Berry, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Lythraceae

Ammannia coccinea Rothb.—Rare. Moist soil. BLACK HAWK: Waterloo, 1893, no name, ISTC.

Decodon verticillatus (L.) Ell.—Rare. Edge of small slough. Cedar Rapids, 1913, Berry, IA.

Lythrum alatum Pursh—Frequent. Margins of marshes. Thr.

Rotala ramosior (L.) Koehne—Rare. Small pond and marsh. JOHNSON: sec. 17 Madison twp., 1952, Thorne #10890, IA.

Malvaceae

°*Abutilon theophrasti* Medic.—Infrequently collected. Disturbed areas and waste places. Thr.

°*Hibiscus trionum* L.—Rare. Fields, roadsides and disturbed areas. BENTON: 2, 3. TAMA: 2; Toledo, 1895, Fellows, IA.

°*Malva neglecta* Wallr.—Rare. Disturbed areas. HARDIN: 3.

°*Malva sylvestris* L.—Rare. Escape to roadsides. LINN: Cedar Rapids, 1913, Berry, IA. TAMA: Toledo, 1895, Fellows, IA.

Napaea dioica L.—Rare. Moist alluvial woods. BLACK HAWK: no location, 1929, Burk #800, ISTC. HOWARD: 3.

Menispermaceae

Menispermum canadense L.—Common. Woods. Thr.

Menyanthaceae

Menyanthes trifoliata L.—Rare. Bogs and marshes. CERRO GORDO: Mason City, 1896, Shimek, IA.

Moraceae

°*Cannabis sativa* L.—Common. Disturbed soil and waste places. Thr.

Humulus lupulus L.—Frequent. Open, moist woods. Thr.

°*Morus alba* L.—Frequent. Fence rows and streambanks. S 2/3.

Morus rubra L.—Rare. Open alluvial woods and lower ravine slopes.

BENTON: 13. DELAWARE: no location, 1897, Cameron, IA. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA. LINN: 8.

Nyctaginaceae

Mirabilis nyctaginea (Michx.) MacM.–Common. Dry, open soil. Thr.

Nymphaeaceae

Brasenia schreberi Gmel.–Rare. Shallow, quiet water. JOHNSON: Swan Lake, sec. 5 Madison twp., 1951, Thorne #10050, IA. LINN: 2½ miles s. of Coggon, 1952, Thorne & Drexler #10855, IA; T-84N, R-7W, sec. 18, 1957, Drexler, IA.

Nuphar luteum (L.) Sibth. & Sm. subsp. *variegatum* (Engelm.) Beal (*Nuphar advena* (Ait.) Ait. f.)–Rare. Shallow, quiet water. CERRO GORDO: Mason City, 1896, Shimek, IA. HOWARD: 5. LINN: Cedar Rapids, 1895, Shimek, IA.

Nymphaea tuberosa Paine–Rare. Shallow, quiet water. BLACK HAWK: Bayou of Cedar River, 1929, Burk #795, ISTC. HOWARD: 5. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA. LINN: Cedar Rapids, 1895, Shimek, IA.

Oleaceae

Fraxinus americana L.–Frequent. Upland woods. Thr.

Fraxinus nigra Marsh.–Common. Moist woods. Thr.

Fraxinus pennslyvanica Marsh.–Common. Moist, usually lowland, woods. Thr.

Onagraceae

Circaea quadrisulcata (Maxim.) Franch. & Sav. (*C. latifolia* Hill)–Common. Open upland woods. Thr.

Epilobium angustifolium L.–Rare. Woods along road. DELAWARE: Backbone State Park, 1927, Shimek, IA.

Epilobium coloratum Biehler–Frequent. Marshes and other wet, open places. Thr.

Epilobium glandulosum Lehm. (incl. *E. adenocaulon* Haussk)–Rare. Wet places. FLOYD: Nora Jct., 1895, Shimek, IA.

Epilobium leptophyllum Raf.–Rare. Marshes and moist lowland prairies. BREMER: 8. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, IA. HOWARD: 1.

Gaura biennis L.–Rare. Along river. LINN: Cedar Rapids, 1911, Berry, IA.

Ludwigia alternifolia L.–Infrequent. Low, sandy prairie swales and bogs. SE.

Ludwigia palustris (L.) Ell.—Rare. Marshy areas. BUCHANAN: 2. BUTLER: 2. JOHNSON: sec. 6 Madison twp., 1952, Thorne #10910, IA.

Ludwigia polycarpa Short & Peter—Infrequent. Moist lowland prairies and marshes. E.

Oenothera biennis L.—Frequent. Sandy roadsides and railroads. Thr.

Oenothera laciniata Hill—Rare. Slope near pond. LINN: sec. 27 Jackson twp., 1954, Thorne, Cooperrider *et al.* #14115, IA.

Oenothera parviflora L.—Rare. Marshes and alluvial terraces. BENTON: 2. FLOYD: 4. TAMA: 2.

Oenothera perennis L.—Rare. Moist prairie. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1958, Thorne #19644, IA. LINN: T-83N, R-7W, sec. 10, 1951, Drexler, IA.

Oenothera rhombipetala Nutt.—Frequent. Open, sandy soil. SE.

Oenothera serrulata Nutt.—Rare. Sandy prairies and roadsides. CERRO GORDO: n. of Buffalo Slough, Mason City, 1921, Shimek, IA. JOHNSON: 2½ miles n. of Oxford, 1962, Hartsaw #126, IA. WINNESHIEK: between Conover and Ridgeway, 1927, Shimek, IA.

Oenothera strigosa (Rydb.) Mack. & Bush—Frequent. Prairie remnants and open alluvial woods. Thr.

Orobanchaceae

Orobanche uniflora L.—Rare. Moist woods. LINN: Cedar Rapids, 1910, Berry, IA.

Oxalidaceae

Oxalis dillenii Jacq. (*Oxalis stricta* L. misapplied.)—Infrequent. Sandy fields and prairies. Thr.

Oxalis stricta L. (*O. europoea* Jord. misapplied.)—Common. Moist, open places. Thr.

Oxalis violacea L.—Frequent. Upland prairies, often sandy. Thr.

Papaveraceae

°*Chelidonium majus* L.—Rare. Woods. IOWA: n. of Middle Amana, 1950, Easterly #185, IA.

Corydalis micrantha (Engelm.) Gray—Infrequent. Moist, sandy soil. S & W.

Dicentra canadensis (Goldie) Walp.—Rare. Wooded slopes, bluffs and ravines. BLACK HAWK: Cedar Falls, 1897, Newton, ISTC. FAYETTE: no location, 1894, Fitzpatrick, IA. HARDIN: 2, 3. LINN: 1.

Dicentra cucullaria (L.) Bernh.—Frequent. Wooded slopes and ravines. Thr.

Sanguinaria canadensis L.–Common. Upland woods. Thr.

Phrymaceae

Phryma leptostachya L.–Common. Moist woods. Thr.

Phytolaccaceae

°*Phytolacca americana* L.–Rare. Open, disturbed field. JOHNSON: Hanging Rock Ridge, sec. 28 Monroe twp., 1961, Huang and Thorne #2658, IA.

Plantaginaceae

Plantago aristata Michx.–Rare. Dry, open places. JOHNSON: n. of Coufals, 1920, Shimek, IA; along Cedar River, sec. 11 Cedar twp., 1955, Thorne #17402, IA; Lake Macbride State Park, 1956, Pfeifer, IA.

°*Plantago lanceolata* L.–Rare. Moist, disturbed areas. JOHNSON: sec. 35 Cedar twp., 1955, Thorne #17363, IA. LINN: Cedar Rapids, 1913, Berry, IA.

°*Plantago major* L.–Probably common. Disturbed habitats and waste places. Thr.

Plantago purshii R. & S. (*P. patagonica* Jacq.)–Rare. Sandy soil. BLACK HAWK: 2. BUCHANAN: 7. DELAWARE: 9. JOHNSON: along Cedar River, sec. 11 Cedar twp., 1955, Thorne #17403, IA.

Plantago rugelii Dene.–Common. Weed of disturbed clearings and waste ground. Thr.

Plantago virginica L.–Rare. Edge of upland woods. LINN: 3.

Platanaceae

Platanus occidentalis L.–Rare. Alluvial woods and streambanks. BUCHANAN: near Lamont, 1923, Turner, ISC. BUTLER: 1. DELAWARE: no location, 1897, Cameron, IA. IOWA: along Iowa River s. of Amana, 1950, Easterly #871, IA. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA. LINN: Palisades-Kepler State Park, 1923, Pammel, ISC.

Polemoniaceae

°*Collomia linearis* Nutt.–Rare. Along railroads. BLACK HAWK: along railroad, Washburn, 1921, Shimek, IA. JOHNSON: along railroad, T-81N, R-7W, sec. 21, 1961, Marsh, IA. LINN: along railroad, T-89N, R-7W, sec. 17, 1951, Dell, IA.

Phlox bifida Beck–Rare. Dry, sandy soil. BENTON: 5. BLACK HAWK: along Hwy. #20 n. of Waterloo, 1929, Shimek, IA; alluvial

flat n. of Cedar Falls, 1933, Shimek, IA. LINN: along Big Creek, Linn twp., 1908, Berry, IA; no location, 1948, Pattee, IA.

Phlox divaricata L.—Frequent. Moist woods. Thr.

Phlox maculata L.—Frequent. Low, moist roadsides and prairie swales. Thr.

°*Phlox paniculata* L.—Rare escape from cultivation. Dry hillside. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

Phlox pilosa L.—Common. Prairie remnants. Thr.

Polemonium reptans L.—Common. Moist woods. Thr.

Polygalaceae

Polygala cruciata L.—Rare. Bog in woods. LINN: Cedar Rapids, 1913, Berry, IA.

Polygala incarnata L.—Rare. Roadside. BLACK HAWK: Roadside, Jesup, 1920, Stoddard, ISTC.

Polygala sanguinea L.—Frequent. Prairie remnants. Thr.

Polygala senega L.—Frequent. Dry, often rocky, prairie remnants. Thr.

Polygala verticillata L.—Infrequent. Remnant prairies. Thr.

Polygonaceae

°*Fagopyrum esculentum* Moench. (*F. sagittatum* Gilib.)—Rare. Weed along railroads. BENTON: Mt. Auburn, 1921, Shimek, IA. FAYETTE: Fayette, 1897, Fellows, IA. FLOYD: Nora Jct., 1920, Shimek, IA. LINN: Cedar Lake, Cedar Rapids, 1928, Shimek, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

°*Polygonum achoreum* Blake (possibly a form of *P. erectum* L.)—Rare. Prairie remnant along railroad. JOHNSON: 2½ miles n.w. of North Liberty, 1956, Thorne #18348, IA.

Polygonum amphibium L.—Rare. Margins of ponds and marshes. BLACK HAWK: pond, no location, 1929, Burk #786, ISTC. CERRO GORDO: n.e. of Mason City, 1928, Shimek, IA. WINNESHIEK: 1.

°*Polygonum aviculare* L.—Common. Weed along roadsides, RR ballast and disturbed ground. Thr.

Polygonum coccineum Muhl.—Frequent. Marshes. Thr.

°*Polygonum convolvulus* L.—Common. Weed of roadsides, alluvial woods and waste places. Thr.

Polygonum erectum L.—Probably common. Weed of roadsides, parking lots and disturbed ground. Thr.

Polygonum hydropiper L.—Frequent. Marshes, moist prairies and wet draws. Thr.

Polygonum lapathifolium L.—Frequent. Wet, open habitats. Thr.

°*Polygonum orientale* L.—Rare. Waste places. LINN: riverbank, Cedar Rapids, 1908, Berry, IA.

Polygonum pennsylvanicum L.—Common. Fields, marshes, ponds and wet, open habitats. Thr.

°*Polygonum persicaria* L.—Rare. Wet, open places. BREMER: 8. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1922, Shimek, IA. DELAWARE: 6. HOWARD: 3, 5. LINN: 6.

Polygonum punctatum Ell.—Common. Lakeshores, marshes and other wet habitats. Thr.

Polygonum ramosissimum Michx.—Infrequent. Prairie swales, roadsides and marshes. S Cent.

Polygonum sagittatum L.—Frequent. Open, marshy ground. Thr.

Polygonum scandens L. (incl. *P. dumetorum* L. and *P. cristatum* Engelm. & Gray)—Infrequent. Fences, wooded bluffs and alluvial woods. S½.

Polygonum tenue Michx.—Rare. Sandy field. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13658, IA.

Polygonum virginianum L.—Frequent. Moist woods. S.

°*Rumex acetosella* L.—Common. Sandy soil. Thr.

Rumex altissimus Wood—Common. Prairie remnants and open alluvial woods. Thr.

°*Rumex crispus* L.—Common. Open, moist habitats, often disturbed. Thr.

°*Rumex maritimus* L.—Rare. Marsh. IOWA: n. of Homestead, 1925, Shimek, IA.

Rumex mexicanus Meissn.—Rare. Open, moist places. FLOYD: Nora Jct., 1895, Shimek, IA.

°*Rumex obtusifolius* L.—Rare. Sandy marsh. BLACK HAWK: 8.

Rumex orbiculatus Gray—Rare. Marshes and bogs. BLACK HAWK: 8. BREMER: 8. CHICKASAW: 2. JOHNSON: sec. 27 Cedar twp., 1955, Thorne #15923, IA.

Rumex patientia L.—Rare. R.R. right-of-way. BLACK HAWK: 1929, Burk #323, ISTC.

Rumex verticillatus L.—Rare. Cedar River pond. BLACK HAWK: no location, 1937, Grant #8115, ISTC.

Portulacaceae

Claytonia virginica L.—Frequent. Moist woods. Thr.

°*Portulaca oleracea* L.—Probably frequent. Sandy fields and disturbed areas. Thr.

Primulaceae

Androsace occidentalis Pursh—Infrequent. Moist, sandy, generally alluvial, soil. S & W.

Dodecatheon meadia L.—Common. Upland prairie remnants. E ½.

Lysimachia ciliata L.—Common. Streambanks and moist, lowland woods. Thr.

Lysimachia hybrida Michx.—Frequent. Marshy ground. Thr.

°*Lysimachia nummularia* L.—Frequent. Streambanks and sandy alluvial woods. S ½.

Lysimachia quadriflora Sims—Frequent. Prairie swales and low, moist ground. Thr.

Lysimachia terrestris (L.) BSP.—Infrequent. Marshes and low, moist prairies. SE.

Lysimachia thyrsiflora L.—Rare. Marshes. CERRO GORDO: Buffalo Slough, Mason City, 1932, Shimek, IA. JOHNSON: Madison twp., 1952, Thorne #10887, IA. LINN: Cedar Rapids, 1896, Shimek, IA.

Ranunculaceae

Actaea pachypoda Ell. (*A. alba* (L.) Mill.)—Infrequent. Upland woods and slopes. S.

Actaea rubra (Ait.) Willd.—Frequent. Upland woods and slopes. Thr.

Anemone canadensis L.—Common. Moist roadsides, marshes and margins of woods. Thr.

Anemone caroliniana Walt.—Rare. Dry, sandy prairies. BLACK HAWK: bank of Cedar River, 1939, Grant #8390, ISTC. CERRO GORDO: bluffs along Buffalo Slough, Mason City, 1917, Shimek, ISC.

Anemone cylindrica Gray—Common. Prairie remnants. Thr.

Anemone patens L. (*A. ludoviciana* Nutt.)—Infrequent. Dry openings on wooded bluffs, limestone knolls and upland prairies.

Anemone quinquefolia L.—Frequent. Wooded uplands and slopes. Thr.

Anemone virginiana L.—Common. Generally distributed in marshes, woods and prairies. Thr.

Aquilegia canadensis L.—Common. Wooded bluffs and slopes. Thr.

Caltha palustris L.—Frequent. Open bogs, marshes and moist prairies. Thr.

Clematis pitcheri T. & G.—Infrequent. Openings in moist woods. S ½.

Clematis virginiana L.—Frequent. Disturbed, open alluvial woods. Thr.

Delphinium virescens Nutt.—Frequent. Rather dry upland prairie. Thr.

Hepatica acutiloba DC.—Common. Moist, wooded slopes and ravines. Thr.

Isopyrum biternatum (Raf.) T. & G.—Frequent. Wooded lower slopes and alluvial flats. Thr.

Myosurus minimus L.—Rare. Low, sandy soil. BENTON: 4. BUCHANAN: 4. JONES: sec. 18 Oxford twp., 1949, Brown #636, IA. LINN: along river, T-83N, R-7W, sec. 17, 1946, Drexler, IA.

Ranunculus abortivus L.—Common. Woods. Thr.

Ranunculus aquatilis L. (incl. *R. trichophyllus* Chaix)—Rare. Otter Creek. LINN: sec. 6 Monroe twp., no date, Amsbury and Eikleberry, IA.

Ranunculus fascicularis Muhl.—Frequent. Usually sandy prairie remnants. Thr.

Ranunculus flabellaris Raf.—Rare. Marshes and ponds. IOWA: pond n.w. of Homestead, 1923, Shimek, IA. LINN: 2; Cedar Rapids, 1909, Berry, IA.

Ranunculus longirostris Godr. (*R. circinatus* Sibth. misapplied)—Rare. Streams. DELAWARE: Backbone State Park, 1927, Shimek, IA. LINN: Indian Creek, Cedar Rapids, no date, Berry, IA; Otter Creek, T-84N, R-7W, sec. 6, 1954, Drexler #5043, IA.

Ranunculus pensylvanicus L. f.—Infrequent. Marshes and margins of lakes. Thr.

Ranunculus recurvatus Poir.—Rare. Moist, wooded ravines. FAYETTE: n. of West Union, 1921, Shimek, IA. JOHNSON: 1 mile n. of Coufals, sec. 16 Jefferson twp., 1952, Thorne #10577, IA. LINN: 1.

Ranunculus rhomboideus Goldie—Rare. Dry, open soil. BLACK HAWK: Near I.S.N.S. (now University of N. Iowa), 1885, ISTC.

Ranunculus sceleratus L.—Rare. Edges of marshes, sloughs and ponds. IOWA: north of Homestead, 1903, Shimek, IA. JOHNSON: slough, Lake Macbride State Park, 1955, B.C.G., IA. LINN: 4. WINNESHIEK: 1.

Ranunculus septentrionalis Poir.—Common. Moist, low woods. Thr.

Thalictrum dasycarpum Fisch. and Lall.—Common. Upland woods and slopes and moist prairie remnants. Thr.

Thalictrum dioicum L.—Infrequent. Wooded bluffs and uplands. N.

Thalictrum thalictroides (L.) Eames and Boivin (*Anemonella thalictroides* (L.) Spach)—Frequent.

Rhamnaceae

Ceanothus americanus L.—Common. Upland prairie remnants. Thr.

Ceanothus ovatus Desf.—Rare. Dry hillsides. GRUNDY: no location, 1895, Reppert, IA.

°*Rhamnus cathartica* L.—Frequent. Open woods. N & W.

Rhamnus lanceolata Pursh—Rare. Moist woods. IOWA: Amana Woods s. of Amana, 1950, Easterly #105, IA. JOHNSON: near Turkey Creek, sec. 23 Newport twp., 1952, Thorne #10499, IA.

Rosaceae

Agrimonia gryposepala Wallr.—Common. Wooded slopes and uplands. Thr.

Agrimonia parviflora Ait.—Rare. Marshy places in seepage slopes. JOHNSON: sec. 35 Cedar twp., 1955, Thorne #15843, IA.

Agrimonia pubescens Wallr.—Infrequent. Open upland woods. Thr.

Amelanchier arborea (Michx. f.) Fern.—Infrequent. Wooded, rocky bluffs. Peri.

Amelanchier laevis Wieg.—Rare. Prairie opening on wooded, rocky bluff. DELAWARE: 10.

Amelanchier sanguinea (Pursh) DC.—Rare. Wooded uplands and bluffs. CERRO GORDO: Mason City, 1896, Shimek, IA. DELAWARE: 1; Backbone State Park, 1951, Thorne #10036, IA. WINNESHIEK: along Upper Iowa River, Kendalville, sec. 33 Fremont twp., 1952, Thorne & Davidson #11092, IA.

Amelanchier spicata (Lam.) K. Koch—Rare. Dry, sandy prairie and rocky bluffs. BENTON: 5. CERRO GORDO: s.w. side of Buffalo Slough, Mason City, 1920, Shimek, IA. LINN: bluff above Cedar River, Palisades-Kepler Park, 1952, Thorne #10480, IA.

Crataegus calpodendron (Ehrh.) Medic.—Infrequent. Dry prairie openings in upland woods. Thr.

Crataegus coccinea L.—Rare. Moist, open alluvial and upland woods. HARDIN: along Iowa River, sec. 5 Eldora twp., 1950, Thorne #9609, IA. LINN: 1.

Crataegus crus-galli L.—Rare. Open alluvial woods and pastures. JOHNSON: along Turkey Creek, sec. 23 Newport twp., 1953, Thorne & Fay #12265, IA. JOHNSON: field, Lake Macbride State Park, 1956, Pfeifer, IA.

Crataegus margaretta Ashe—Frequent. Open alluvial woods and pastures. S ½.

Crataegus mollis (T.& G.) Scheele—Common. Sandy alluvial woods and prairie openings. Thr.

Crataegus punctata Jacq.—Frequent. Open upland woods. Thr.

Crataegus succulenta Link. (perhaps not distinct from *C. calpodendron*)—Rare. Wooded, rocky bluffs. DELAWARE: 10. HARDIN: 3.

Fragaria vesca L. (incl. *F. americana* (Porter) Britt.)—Frequent. Wooded, calcareous slopes. Thr.

Fragaria virginiana Duch.—Common. Open woods and moist prairie remnants. Thr.

Geum aleppicum Jacq.—Rare. Moist prairies and sloughs. BREMER: 8. CERRO GORDO: Mason City, 1921, Shimek, IA. DELAWARE: 6.

Geum canadense Jacq.—Common. Open, moist woods and disturbed areas. Thr.

Geum laciniatum Murr.—Frequent. Marshes, lakeshores and wet, disturbed places. Thr.

Geum triflorum Pursh—Infrequent. Prairie remnants. N ½.

Physocarpus opulifolius (L.) Maxim.—Frequent. Dry, rocky or sandy soil. Thr.

Potentilla anserina L.—Rare. Meadow. LINN: Cedar Rapids, 1913, Berry, IA.

°*Potentilla argentea* L.—Rare. Sandy, alluvial prairie. DELAWARE: 9.

Potentilla arguta Pursh—Frequent. Prairie remnants. Thr.

Potentilla norvegica L. (*P. monspeliensis* L.)—Common. Open alluvial woods and disturbed prairie remnants. Thr.

Potentilla palustris (L.) Scop.—Rare. Marshy ground. CERRO GORDO: swamp e. of Mason City, 1926, Shimek, IA. LINN: Cedar Rapids, 1912, Berry, IA.

°*Potentilla recta* L.—Infrequent. Weed in roadsides, prairie remnants and disturbed soil. S 2/3.

Potentilla rivalis Nutt. (incl. *P. millegrana* Engelm. & *P. pentandra* Engelm.)—Rare. Lake margins and sandy marshes. BLACK HAWK: 8. JOHNSON: Swan Lake, 1931, Shimek, IA.

Potentilla simplex Michx.—Common. Moist prairies, marshes and open woods. Thr.

Prunus americana Marsh.—Common. Sandy roadsides and alluvial terraces. Thr.

Prunus pensylvanica L. f.—Rare. Open upland woods. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, IA. HARDIN: 1. MITCHELL: grove near Hustad, 1929, Shimek, IA. WINNESHIEK: Kendalville, 1927, Shimek, IA.

Prunus serotina Ehrh.—Common. Woods. Thr.

Prunus virginiana L.—Common. Open woods and thickets. Thr.

Pyrus ioensis (Wood) Bailey (*Malus ioensis* (Wood) Britt.)—Common. Open alluvial woods and prairie remnants. Thr.

°*Pyrus malus* L.—Rare. Wooded alluvial flat. DELAWARE: 8.

Rosa blanda Ait.—Common. Prairie remnants. Thr.

Rosa carolina L.—Common. Prairie remnants. Thr.

°*Rosa multiflora* Thunb.—Rare. Wooded ravine slope. JOHNSON: ravine, Lake Macbride State Park, 1955, Thorne, #15871, IA.

Rosa suffulta Greene (*R. arkansana* Porter var. *suffulta* (Greene) Cockerell)—Frequent. Prairie remnants. Thr.

Rosa carolina L. X *R. suffulta* Greene (Putative hybrid)—Rare. Prairie remnant. CERRO GORDO: Hackberry Grove, sec. 35 Portland twp., 1896, Shimek, IA.

Rosa woodsii Lindl.—Rare. Prairie remnants. CERRO GORDO: Buffalo Slough, Mason City, 1930, Shimek, IA. HOWARD: sec. 11 Jamestown twp., 1958, Thorne #19634, IA. IOWA: s. of Amana, 1920, Shimek, IA. JOHNSON: RR 3½ miles n.w. of North Liberty, 1956, Thorne #18356, IA.

Rubus allegheniensis Porter—Common. Disturbed, open woods and prairies. Thr.

Rubus flagellaris L.—Rare. Open, marshy ground. BREMER: 5. BUCHANAN: 13. IOWA: woods s. of Amana, 1950, Easterly #659, IA. JOHNSON: roadside, sec. 12 Cedar twp., 1953, Thorne #13651, IA.

Rubus occidentalis L.—Common. Disturbed, open woods. Thr.

Rubus strigosus Michx. (*R. idaeus* L. var. *strigosus* (Michx.) Maxim.)—Rare. Bluffs and open upland woods. DELAWARE: no location, 1897, Cameron, IA. FLOYD: 3. HOWARD: 8. LINN: along Cedar River, s. of Linn Jct. (west of Cedar Rapids), 1913, Berry, IA.

[12] *Spiraea alba* DuRoi (*S. salicifolia* L. misapplied)—Common. Moist, low prairies and marshy ground. Thr.

Rubiaceae

Cephalanthus occidentalis L.—Infrequent. Marshes, lakeshores and moist alluvial habitats. S ½.

Galium aparine L.—Common. Moist woods. Thr.

Galium asprellum Michx.—Rare. Sandy alluvial woods. DELAWARE: n: end of Backbone State Park, 1923, Shimek, IA.

Galium boreale L.—Common. Prairie remnants. Thr.

Galium circaezans Michx.—Rare. Woods. IOWA: s. of Amana, 1950, Easterly #480, IA. LINN: Cedar Rapids, 1908, Berry, IA.

Galium concinnum T.& G.—Common. Upland woods. Thr.

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[12] A number of the specimens of *S. alba* in the SUI herbarium show a certain amount of introgression with *S. latifolia* according to the annotations by Miss Agnes R. Kugel in 1958. However, since none of these specimens has been determined as clearly *S. latifolia*, all of them are included under *S. alba*.

Galium labradoricum (Wieg.) Wieg.–Rare. Marsh. CERRO GORDO: Mason City, 1896, Shimek, IA.

Galium obtusum Bigel.–Common. Moist remnant prairies. Thr.

Galium tinctorium L. (*G. trifidum* L. var. *tinctorium* (L.) T.&G.)–Infrequent. Open, marshy habitats. Thr.

Galium trifidum L.–Rare. Marsh. WINNESHIEK: 1.

Galium triflorum Michx.–Common. Open woods. Thr.

Houstonia minima Beck–Infrequent. Sandy or rocky, chiefly lowland, prairies. S ½.

Rutaceae

Xanthoxylum americanum Mill.–Common. Open woods. Thr.

Salicaceae

Populus alba L.–Rare. Escape from cultivation in fencerows and waste places. FAYETTE: 1. JOHNSON: hilltop, Lake Macbride State Park, 1956, Pfeifer, IA; along road, sec. 31 Cedar twp., 1958, Spence #37, IA.

Populus balsamifera L.–Rare. Moist woods. HOWARD: sec. 23 New Oregon twp., 1958, Spence & Thorne #173, IA. MITCHELL: sec. 28 Jenkins twp., 1958, Spence & Thorne #161, IA.

Populus deltoides Marsh.–Common. Moist habitats, chiefly alluvial flats. Thr.

Populus grandidentata Michx.–Common. Moist, wooded slopes. Thr.

Populus tremuloides Michx.–Common. Open woods, moist prairies and waste places. Thr.

Salix amygdaloides Anderss.–Frequent. Marshes and alluvial flats. Thr.

°*Salix babylonica* L.–Rare. Escape from cultivation in margin of sandy marsh. BLACK HAWK: 8.

Salix bebbiana Sarg.–Infrequent. Marshy ground and moist prairies. Thr.

Salix candida Fluegge–Rare. Marshes and bogs. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1920, Shimek, IA.

Salix discolor Muhl.–Common. Streambanks and moist prairie swales. Thr.

°*Salix fragilis* L.–Infrequent. Lakeshores, marshes and moist habitats. Thr.

Salix humilis Marsh.–Common. Prairie remnants. Thr.

Salix interior Rowlee–Common. Streambanks and wet, open places. Thr.

Salix lucida Muhl.–Rare. Marshes and moist, low ground. CERRO

GORDO: swamp, Buffalo Slough, Mason City, 1920, Shimek, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Salix nigra Marsh–Common. Streambanks, lakeshores and alluvial woods. Thr.

Salix pedicellaris Pursh.–Rare. Marsh. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1922, Shimek, IA.

Salix petiolaris Sm. (*S. gracilis* Anderss.)–Common. Moist prairie remnants. Thr.

Salix rigida Muhl. (*S. cordata* Michx. misapplied)–Common. Wet, open habitats, often sandy. Thr.

Santalaceae

Comandra umbellata (L.) Nutt. (incl. *C. richardsiana* Fern.)–Common. Prairie remnants. Thr.

Saxifragaceae

Heuchera richardsonii R. Br.–Common. Wooded limestone bluffs and upland prairies. Thr.

Mitella diphylla L.–Frequent. Wooded, rocky bluffs and slopes. Thr.

Parnassia glauca Raf.–Rare. Marshes and hillside springs. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1924, Shimek, IA. FAYETTE: Fayette, ca. 1897, Fellows, IA. LINN: woods near Cedar Rapids, 1912, Berry, IA.

Penthorum sedoides L.–Frequent. Margins of ponds, alluvial woods and prairie draws. Thr.

Ribes americanum Mill.–Frequent. Marshes, lakeshores and moist, open woods. Thr.

Ribes cynosbati L.–Frequent. Wooded, rocky bluffs and ravines. Peri.

Ribes missouriense Nutt.–Common. Open woods. Thr.

°*Ribes odoratum* Wendl.–Rare. Escape from cultivation to roadsides. JOHNSON: Lake Macbride State Park, 1956, Walker & Hartley #146, IA. LINN: near Coggon Bog, 1 mile n. of Central City, 1956, Rollins #186, IA.

°*Ribes sativum* Syme–Rare escape from cultivation. Wooded bluffs. CERRO GORDO: near Buffalo Slough, Mason City, 1920, Shimek, IA.

Saxifraga pensylvanica L.–Frequent. Moist prairie swales. Thr.

Sullivantia renifolia Rosend.–Rare. Moist, shaded limestone bluff. LINN: 1.

Scrophulariaceae

Bacopa rotundifolia (Michx.) Wettst.–Rare. Muddy margin of pond. LINN: T-83N, R-7W, sec. 2, 1953, Drexler #4936, IA.

Castilleja coccinea (L.) Spreng.—Frequent. Moist prairie remnants and open woods. Thr.

Castilleja sessiliflora Pursh—Rare. Prairie openings on bluffs. CERRO GORDO: bluffs along Buffalo Slough, Mason City, 1917, Shimek, IA. DELAWARE: woods, Hopkinton, 1880, Macbride, IA; RR e. of Earlville, 1913, Shimek, IA. HARDIN: Eldora, 1883, Shimek, IA. WINNESHIEK: ridge s.w. of Kendalville, 1927, Shimek, IA.

°*Chaenorrhinum minus* (L.) Lange—Rare. Marshes, alluvial woods and upland prairie. BUCHANAN: 2. JOHNSON: RR, T-81N, R-7W, sec. 21, 1961, Marsh, IA. LINN: RR, T-83N, R-7W, sec. 17, 1951, Darrow, IA; along Cedar River, above dam at Cedar Rapids, 1923, Shimek, IA.

Chelone glabra L.—Rare. Bogs and streambanks. CERRO GORDO: swamp n. of Buffalo Slough, Mason City, 1927, Shimek, IA. DELAWARE: no location, 1895, Macbride, IA. IOWA: Amana woods, 1950, Easterly #1106, IA. JOHNSON: bog, 4.5 miles n.w. of Iowa City, 1931, Shimek, IA. MITCHELL: Little Cedar River, Staceyville, 1926, Shimek, IA.

Dasistoma macrophylla (Nutt.) Raf. (*Seymeria macrophylla* Nutt.)—Rare. Dry, wooded calcareous slopes and bluffs. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA; Turkey Creek, 3 miles n. of Iowa City, sec. 23 Newport twp., 1956, Thorne #18403, IA.

Gerardia aspera Dougl.—Rare. Dry prairie remnants. CERRO GORDO: bluffs above Buffalo Slough, 1918, Shimek, IA. FAYETTE: Fayette, 1897, Fellows, IA. WINNESHIEK: s.w. of Kendalville, 1926, Shimek, IA.

Gerardia auriculata Michx.—Rare. Prairie. BLACK HAWK: T-90N, R-12W, sec. 19, 1949, Grant #11301, ISTC.

Gerardia purpurea L. (incl. *G. paupercula* (Gray) Britt.)—Infrequent. Moist prairies and marshy ground. E ½.

Gerardia tenuifolia Vahl—Infrequent. Moist prairies and marshy ground. Thr.

Gratiola neglecta Torr.—Infrequent. Streambanks and moist prairie remnants. E ½.

Linaria canadensis (L.) Dum.—Rare. Sandy soil. JOHNSON: sec. 12 Cedar twp., 1955, Thorne #15853, IA. LINN: T-83N, R-8W, sec. 1, 1959, Drexler #119-59, IA.

°*Linaria vulgaris* Hill—Infrequent. Roadside weeds. Thr.

Lindernia anagallidea (Michx.) Pennell—Rare. Marshes. IOWA: n. of Homestead, 1924, Shimek, IA. JOHNSON: marsh, sec. 17 Madison twp., 1952, Thorne #10892, IA.

Lindernia dubia (L.) Pennell—Rare. Alluvial bottoms. BREMER:

along Cedar River, 1934, Shimek, IA. CHICKASAW: Fredericksburg, no date, Howe, IA. IOWA: near Dutch Lake, Amana Woods, sec. 2 Iowa twp. and sec. 35 Lenox twp., 1955, Thorne #17491, IA.

Mimulus glabratus HBK.—Rare. Marion Springs. LINN: T-84N, R-7W, sec. 35, 1955, Drexler #5040, IA.

Mimulus ringens L.—Common. Marshes, muddy lakeshores, and moist alluvial woods. Thr.

Pedicularis canadensis L.—Frequent. Moist prairie remnants and marshy ground. Thr.

Pedicularis lanceolata Michx.—Frequent. Marshes, sloughs and moist lowland prairies. Thr.

Penstemon digitalis Nutt.—Rare. Roadsides and sandy openings in woods. IOWA: n. of Homestead, 1907, Shimek, ISTC. LINN: woods at e. edge of Cedar Rapids, 1937, Shupp, ISTC. WINNESHIEK: along road between Conover and Ridgeway, 1927, Shimek, ISTC.

Penstemon grandiflorus Nutt.—Rare. Sandy open habitats. BUCHANAN: sandy prairie, Brandon, 1918, Shimek, IA. DELAWARE: sandy hill near Hopkinton, 1929, Cummings, IA.

Scrophularia lanceolata Pursh—Common. Sandy prairies and openings in woods. Thr.

Scrophularia marilandica L.—Common. Open woods. Thr.

°*Verbascum blattaria* L.—Rare. Dry, sandy fencerow. JOHNSON: T-80N, R-8W, sec. 3, 1962, Hartsaw #67, IA.

°*Verbascum phlomoides* L.—Apparently rare. Roadsides and fields. CHICKASAW: Fredericksburg, no date, Howe, IA.

°*Verbascum thapsus* L.—Common. Fields, roadsides and waste places. Thr.

°*Veronica anagallis-aquatica* L.—Rare. Sandy riverbank. WINNESHIEK: 1.

Veronica catenata Pennell (*V. comosa* Richter)—Rare. Marsh. CERRO GORDO: Swamp, Buffalo Slough, Mason City, 1916, Shimek, IA.

°*Veronica longifolia* L.—Rare. Meadow. LINN: Cedar Rapids, 1912, Berry, IA.

Veronica peregrina L. (incl. *V. xalapensis* H.B.K.)—Frequent. Sandy soil. Thr.

Veronicastrum virginicum (L.) Farw.—Common. Moist, open upland woods. Thr.

Wulfenia bullii (Eat.) Barnh. (*Synthyris bullii* (Eat.) Heller & *Besseya bullii* (Eat.) Rydb.)—Rare. Sandy alluvial flats. BLACK HAWK: n. of Cedar Falls, 1931, Shimek, IA. LINN: Chain Lakes, w. of Cedar Rapids, 1948, Pattee, IA.

Solanaceae

°*Datura stramonium* L.—Apparently rare. Roadsides, fields and disturbed ground. BENTON: 5; Vinton, 1910, Knupp, IA. DELAWARE: no location, 1897, Cameron, IA. JOHNSON: Williams Prairie, sec. 5 Oxford twp., 1961, Huang #2592, IA. TAMA: Toledo, 1895, Fellows, IA.

°*Lycium halimifolium* Mill.—Rare. Roadside thickets. Turkey Creek, sec. 14 Newport twp., 1961, Sorenson #594, IA.

Physalis heteroplylla Nees—Common. Sandy alluvial prairies, open upland woods and prairie remnants. Thr.

Physalis longifolia Nutt. (incl. *P. subglabrata* MacKenzie & Bush)—Infrequent. Alluvial woods and moist prairies. Along Cedar River.

Physalis virginiana Mill. (*P. lanceolata* Michx. misapplied)—Frequent. Prairie remnants and disturbed open woods. Thr.

°*Solanum carolinense* L.—Infrequent. Moist, open ground. S 2/3.

°*Solanum dulcamara* L.—Rare. Sandy, pastured ravine. DELAWARE: Sec. 16 Oneida twp., 1963, Rickey #1645, IA.

°*Solanum nigrum* L.—Common. Wooded limestone bluffs and moist open ground. Thr.

°*Solanum rostratum* Dunal—Rare. Open, sandy alluvial flats. LINN: Cedar Rapids, 1898, Shimek, IA.

Staphyleaceae

Staphylea trifolia L.—Frequent. Wooded bluffs, slopes and lowlands. Thr.

Thymelaeaceae

Dirca palustris L.—Rare. Wooded bluffs and ravines. JOHNSON: bluffs along Turkey Creek, sec. 14 Newport twp., 1962, Thorne #30302, IA. LINN: T-85N, R-5W, sec. 5, 1952, Drexler, IA; ravine, Palisades-Kepler State Park, 1955, Thorne #15740, IA.

Tiliaceae

Tilia americana L.—Common. Moist upland woods and protected bluffs and ravines. Thr.

Ulmaceae

Celtis occidentalis L.—Common. Woods. Thr.

Ulmus americana L.—Common. Chiefly alluvial flats. Thr.

°*Ulmus pumila* L.—Rare. Escape from cultivation to roadsides, alluvial woods and waste places. S½.

Ulmus rubra Muhl.—Common. Moist woods. Thr.

Ulmus thomasi Sarg.—Infrequent. Lowland woods. N 2/3.

Umbelliferae

Angelica atropurpurea L.—Rare. Marsh. CERRO GORDO: Mason City, 1896, Shimek, IA.

Chaerophyllum procumbens (L.) Crantz—Rare. Alluvial woods. BENTON: 4, 6. FLOYD: 5. LINN: no location, 1927, Lazell, ISTC. IOWA: along Iowa River 1 mile s. of Amana, 1950, Easterly #13, IA.

Cicuta bulbifera L.—Rare. Borders of marshes. BREMER: 1. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1927, Shimek, IA. LINN: in Cedar Lake, 1892, Cedar Rapids, Shimek, IA. WINNESHIEK: 1.

Cicuta maculata L.—Frequent. Marshes, sloughs and moist prairies. Thr.

°*Conium maculatum* L.—Rare. Wooded slopes and alluvial flats. LINN: 1.

Cryptotaenia canadensis (L.) DC.—Common. Moist woods. Thr.

°*Daucus carota* L.—Apparently rare. Roadsides and alluvial flats. BENTON: 10. BUCHANAN: 1; 6.5 miles n.e. of Winthrop, 1952, Reed, IA.

Eryngium yuccifolium Michx.—Infrequent. Prairie remnants. Thr.

Heracleum lanatum Michx. (*H. maximum* Bartr.)—Rare. Openings in moist woods. BLACK HAWK: 6. HOWARD: 3.

Osmorhiza claytoni (Michx.) C. B. Clarke—Common. Moist woods. Thr.

Osmorhiza longistylis (Torr.) DC.—Common. Moist woods. Thr.

Oxypolis rigidior (L.) Raf.—Infrequent. Moist prairie remnants. Thr.

°*Pastinaca sativa* L.—Common. Weed of roadsides, railroads, alluvial woods and waste places. Thr.

Polytaenia nuttallii DC.—Rare. Praries. BLACK HAWK: low prairie, no location, 1929, Burk #347, ISTC. FAYETTE: RR prairie 1 mile n. of Arlington, 1923, Shimek, IA. IOWA: s. of Dutch Lake, 1922, Shimek, IA. LINN: no location, 1948, Pattee, IA.

Sanicula canadensis L.—Common. Moist woods. Thr.

Sanicula gregaria Bickn.—Common. Moist woods. Thr.

Sanicula marilandica L.—Rare. Moist woods. CERRO GORDO: Hackberry Grove, sec. 35 Portland twp., 1896, Shimek, IA. DELAWARE: wooded bank n. of Earlville, 1913, Shimek, IA. FAYETTE: woods n. of West Union, 1921, Shimek, IA. IOWA: s. of Amana, 1950, Easterly #339, IA.

Sium suave Walt.—Rare. Sloughs and marshes. BLACK HAWK: 8. CERRO GORDO: swamp e. of Mason City, 1925, Shimek, IA. FLOYD: 4.

Taenidia integerrima (L.) Drude–Rare. Wooded, calcareous slopes and bluffs. BENTON: 4. HOWARD: 3, 7. JOHNSON: bluff, Turkey Creek, sec. 23 Newport twp., 1952, Thorne #10502, IA.

Thaspium barbinode (Michx.) Nutt.–Frequent. Open woods. S½.

Zizia aptera (Gray) Fern. (*Z. cordata* (Walt.) Koch misapplied)–Rare. Prairie remnants. BLACK HAWK: high prairie, no location, 1929, Burk #500, ISTC. CERRO GORDO: prairie e. of Mason City, 1920, Shimek, IA. DELAWARE: prairie s. of Delaware, 1923, Shimek, ISTC. HOWARD: 1. LINN: prairie, no location, 1948, Pattee, IA. WINNESHIEK: prairie ridge s.w. of Kendalville, 1927, Shimek, IA.

Zizia aurea (L.) Koch–Common. Moist woods, prairies and marshes. Thr.

Urticaceae

Boehmeria cylindrica (L.) Sw.–Probably infrequent. Alluvial woods and marshes. S½.

Laportea canadensis (L.) Wedd.–Common. Moist, usually alluvial, woods. Thr.

Parietaria pensylvanica Muhl.–Infrequent. Wooded, rocky bluffs and ledges. Peri.

Pilea fontana (Lunell) Rydb.–Rare. Moist lowland prairie. BREMER: 8.

Pilea pumila (L.) Gray–Common. Streambanks, marshes and moist lowland woods. Thr.

Urtica dioica L. (incl. *U. gracilis* Ait. & *U. procera* Muhl.)–Common. Moist alluvial woods and disturbed soil. Thr.

Valerianaceae

Valeriana ciliata T.&G. (*V. edulis* Nutt.)–Rare. Prairie. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17707, IA.

Verbenaceae

Lippia lanceolata Michx. (*Phyla lanceolata* (Michx.) Greene)–Infrequent. Marshes and alluvial woods. S2/3.

Verbena bracteata Lag. & Rodr.–Infrequent. Low, sandy roadsides and railroads. Thr.

Verbena hastata L.–Common. Marshes, moist prairies and open alluvial woods. Thr.

Verbena simplex Lehm.–Frequent. Sandy prairies and alluvial flats. Cedar River drainage.

Verbena stricta Vent.–Common. Sandy, open areas. Thr.

Verbena stricta X *V. simplex* Lehm.—Rare. Sandy alluvial flats along Cedar River. BLACK HAWK: along Hwy 20 bet. Waterloo and Cedar Falls, 1930, Shimek, IA. BLACK HAWK: Elk Run, 1921, Shimek, IA. JOHNSON: Cedar twp., 1929, Adams, IA; along river, sec. 11 Cedar twp., 1955, Thorne #17398, IA.

Verbena urticifolia L.—Common. Openings in woods. Thr.

Violaceae

[13] *Viola eriocarpa* Schw. (incl. *V. pubescens* Ait.) (*V. pensylvanica* Michx.)—Common. Moist woods. Thr.

Viola lanceolata L.—Rare. Moist, sandy soil at margins of ponds. BENTON: 5. JOHNSON: sec. 1 Cedar twp., 1955, Thorne #17423, IA.

Viola macloskeyi Lloyd subsp. *pallens* (Banks) M. S. Baker (incl. *V. pallens* (Banks) Brainerd)—Rare. Boggy soil. IOWA: woods n.e. of Homestead, 1924, Shimek, IA. LINN: boggy pasture, T-84N, R-8W, sec. 22, 1951, Drexler #5026, IA; bog Chain Lakes w. of Cedar Rapids, 1948, Pattee, IA.

Viola missouriensis Greene—Infrequent. Moist, often sandy, alluvial woods. Thr.

Viola nephrophylla Greene—Infrequent. Moist prairie remnants and marshes. Thr.

Viola papilionacea Pursh—Frequent. Rather open alluvial woods. S & E.

Viola pedata L.—Frequent. Prairie remnants. Thr.

Viola pedatifida G. Don—Frequent. Prairie remnants. Thr.

Viola rugulosa Greene (*V. canadensis* L. misapplied)—Rare. No habitat data. DELAWARE: Backbone State Park, 1933, Newbro, IA.

Viola sagittata Ait.—Frequent. Moist, sandy alluvial soil and upland prairies. E 1/3.

Viola sagittata Ait. X *V. pedatifida* G. Don—Rare. Railroad prairie. JOHNSON: 3 miles n.w. of North Liberty, 1955, Thorne #15887, IA.

Viola sororia Willd.—Common. Woods. Thr.

Vitaceae

Parthenocissus quinquefolia (L.) Planch.—Common. Woods. Thr.

Parthenocissus vitacea (Knerr) Hitchc. (*P. inserta* (Kerner) K. Fritsch.)—Common. Alluvial woods, railroads and roadsides. Thr.

Vitis riparia Michx.—Common. Open woods, fencerows and thickets. Thr.

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[13] This combination follows Thorne (1955).

Zygophyllaceae

°*Tribulus terrestris* L.—Rare. Flat along Cedar River. LINN: above dam, Cedar Rapids, 1933, Shimek, IA.

MONOCOTYLEDONS

Alismataceae

Alisma subcordatum Raf. (*A. plantago-aquatica* L. misapplied)—Common. Sloughs and margins of ponds and marshes. Thr.

Sagittaria cuneata Sheldon—Rare. Marshes and sloughs. BLACK HAWK: swamp, no location, 1929, Burk #654, ISTC. FLOYD: 4.

Sagittaria englemanniana J.G.Smith (incl. *S. brevirostra* Mack. & Bush)—Rare. Small ponds and muddy lakeshores. BLACK HAWK: 2. JOHNSON: pond, sec. 17 Madison twp., 1952, Thorne #10895, IA.

Sagittaria graminea Michx.—Rare. Marshes. BLACK HAWK: swamp, no location, 1929, Burk #381, ISTC. JOHNSON: marsh, sec. 17 Madison twp., 1952, Thorne #10897, IA.

Sagittaria latifolia Willd.—Common. Wet prairie swales, marshes and ponds. Thr.

Sagittaria rigida Pursh—Infrequent. Shallow water of marshes and ponds. Thr.

Amaryllidaceae

Hypoxis hirsuta (L.) Coville—Common. Low prairies and openings in woods. Thr.

Araceae

Acorus calamus L.—Infrequent. Marshes and borders of ponds. Thr.

Arisaema dracontium (L.) Schott—Rare. Low, moist woods. BREMER: 3. IOWA: woods n. of Homestead, 1930, Shimek, IA. JOHNSON: woods along Iowa River, Lake Macbride State Park, 1954, Thorne #14077, IA. LINN: Daniels Park, Cedar Rapids, 1913, Berry, IA; Mt. Vernon, 1894, Newton, IA.

Arisaema triphyllum (L.) Schott—Common. Open upland woods. Thr.

Symplocarpus foetidus (L.) Nutt.—Rare. Seepage areas in lowland woods and ravine bottoms. BENTON: 1. IOWA: ravine in woods n. of Middle Amana, 1950, Easterly #575, IA. LINN: no location, 1948, Pattee, IA.

Commelinaceae

°*Commelina communis* L.—Probably infrequent. Alluvial woods, streambanks and moist, disturbed areas. SE.

Tradescantia bracteata Small—Frequent. Sandy prairies and open alluvial woods. Thr.

Tradescantia ohiensis Raf.—Common. Sandy, open soil along railroads, roadsides and alluvial flats. S & E.

[14] Cyperaceae

Carex albursina Sheldon (*C. laxiflora* var. *latifolia* Boott)—Infrequent. Rocky, wooded bluffs and slopes. S-peri.

Carex annectens (Bickn.) Bickn. (incl. *C. brachyglossa* Mack.)—Infrequent. Moist, sandy prairies and marshes. S & E.

Carex atherodes Spreng.—Rare. Marshes and lake margins. BLACK HAWK: swamp, no location, 1929, Burk #368, ISTC. JOHNSON: Swan Lake, Madison twp., 1952, Thorne #10656, IA.

Carex bebbii Olney—Infrequent. Prairie swales and sandy marshes. Peri.

Carex bicknellii Britt.—Frequent. Upland prairies and moist swales. Thr.

Carex blanda Dew. (*C. laxiflora* Lam. var. *blanda* (Dew.) Boott)—Frequent. Moist woods. Thr.

Carex brevior (Dew.) Mack.—Frequent. Sandy to loamy prairie. Thr.

Carex buxbaumii Wahl.—Infrequent. Moist prairie. N & E.

Carex careyana Torr.—Rare. Rich talus. DELAWARE: Backbone State Park, 1939, Anderson #1613, IA.

Carex cephaloidea Dew.—Infrequent. Open upland woods. S½.

Carex cephalophora Muhl.—Frequent. Open woods and prairies. S 2/3.

Carex comosa Boott—Rare. Wet prairies. LINN: Cedar Rapids, without date, Hitchcock, IA.

Carex conjuncta Boott—Rare. Moist woods. HARDIN: along Iowa River, sec. 5 Eldora twp., 1950, Thorne #9613, IA. IOWA: bottom s. of Amana, 1950, Easterly #344, IA. LINN: 1.

Carex conoidea Schkuhr—Rare. Moist prairie swales and sandy seepage slopes. FAYETTE: 1. HOWARD: 1. JOHNSON: sec. 35 Cedar twp., 1955, Thorne & Hulbary #15800, IA. LINN: boggy RR prairie s.w. of Coggon, 1928, Shimek, IA.

Carex convoluta Mack.—Common. Upland woods. Thr.

Carex cristatella Britt.—Frequent. Wet prairies, sloughs and marshes. Thr.

Carex davisii Schw. & Torr.—Rare. Alluvial woods. BLACK HAWK: n. of Cedar Falls, 1932, Shimek, IA. IOWA: s. of Amana, 1950,

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[14] The treatment of the Cyperaceae is based to a large extent on Gilly (1946).

Easterly #210, IA. JOHNSON: woods along Iowa River, Lake Macbride State Park, 1954, Thorne #14079, IA; woods along Turkey Creek, Newport twp., 1906, Shimek, IA.

Carex diandra Schrank—Rare. Marsh. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1917, Shimek, IA.

Carex digitalis Willd. (incl. *C. laxiculmis* Schw.)—Rare. Moist woods. JOHNSON: ravine, Lake Macbride State Park, 1954, Thorne #14096, IA. LINN: 1.

Carex eburnea Boott—Rare. Dry, wooded ledges. DELAWARE: Backbone State Park, 1939, Anderson #1610, IA.

Carex festucacea Schkuhr—Rare. Sandy roadside. LINN: 4.

Carex gracillima Schw.—Rare. Wooded ravine slopes. JOHNSON: Lake Macbride State Park, 1954, Thorne #14102, IA; Turkey Creek, Newport twp., 1963, Sorensen #14980, IA.

Carex gravida Bailey—Frequent. Moist, sandy prairies and willow marshes. Thr.

Carex grayii Carey—Infrequent. Alluvial woods and margins of ponds. Along Cedar and Iowa Rivers.

Carex grisea Wahl. (*C. amphibola* Steud. var. *turgida* Fern.)—Infrequent. Moist lowland woods. Thr.

Carex haydenii Dew.—Infrequent. Low, moist prairie and marshes. E.

Carex hirtifolia Mack.—Rare. Moist, protected woods. BENTON: 4. HARDIN: 1. JOHNSON: ravine slope, Lake Macbride State Park, 1954, Thorne #14061, IA. LINN: woods, T-83N, R-7W, sec. 12, 1959, Drexler #5241, IA.

Carex hitchcockiana Dew.—Rare. Moist, wooded bluffs and talus slopes. HARDIN: 2, 3. LINN: bank of Cedar River, Palisades-Kepler State Park, sec. 14 Bertram twp., 1952, Thorne #10482, IA.

Carex hystricina Muhl.—Infrequent. Sandy prairie swales, sloughs and marshes. S & E.

Carex interior Bailey—Infrequent. Open, wet places. S & E.

Carex jamesii Schw.—Rare. Base of moist, wooded ravines. DELAWARE: Backbone State Park, 1933, Anderson, IA. HARDIN: 3. JOHNSON: woods, Lake Macbride State Park, 1954, Thorne #14072, IA. LINN: 1.

Carex lacustris Willd.—Rare. Swamps and margins of ponds. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1917, Shimek, IA. JOHNSON: sand hill ponds, sec. 12 Cedar twp., 1955, Thorne #15859, IA.

Carex laeviconica Dew.—Rare. Alluvial woods and edge of marshes. BENTON: 6. JOHNSON: Swan Lake, sec. 32 Madison twp., 1952, Thorne #10746, IA; marsh near Cedar River, sec. 11 Cedar twp.,

1955, Thorne #15908, IA; alluvial soil, Lake Macbride State Park, 1956, Pfeifer, IA.

Carex lanuginosa Michx.—Frequent. Moist, open places. Thr.

Carex leavenworthii Dew.—Rare. Upland woods and sandy alluvial flats. BLACK HAWK: flat along Cedar River, Elk Run, Poyner twp., 1921, Shimek, IA. CERRO GORDO: woods e. of Mason City, 1917, Shimek, IA. IOWA: alluvial prairie south of Amana, 1922, Shimek, IA. JOHNSON: sandy bank, sec. 13 Cedar twp., 1955, Thorne #15862, IA.

Carex lupulina Muhl.—Rare. Moist, sandy alluvial woods. BLACK HAWK: wet depression, no location, 1929, Burk #580, ISTC. BREMER: 2. CHICKASAW: Fredericksburg, no date, Howe, IA. HOWARD: 3. IOWA: alluvial woods s. of Amana, 1923. Shimek, IA. JOHNSON: pond, sec. 1 Cedar twp., 1955, Thorne & Davidson #17413, IA.

Carex meadii Dew.—Rare. Moist prairie swales. JOHNSON: Williams Prairie, sec. 5 Oxford twp., 1961, Thorne #30184, IA. LINN: RR bog s.w. of Coggon, 1929, Shimek, IA. WORTH: upland RR prairie, Union twp., 1932, Shimek, IA.

[15]*Carex molesta* Mack.—Infrequent. Wet, open places. E½.

Carex muhlenbergii Schkuhr—Rare. Dry sand. BLACK HAWK: sandy flat along Hwy 20 between Waterloo and Cedar Falls, 1930, Shimek, IA. JOHNSON: sec. 12 Cedar twp., 1955, Thorne #15856, IA.

Carex muskingumensis Schw.—Rare. Sloughs and moist alluvial woods. IOWA: s. of Amana, 1923, Shimek, IA. JOHNSON: slough, Lake Macbride State Park, 1955, B.C.G., IA.

Carex normalis Mack.—Frequent. Moist woods and prairies. E & S.

Carex oligocarpa Schkuhr—Apparently rare. Moist, wooded ravines and bluffs. BUCHANAN: 6. HARDIN: 2. JOHNSON: Whiskey Ridge, sec. 28 Monroe twp., 1961, Thorne #30169, IA; woods, Lake Macbride State Park, 1954, Thorne #14069, IA; bluff along Turkey Creek, sec. 23 Newport twp., 1953, Thorne #12269, IA.

Carex pedunculata Muhl.—Rare. Woods on shaded, rocky talus. HARDIN: 3; sec. 28 & 29, Clay twp., 1962, Thorne #30059, IA.

Carex pensylvanica Lam.—Common. Protected, wooded slopes. S½.

Carex praegracilis Boott—Rare. Moist prairie soil. MITCHELL: McIntire, 1918, Shimek, IA.

Carex prairea Dew.—Rare. Marsh. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1917, Shimek, IA.

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15 *C. molesta* is not easily distinguished from *C. brevior* and perhaps is a variety of it.

Carex projecta Mack.–Rare. Low places in prairie. BLACK HAWK: flat along Hwy 20 between Waterloo and Cedar Falls, 1930, Shimek, IA. CHICKASAW: e. of Lawler, 1919, Shimek, IA. DELAWARE: 6.

Carex rostrata Stokes–Rare. Wet prairie swales and marshes. BREMER: 8. CHICKASAW: 2.

Carex sartwellii Dew.–Rare. Moist prairies and marshes. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1920, Shimek, IA. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1958, Thorne #19638, IA. JOHNSON: sec. 5 Oxford twp., 1961, Thorne #30191, IA.

Carex scoparia Schkuhr–Common. Wet, open places. Thr.

Carex shortiana Dew.–Rare. Moist lowland woods and muddy lakeshores. JOHNSON: Turkey Creek, Newport twp., 1900, Shimek, IA; margin of lake, Lake Macbride State Park, 1956, Pfeifer #203, IA.

Carex sparganioides Muhl.–Infrequent. Moist upland woods and ravines. Peri.

Carex sprengelii Dew.–Frequent. Open woods and bluffs. Thr.

Carex stipata Muhl.–Infrequent. Moist prairies and lowland woods. S½.

Carex stricta Lam.–Infrequent. Moist prairies and seepage marshes. S½.

Carex suberecta (Olney) Britt.–Rare. Prairie sloughs and marshes. CERRO GORDO: bog, Buffalo Slough, Mason City, 1920, Shimek, IA. DELAWARE: 6. LINN: boggy RR prairie, s.w. of Coggon, 1928, Shimek, IA.

Carex tenera Dew.–Rare. Disturbed lowland woods. BREMER: 3.

Carex tetanica Schkuhr–Rare. Wet prairies and seepage marshes. FLOYD: 2. GRUNDY: 1. JOHNSON: sec. 35 Cedar twp., 1955, Thorne & Hulbary #15800A, IA.

Carex tribuloides Wahl.–Rare. Marshes and wet, sandy places. BLACK HAWK: 4. IOWA: bottom s. of Amana, 1950, Easterly #655, IA. JOHNSON: margin of Swan Lake, sec. 32 Madison twp., 1952, Thorne #10751A, IA. LINN: 6; s. edge of Cedar Lake, Cedar Rapids, 1928, Shimek, IA.

Carex trichocarpa Muhl.–Rare. Sandy bog. JOHNSON: sec. 27 Cedar twp., 1955, Thorne #15924, IA.

Carex typhina Michx.–Rare. Moist woods. CHICKASAW: Fredericksburg, no date, Howe, IA. IOWA: s. of Amana, 1950, Easterly #707, IA.

Carex vesicaria L.–Infrequent. Sandy margins of ponds and marshes. S & Cent.

Carex vulpinoidea Michx.—Common. Open, wet places. Thr.

Carex woodii Dew.—Rare. Wooded talus slope. DELAWARE: Backbone State Park, 1939, Anderson #1611, IA.

Cyperus aristatus Rottb. (*C. inflexus* Muhl.)—Rare. Moist roadside ditch. JOHNSON: sec. 1 Oxford twp., 1953, Thorne #13715, IA.

Cyperus erythrorhizos Muhl.—Rare. Margin of lakes. JOHNSON: Swan Lake, sec. 5 Madison twp., 1953, Thorne #13707, IA; Lake Macbride, Lake Macbride State Park, 1955, Thorne #17495, IA.

Cyperus esculentus L.—Infrequent. Open alluvial soil. Particularly along Cedar River.

Cyperus ferruginescens Boeckl. (incl. *C. odoratus* L.)—Rare. Sandy shores of lakes and ponds. BLACK HAWK: 7. IOWA: Amana Lake, 1946, Anderson, IA. JOHNSON: Lake Macbride State Park, 1955, Thorne #17495A, IA. LINN: Cedar Rapids, 1895, Shimek, IA.

Cyperus filiculmis Vahl.—Infrequent. Open, sandy soil. SE.

Cyperus rivularis Kunth—Rare. Moist, open depressions and margins of marshes. JOHNSON: roadside ditch, sec. 1 Oxford twp., 1953, Thorne #13715, IA; marsh, sec. 6 Madison twp., 1952, Thorne #10906, IA. WINNESHIEK: 1.

Cyperus schweinitzii Torr.—Infrequent. Open, sandy alluvial woods and sandy prairies. S½.

Cyperus strigosus L.—Frequent. Marshes, wet prairies and other moist, open habitats. Thr.

Dulichium arundinaceum (L.) Britt.—Rare. Shallow water of marshes. BENTON: 5. BREMER: 1. JOHNSON: marsh, sec. 17 Madison twp., 1952, Thorne #10901, IA. LINN: marsh 2.5 miles s. of Coggon, 1952, Thorne #10851, IA.

Eleocharis acicularis (L.) R.& S.—Rare. Margins of ponds and marshes. BLACK HAWK: 7. BREMER: 1. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1925, Shimek, IA. JOHNSON: Swan Lake, sec. 5 Madison twp., 1953, Thorne #13703, IA. LINN: pasture pond 2.5 miles s. of Coggon, 1953, Thorne #12289, IA.

Eleocharis calva Torr.—Rare. Sloughs, lakeshores and gravel pits. BLACK HAWK: 2. DELAWARE: 6. FAYETTE: 3. JOHNSON: lakeshore, Lake Macbride State Park, 1955, B.C.G., IA. LINN: Cedar Rapids, 1896, Shimek, IA.

Eleocharis compressa Sull.—Rare. Moist, low prairies. BUCHANAN: 7. HOWARD: prairie, sec. 29 & 30 Paris twp., 1956, Thorne #17656, IA. IOWA: alluvial prairie s. of Amana, 1924, Shimek, IA. JOHNSON: moist Williams Prairie, sec. 5 Oxford twp., 1961, Thorne #30178, IA; alluvial bottom, sec. 11 Cedar twp., 1955, Thorne #17384, IA.

Eleocharis engelmanni Steud.–Rare. Low, sandy prairie along RR. DELAWARE: 5.

Eleocharis obtusa (Willd.) Schultes–Infrequent. Marshes and moist, sandy prairie. E½.

Eleocharis olivacea Torr.–Rare. Margin of small lake. JOHNSON: Swan Lake, sec. 5 Madison twp., 1950, Thorne #10466, IA.

Eleocharis palustris (L.) R. & S. (incl. *E. macrostachya* Britt.)–Infrequent. Moist prairies and margins of ponds and lakes. Thr.

Eleocharis tenuis (Willd.) Schultes–Rare. Low, wet prairies and marshes. BLACK HAWK: high prairie, no location, 1929, Burk #316, ISTC. BREMER: 1, 8. JOHNSON: Williams Prairie, sec. 5 Oxford twp., 1961, Thorne #30172, IA; seepage slopes, sec. 35 Cedar twp., 1955, Thorne #15826A, IA. LINN: bog s.w. of Coggon, 1927, Shimek, IA.

Eleocharis wolfii Gray–Rare. Marshy places in seepage slopes. JOHNSON: sec. 36 Cedar twp., 1955, Thorne #15850, IA.

Eriophorum angustifolium Honckeny–Rare. Low, moist prairies and marshes. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1924, Shimek, IA. DELAWARE: RR prairie, Almoral, Oneida twp., 1913, Shimek, IA. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17683, IA. LINN: pasture marsh 2.5 miles s. of Coggon, 1953, Thorne #12288, IA.

Eriophorum gracile W.D.J.Koch–Rare. Marsh. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1917, Shimek, IA.

Fimbristylis autumnalis (L.) R.&S.–Rare. Dessicated margin of Swan Lake. JOHNSON: sec. 5 Madison twp., 1953, Thorne #13704, IA.

Hemicarpha micrantha (Vahl) Britt.–Rare. Dessicated margin of lakes. BLACK HAWK: Waterloo, 1893, Newton, ISTC. JOHNSON: sec. 5 Madison twp., 1953, Thorne #13705, IA.

Scirpus acutus Muhl.–Rare. Shallow ponds and moist ground. DELAWARE: low ground, Almoral, Oneida twp., 1913, Shimek, IA. JOHNSON: pond, sec. 1 Cedar twp., 1955, Thorne #17415, IA.

Scirpus atrovirens Willd.–Common. Moist, open habitats. Thr.

Scirpus cyperinus (L.) Kunth–Frequent. Shallow water in ditches, ponds and marshes. Thr.

Scirpus fluviatilis (Torr.) Gray–Rare. Shallow water of lakes. BLACK HAWK: swamp, no location, 1929, Burk #309, ISTC. JOHNSON: Swan Lake sec. 32 Madison twp., 1952, Thorne #10664, IA.

Scirpus heterochaetus Chase–Rare. Shallow water of Swan Lake. JOHNSON: sec. 5 Madison twp., 1952, Thorne #10743, IA.

Scirpus lineatus Michx.–Rare. Moist prairies. BENTON: low RR, Mt. Auburn, 1921, Shimek, IA. BLACK HAWK: low prairie, no loca-

tion, 1929 Burk #336, ISTC. BREMER: 8. BUCHANAN: 9. LINN: Cedar Rapids, no date, Hitchcock, IA.

Scirpus validus Vahl—Infrequent. Shallow standing water. Thr.

Scleria triglomerata Michx.—Rare. Prairie bogs and sandy alluvial flats. BLACK HAWK: Cedar River, Elk Run, Poyner twp., 1921, Shimek, IA. LINN: prairie bog s.w. of Coggon, 1927, Shimek, IA.

Dioscoreaceae

Dioscorea villosa L.—Common. Open upland woods. Thr.

[16] Gramineae

Agropyron repens (L.) Beauv.—Common. Open woods and prairies. Thr.

Agropyron smithii Rydb.—Infrequent. Sandy prairies and alluvial flats. Thr.

Agropyron trachycaulum (Link) Malte—Infrequent. Prairies and openings in woods. Thr.

°*Agrostis alba* L. (*A. stolonifera* L.)—Common. Railroads, roadsides and disturbed areas. Thr.

Agrostis hyemalis (Walt.) BSP.—Frequent. Sandy prairies and openings. S & E.

Agrostis perennans (Walt.) Tuckerm.—Infrequent. Open upland woods. Thr.

Agrostis scabra Willd.—Rare. Prairies. HOWARD: Hayden Prairie, sec. 33 Chester twp., 1956, Thorne #17676, IA. IOWA: Dutch Lake, 1920, Shimek, IA. MITCHELL: prairie, McIntire, 1918, Shimek, IA.

Alopecurus aequalis Sobol.—Rare. Alluvial woods. IOWA: n. of Homestead, 1923, Shimek, IA. TAMA: along Iowa River, w. of Tama, 1930, Shimek, IA.

Alopecurus carolinianus Walt.—Rare. Shallow marshes and margins of ponds. JOHNSON: sec. 15 Big Grove twp., 1½ miles n.w. of Solon, 1955, Thorne #15896, IA. LINN: pond 2.5 miles s. of Coggon, 1953, Thorne #12282, IA.

Andropogon gerardi Vitman (*A. furcatus* Muhl.)—Common. Upland prairie remnants. Thr.

Andropogon scoparius Michx.—Common. Upland prairie remnants. Thr.

Aristida basiramea Engelm.—Rare. Sandy alluvial flats and prairie

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[16] In addition to the general references listed in the explanation of the catalog, Fasset (1951), Pohl (1954), and Hitchcock (1950) were used in the identification of the grasses.

remnants. BUCHANAN: 13. HARDIN: prairie near Steamboat Rock, 1902, Shimek, IA. JOHNSON: roadside, sec. 12 Cedar twp., 1955, Thorne #17453, IA.

Aristida intermedia Scribn. & Ball–Rare. Sandy roadside ditch. JOHNSON: sec. 12 Oxford twp., 1953, Thorne & Hulbary #13716, IA.

Aristida oligantha Michx.–Rare. Dry prairie remnants. JOHNSON: RR 3.5 miles n.w. of North Liberty, 1956, Thorne #18353, IA: parking lot, Lake Macbride State Park, 1956, Pfeifer, IA. LINN: RR, Paralta, Linn twp., 1913, Shimek, IA.

°*Avena fatua* L.–Rare. BUCHANAN: Lamont, 1919, Pammel, ISC. BUTLER: Clarksville, 1918, Pammel, ISC.

°*Avena sativa* L.–Adventive. Roadsides, RR ballast and other waste places. Thr.

Bouteloua curtipendula (Michx.) Torr.–Frequent. Dry prairie remnants. Thr.

Bouteloua hirsuta Lag.–Rare. Sandy prairie. LINN: T-82N, R-5W, sec. 36, 1952, Drexler, IA.

Brachyelytrum erectum (Schreb.) Beauv.–Rare. Upland woods BUCHANAN: 10. HARDIN: n. of Eldora, 1912, Shimek, IA. IOWA: n. of Middle Amana, 1950, Easterly #954, IA. JOHNSON: Coufals, 1909, Shimek, IA; woods along w. side of Iowa River, sec. 5 Penn twp., 1950, Zell #34, IA.

Bromus ciliatus L.–Rare. Marsh. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1922, Shimek, IA.

°*Bromus inermis* Leyss.–Frequent. Riverbanks, roadside ditches and disturbed prairie remnants. Thr.

°*Bromus japonicus* Thunb.–Rare. Open woods and margin of pond. BLACK HAWK: 7. JOHNSON: trail, Lake Macbride State Park, 1956, Pfeifer, IA.

Bromus kalmii Gray–Rare. Upland prairie remnants. CERRO GORDO: n.e. of Mason City, 1920, Shimek, IA. HOWARD: 1. LINN: 1. WINNESHIEK: s.w. of Kendalville, 1927, Shimek, IA; RR, Conover to Ridgeway, 1927, Shimek, IA.

Bromus latiglumis (Shear) Hitch.–Infrequent. Open woods. Thr.

Bromus purgans L.–Frequent. Upland woods. Thr.

°*Bromus secalinus* L.–Rare. RR ballast. IOWA: Amana, 1903, Shimek, IA. LINN: Cedar Rapids, 1892, Shimek, IA.

°*Bromus tectorum* L.–Rare. Prairie remnants. BLACK HAWK: Cedar River at Elk Run, Poyner twp., 1921, Shimek, IA. BREMER: RR n. of Plainfield, 1932, Shimek, IA. GRUNDY: 4. LINN: Cedar Lake, Cedar Rapids, 1928, Shimek, IA.

Calamagrostis canadensis (Michx.) Beauv.—Common. Hillside seepage marshes, prairie swales and shallow water of ponds. Thr.

Cenchrus longispinus (Hackel.) Fern (*C. pauciflorus* Benth. misapplied)—Infrequent. Dry roadsides, RR ballast and disturbed, sandy soil. Thr.

Cinna arundinacea L.—Infrequent. Moist upland and alluvial woods. S½.

°*Dactylis glomerata* L.—Probably common. Open woods and grassy places. Thr.

Danthonia spicata (L.) Beauv.—Rare. Prairie openings in woods. HARDIN: 3.

Diarrhena americana Beauv.—Rare. Moist woods. BUTLER: 1. JOHNSON: wooded hillside, Lake Macbride State Park, 1956, Pfeifer, IA; Coufals, 1905, Shimek, IA; Turkey Creek, sec. 14 Newport twp., 1960, Sorensen #245, IA. TAMA: 4.

°*Digitaria ischaemum* (Schreb.) Muhl.—Rare. Disturbed openings in woods. IOWA: Amana Woods, s. of Amana, 1950, Easterly, IA. JOHNSON: Hanging Rock Ridge, sec. 28 Monroe twp., 1961, Huang #2693, IA.

°*Digitaria sanguinalis* (L.) Scop.—Probably common. Cultivated fields, roadsides, disturbed prairies and lawns. Thr.

°*Echinochloa crusgalli* (L.) Beauv.—Rare. Moist, disturbed habitats. BLACK HAWK: 7. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1919, Shimek, IA. FLOYD: 1. JOHNSON: roadside 5 miles n. of Iowa City, 1961, Huang #2756, IA; sandbar, Iowa River, Lake Macbride State Park, 1956, Pfeifer, IA.

Echinochloa pungens (Poir.) Rydb. (*E. muricata* (Beauv.) Fern.)—Frequent. Open, wet places. Thr.

Echinochloa walteri (Pursh.) Nash—Rare. Wet soil. LINN: Cedar Rapids, 1892, Shimek, IA.

Elymus canadensis L.—Common. Prairie remnants, usually sandy. Thr.

Elymus villosus Muhl.—Frequent. Open woods. Thr.

Elymus virginicus L.—Common. Open alluvial woods. Thr.

[17] *Elymus canadensis* L. X *E. virginicus* L.—Rare. Sandy soil. DELAWARE: alluvial woods. Backbone State Park, 1923, Shimek, IA. LINN: RR prairie 2 miles s. of Palo, 1921, Shimek, IA; RR prairie s.w. of Coggon, 1928, Shimek, IA.

Eragrostis capillaris (L.) Nees—Rare. Prairie. HARDIN: near Steamboat Rock, 1902, Shimek, IA.

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[17] Putative hybrid determined by R. W. Pohl.

°*Eragrostis cilianensis* (All.) Lut. (*E. megastachya* (Koel.) Link)—Infrequent. Sandy roadsides, ditches and other disturbed, open habitats. Thr.

Eragrostis frankii C. A. Mey.—Rare. Margin of marshes. BUTLER: 2. DELAWARE: Manchester, 1897, Ball #753, IA.

Eragrostis hypnoides (Lam.) BSP.—Rare. Margins of lakes and rivers. BREMER: Cedar River at Waverly, 1934, Shimek, IA. CERRO GORDO: Buffalo Slough, Mason City, 1916, Shimek, IA. HARDIN: Iowa River, Pine Lake State Park, 1953, Johnson #32, IA. IOWA: Dutch Lake, Amana, 1925, Shimek, IA. WINNESHIEK: 1.

Eragrostis pectinacea (Michx.) Nees—Infrequent. Marshes and wet alluvial soil. Thr.

Erargrostis spectabilis (Pursh) Steud.—Infrequent. Sand dunes and sandy prairie remnants. In Cedar River valley.

Festuca arundinacea Schreb.—Rare. Marshes and lakeshores. BREMER: 1. JOHNSON: Lake Macbride State Park, 1960, Sorensen #184, IA.

°*Festuca elatior* L.—Rare. Moist pastures and disturbed ground. DELAWARE: prairie road n. of Earlville, 1913, Shimek, IA. FLOYD: RR. Nora Jct., 1921, Shimek, IA. JOHNSON: Lake Macbride State Park, 1958, Thorne #20184, IA. LINN: 1, 4.

Festuca obtusa Biehler—Common. Moist openings in upland woods. Thr.

Festuca octoflora Walt.—Infrequent. Moist, sandy soil. S½.

Festuca paradoxa Desv.—Rare. Moist prairies and marshes. HOWARD: marsh, sec. 20 Jamestown twp., 1958, Spence & Thorne #19626, IA. JOHNSON: seepage slopes, sec. 35 Cedar twp., 1955, Thorne #17371, IA; Williams Prairie, sec. 5 Oxford twp., 1961, Sorensen #520, IA.

Glyceria borealis (Nash) Batchelder—Rare. Shallow water of pond. LINN: 2.5 miles s. of Coggon, 1953, Thorne #12284, IA.

Glyceria grandis S. Wats.—Rare. Moist remnant prairies and other open, wet places. BLACK HAWK: 2. BREMER: 8. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1920, Shimek, IA. FAYETTE: 3. HOWARD: 3.

Glyceria septentrionalis Hitchc.—Rare. Shallow pond and alluvial woods. IOWA: Dutch Lake s. of Amana, 1925, Shimek, IA. JOHNSON: marsh, sec. 17 Madison twp., 1952, Thorne #10891, IA; sand hills, sec. 1 Cedar twp., 1955, Thorne #17408, IA.

Glyceria striata (Lam.) Hitchc.—Infrequent. Marshes, along streams and other moist, open habitats. Thr.

Hierochloe odorata (L.) Beauv.—Rare. Moist prairie remnants. BRE-

MER: 8. MITCHELL: low ground, McIntire, 1918, Shimek, IA.

Hordeum jubatum L.—Common. Roadsides, RR ballast and disturbed prairie areas. Thr.

Hordeum pusillum Nutt.—Rare. Open area. JOHNSON: Lake Macbride State Park, 1956, Pfeifer, IA.

Hystrix patula Moench.—Common. Openings in upland woods. Thr.

Koeleria cristata (L.) Pers.—Frequent. Prairie remnants. Thr.

Leersia lenticularis Michx.—Rare. Alluvial woods. JOHNSON: woods along Iowa River, T-81N, R-8W, sec. 25, 1958, Thorne #20016, IA.

Leersia oryzoides (L.) Sw.—Common. Streambanks and marshy ground. Thr.

Leersia virginica Willd.—Infrequent. Moist, open woods. Thr.

Leptoloma cognatum (Schultes) Chase—Rare. Sandy roadside and bank. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13644, IA.

°*Lolium perenne* L. var. *italicum* Parn. (incl. *L. multiflorum* Lam.)—Rare. Sandy roadside. BLACK HAWK: 5.

Melica nitens (Scribn.) Nutt.—Rare. Dry openings in woods. IOWA: bog n. of Homestead, 1903, Shimek, IA. JOHNSON: Prairie Ridge, Turkey Creek, 1909, Shimek, IA.

Muhlenbergia cuspidata (Torr.) Rydb.—Rare. Dry rocky prairies. CERRO GORDO: prairie e. of Mason City, 1930, Shimek, IA. HOWARD: 7.

Muhlenbergia frondosa (Poir.) Fern.—Infrequent. Moist alluvial woods and margins of marshes. Thr.

Muhlenbergia glomerata (Willd.) Trin.—Rare. Marshes and wet prairie draws. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1922, Shimek, IA. HOWARD: 1.

Muhlenbergia mexicana (L.) Trin.—Rare. Moist, open areas. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1926, Shimek, IA. JOHNSON: RR prairie 3 miles n.w. of North Liberty, 1956, Thorne #18299, IA. WINNESHIEK: woods near Fort Atkinson, 1903, Shimek, IA.

Muhlenbergia schreberi Gmel.—Rare. Sandy alluvial terraces. BENTON: 2. HARDIN: bottomland, Pine Lake State Park, near Eldora, 1953, Johnson, IA. JOHNSON: Lake Macbride State Park, 1955, Thorne #17506, IA.

Muhlenbergia sobolifera (Muhl.) Trin.—Rare. Wooded bluffs. HARDIN: bluffs along Iowa River, Steamboat Rock, 1922, Shimek, IA. JOHNSON: Lake Macbride State Park, 1955, Thorne #17508, IA.

Oryzopsis racemosa (J.E.Smith) Ricker—Rare. Upland woods and limestone openings. CERRO GORDO: woods near Mason City, 1930, Shimek, IA. IOWA: Amana woods 18 miles w. of Iowa City,

1950, Zell #13, IA. JOHNSON: Turkey Creek, sec. 14 Newport twp., 1960, Sorensen #244, IA. LINN: 1.

Panicum capillare L.—Frequent. Dry, sandy paths, roadsides and RR ballast. Thr.

Panicum clandestinum L.—Rare. Woods. IOWA: woods near Amana, 1932, Anderson, IA.

Panicum commonsianum Ashe var. *euchlamydeum* (Shinners) Pohl—Rare. Sandy bank. JOHNSON: bluff near Cedar River, sec. 12 Cedar twp., 1955, Thorne & Hulbary #15915, IA.

Panicum dichotomiflorum Michx.—Infrequent. Moist sandy soil. S½.

Panicum implicatum Scribn. (*P. lanuginosum* Ell.)—Frequent. Moist, open habitats, often sandy. Thr.

Panicum latifolium L.—Frequent. Upland woods. Thr.

Panicum leibergii (Vasey) Scribn.—Infrequent. Dry prairie remnants. Thr.

Panicum lindheimeri Nash—Rare. Sandy alluvial woods. BREMER: 2.

Panicum perlongum Nash—Rare. Sandy seepage slopes. JOHNSON: T-81N, R-5W, sec. 35, 1955, Thorne & Hulbary #15838, IA.

Panicum praecocius Hitchc. & Chase—Rare. Prairie ridges. JOHNSON: Prairie Ridge, Turkey Creek, 1909, Shimek, IA; north-facing ridge, Lake Macbride State Park, 1955, B.C.G., IA.

Panicum scribnerianum Nash. (*P. oligosanthes* Schultes)—Common. Dry sandy habitats. Thr.

Panicum virgatum L.—Frequent. Upland prairie remnants. Thr.

Paspalum setaceum Michx. var. *stramineum* (Nash) Banks (*P. ciliatifolium* Michx., *P. stramineum* Nash) Infrequent. Dry, sandy soil. In Cedar River valley.

Phalaris arundinacea L.—Infrequent. Wet, open habitats. Thr.

°*Phalaris canariensis* L.—Rare. Disturbed fencerow along prairie. JOHNSON: Williams Prairie, sec. 5 Oxford twp., 1961, Sorensen #542, IA.

°*Phleum pratense* L.—Common. Roadsides, prairies and disturbed habitats. Thr.

Phragmites communis Trin.—Rare. Marshes. BLACK HAWK: S. CERRO GORDO: swamp, Buffalo Slough, Mason City, 1925, Shimek, IA.

°*Poa annua* L.—Rarely collected. Disturbed clearing in alluvial woods. HOWARD: 3.

°*Poa compressa* L.—Common. Prairie remnants and open, moist areas. Thr.

Poa palustris L.—Infrequent. Moist prairie remnants. Thr.

Poa praensis L.—Common. Moist, open habitats. Thr.

Poa sylvestris Gray—Rare. Alluvial woods and moist ravines. JOHNSON: along Iowa River, Lake Macbride State Park, 1954, Thorne #14078, IA. LINN: 1.

°*Setaria faberi* Herrm.—Rare. Cultivated fields, highway roadsides and disturbed, open areas. BLACK HAWK: 3. FLOYD: 4. IOWA: along Hwy 149 n. of Homestead, 1950, Easterly #1214, IA. JOHNSON: Williams Prairie, sec. 5 Oxford twp., 1961, Huang #2596, IA. WINNESHIEK: 1.

°*Setaria italica* (L.) Beauv.—Rare. Alluvial prairie. IOWA: s. of Amana, 1913, Shimek, IA. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

°*Setaria lutescens* (Weigel) Hubb.—Common. Cultivated weeds, generally in moist, disturbed soil. Thr.

°*Setaria verticillata* (L.) Beauv.—Rare. RR ballast. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

°*Setaria viridis* (L.) Beauv.—Frequent. Roadsides, moist alluvial plains and disturbed areas. Thr.

Sorghastrum nutans (L.) Nash—Common. Prairie remnants. Thr.

Spartina pectinata Link—Frequent. Moist prairie swales. Thr.

Sphenopholis intermedia Rydb.—Rare. Wooded bluffs and openings in upland woods. CERRO GORDO: e. of Mason City, 1920, Shimek, IA. LINN: 1.

Sphenopholis obtusata (Michx.) Scribn.—Rare. Prairie remnants and sandy seepage slopes. BUCHANAN: 2. JOHNSON: sec. 35 Cedar twp., 1955, Thorne #17375, IA. LINN: Cedar Rapids, 1894, Shimek, IA.

Sporobolus asper (Michx.) Kunth—Infrequent. Sandy roadside and RR prairies. Thr.

Sporobolus cryptandrus (Torr.) Gray—Rare. Sandy prairies. BENTON: 5, 10. BLACK HAWK: 2. JOHNSON: sec. 12 Cedar twp., 1953, Thorne #13654, IA.

Sporobolus heterolepis Gray—Infrequent. Prairie remnants. Probably Thr.

Sporobolus neglectus Nash—Rare. Prairie openings. CERRO GORDO: e. of Mason City, 1920, Shimek, IA.

Sporobolus vaginiflorus (Torr.) Wood—Rare. Sandy soil. JOHNSON: sec. 11 Cedar twp., 1953, Thorne #13696, IA; Lake Macbride State Park, 1956, Pfeifer, IA.

Stipa spartea Trin.—Common. Dry, often sandy, prairies. Thr.

Triplasis purpurea (Walt.) Chapm.—Rare. Sandy roadsides. JOHNSON: sec. 1 Cedar twp., 1953, Thorne #13689, IA.

°*Triticum aestivum* L.—Rare. Disturbed prairie remnants. GRUNDY: 4. IOWA: along road n. of Homestead, 1913, Shimek, IA.

Zizania aquatica L. var. *interior* Fassett—Rare. Alluvial pond. LINN: Cedar Rapids, 1898, Shimek, IA.

Hydrocharitaceae

Elodea nuttallii (Planch.) St. John—Infrequent. Shallow water of marshes and lakes. Thr.

Iridaceae

°*Belamcanda chinensis* (L.) DC.—Rare. Grazed slopes. LINN: near Coggon Bog, .5 mile n. of Central City, 1955, Rollins #89, IA.

Iris virginica L. var. *shrevei* (Small) E. Anders. (*I. versicolor* L.; *I. shrevei* Small misapplied)—Infrequent. Wet, low prairies, streambanks and marshy places. Thr.

Sisyrinchium angustifolium Mill.—Rare. Rather low woods. JOHNSON: Turkey Creek, Newport twp., 1904, Shimek, IA.

Sisyrinchium campestre Bickn.—Frequent. Sandy prairie remnants. Thr.

Juncaceae

Juncus acuminatus Michx.—Rare. Wet, sandy prairie swales and marshes. DELAWARE: 5. JOHNSON: sec. 17 Madison twp., 1952, Thorne #10886A, IA; sec. 1 Cedar twp., 1955, Thorne #17416, IA. LINN: 2.5 miles s. of Coggon, 1952, Thorne #10853, IA.

Juncus balticus Willd.—Rare. Sandy marshes and moist ground. LINN: 2; no location, 1948, Pattee, IA.

Juncus canadensis J. Gay—Rare. Sandy marshes and along streams. JOHNSON: sec. 17 Madison twp., 1952, Thorne #10886, IA; n.w. of Tiffin, 1953, Beale #385, IA; along small branch, sec. 35 Cedar twp., 1955, Thorne #17449, IA. LINN: 2.

Juncus dudleyi Wieg.—Frequent. Moist prairie swales and marshes. Thr.

Juncus greenei Oakes & Tuckerm.—Rare. Moist prairie remnants. HOWARD: 1. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Juncus interior Wieg.—Infrequent. Moist, open, sandy soil. SE.

Juncus nodosus L.—Rare. Sandy marshes and moist prairie remnants. BLACK HAWK: 8. HOWARD: 1. LINN: 2. WINNESHIEK: Fort Atkinson, 1903, Shimek, IA.

Juncus tenuis Willd.—Common. Along woodland paths and other packed soil in moist habitats. Thr.

Juncus torreyi Coville—Rare. Low, sandy prairies and marshes. CERRO GORDO: Mason City, 1896, Shimek, IA. IOWA: n. of Home-

stead, 1903, Shimek, IA. LINN: 2; Cedar Rapids, 1895, Shimek, IA.

Luzula campestris (L.) DC.—Rare. Prairie remnants and openings in woods. DELAWARE: Backbone State Park, 1939, Anderson #1612, IA. FLOYD: 2. HOWARD: sec. 29 & 30 Paris twp., 1956, Thorne #17658, IA.

Lemnaceae

Lemna minor L.—Common. Shallow, quiet water. Thr.

Lemna trisulca L.—Rare. Shallow water of marshes and small lakes. BLACK HAWK: Goose Lake, 1938, Grant #8153, ISTC. CHICKASAW: 2. LINN: Cedar Rapids, 1892, Shimek, IA.

Spirodela polyrhiza (L.) Schleid.—Frequent. Shallow, quiet water. Thr.

Wolffia columbiana Karst.—Infrequent. Shallow, quiet water. Thr.

Wolffia punctata Griseb.—Rare. Shallow water of ponds and marshes. BLACK HAWK: 1. LINN: Cedar Rapids, 1892, Shimek, IA. WINNESHIEK: 1.

Liliaceae

Allium canadense L.—Frequent. Moist woods, prairies and marshes. Thr.

Allium tricoccum Ait.—Infrequent. Moist, wooded slopes and ravines. Thr.

°*Asparagus officinalis* L.—Frequent. Various disturbed open habitatus. Thr.

Erythronium albidum Nutt.—Infrequent. Moist lowland woods. Thr.

°*Hemerocallis fulva* L.—Rarely collected. Frequent escape from cultivation. Thr.

Lilium michiganense Farw. (*L. superbum* L. misapplied)—Common. Moist prairie remnants and marshy places. Thr.

Lilium philadelphicum L. var *andicum* (Nutt.) Ker (*L. umbellatum* Pursh)—Infrequent. Prairie remnants. N & E.

Maianthemum canadense Desf.—Rare. Lower slopes of moist, shaded ravines. HARDIN: 1.

Polygonatum biflorum (Walt.) Ell. (*P. commutatum* (Schultes f.) Dietr., *P. canaliculatum* (Muhl.) Pursh misapplied)—Common. Openings in moist woods. Thr.

Smilacina racemosa (L.) Desf.—Common. Open, upland woods. Thr.

Smilacina stellata (L.) Desf.—Common. Moist woods. Thr.

Smilax ecirrhata (Engelm.) Wats.—Common. Upland woods. Thr.

Smilax herbacea L.—Common. Alluvial woods and borders, and moist, open places. Thr.

Smilax hispida Muhl. (*S. tamnoides* L. var *hispida* (Muhl.) Fern.)—Common. Alluvial and open upland woods. Thr.

Trillium cernuum L.—Infrequent. Moist, wooded slopes and ravines. N & E.

Trillium flexipes Raf. (*T. gleasoni* Fern.)—Common. Moist, wooded slopes and ravines. Thr.

Trillium nivale Riddell—Rare. Step, protected, rocky slopes. BLACK HAWK: no information, ISTC. CHICKASAW: Fredericksburg, no date, Howe, IA. HARDIN: 1. JOHNSON: slope above lake, Lake Macbride State Park, 1955, B.C.G., IA. LINN: Cedar Rapids, 1913, Berry, IA.

Trillium recurvatum Beck—Rare. Moist, wooded ravines and low woods. IOWA: along Iowa River 1 mile s. of Amana, 1950, Easterly #18, IA. JOHNSON: along Iowa River, Lake Macbride State Park, 1954, Thorne #14076, IA; Hanging Rock Ridge, sec. 28 Monroe twp., 1961, Thorne #30168, IA. LINN: Mt. Vernon, 1892, Newton, ISTC: Cedar Rapids, 1912, Berry, IA.

Uvularia grandiflora Sm.—Common. Upland woods and slopes. Thr.

Uvularia sessilifolia L.—Rare. Moist, open woods. BLACK HAWK: Cedar Falls, 1898, Newton, ISTC. BUCHANAN: 4. FAYETTE: Fayette, ca. 1897, Fellows, IA. JOHNSON: near Cedar River, sec. 11 Cedar twp., 1955, Thorne #15904, IA. LINN: moist woods, no location, 1948, Pattee, IA.

Veratrum virginicum (L.) Ait. f. (*Melanthium virginicum* L.)—Infrequent. Low prairies. In Iowa and Cedar River valleys.

Zygadenus elegans Pursh—Rare. Prairie remnants. BLACK HAWK: low prairie, no location, 1929, Burk #384, ISTC. CERRO GORDO: Mason City, 1896, Shimek, IA. WINNESHIEK: along road between Conover and Ridgeway, 1927, Shimek, IA.

Zygadenus glaucus Nutt. (*Z. chloranthus* Richardson misapplied)—Rare. Prairie remnants. HOWARD: 7. WINNESHIEK: prairie s.w. of Kendalville, 1927, Shimek, IA.

Najadaceae

Najas flexilis (Willd.) Rostk. & Schmidt—Rare. Shore of small lake. HOWARD: 5.

Orchidaceae

Aplectrum hyemale (Muhl.) Torr.—Rare. Banks of moist, wooded ravines. FAYETTE: Fayette, 1897, Fellows, IA. HOWARD: near Turkey River west of Cresco, 1940, Standen, ISC. JOHNSON: near Turkey Creek, sec. 14 Newport twp., 1961, Sorensen #608, IA.

LINN: 1; about 1½ miles from Linn Jct., west of Cedar Rapids, 1912, Berry, IA.

Calopogon pulchellus (Salisb.) R. Br.—Rare. Prairie swales. FAYETTE: Fayette, 1894, Fink, ISC. FLOYD: Charles City, 1874, Arthur, ISC. HOWARD: no location, no date, Macbride, IA. LINN: RR s.w. of Coggon, 1928, Shimek, IA.

Corallorhiza odontorhiza (Willd.) Nutt.—Rare. Densely wooded ravines and slopes. JOHNSON: Coufals, 1906, Shimek, IA. JONES: in stand of White Pine, Wapsipinicon State Park, 1959, Cooperrider, IA. LINN: ravine, sec. 14 Putnam twp., Palisades-Kepler State Park, 1948, Pohl, ISC.

Cypripedium calceolus L. var. *pubescens* (Willd.) Correll (*C. parviflorum* Salisb.)—Infrequent. Moist upland woods. Thr.

Cypripedium candidum Muhl.—Rare. Moist prairies. BENTON: Belle Plaine, 1885, Shimek, IA. BLACK HAWK: prairie, no location or date, Webber, ISC. CERRO GORDO: near prairie pond, no location, 1944, Hayden #3624, ISC. FAYETTE, Fayette, 1893, Fink, ISC. GRUNDY: Grundy Center, 1901, Paddock, ISC. HOWARD: Hayden Prairie, 1961, Morrissey, IA. LINN: Cedar Rapids, 1907, Berry, IA. WINNESHIEK: RR prairie, sec. 25 Lincoln twp., 1934, Tolstead, ISC.

Cypripedium reginae Walt.—Rare. Moist wooded slopes and ravines. CHICKASAW: 2 miles n.e. of New Hampton, 1926, Spiker, ISC. FAYETTE: Fayette, 1893, Fink, ISC. IOWA: deep upland woods near Homestead, 1904, Shimek, IA. JOHNSON: Newport twp., 1902, Shimek, ISC. LINN: Palisades-Kepler State Park, 1892, Newton, ISTC. TAMA: Toledo, 1895, Fellows, IA.

Goodyera pubescens (Willd.) R. Br.—Rare. Deep, moist woods. IOWA: deep upland woods n.e. of Homestead, 1928, Shimek, IA. JOHNSON: Penn twp., 1895, Shimek, IA. LINN: Palisades-Kepler State Park, 1931, Brown, ISC.

Habenaria clavellata (Michx.) Spreng.—Rare. Damp border of woods. FAYETTE: Wadena, 1893, Fink, ISC.

Habenaria flava (L.) R. Br.—Rare. Moist, low prairie. BREMER: 8.

Habenaria hookeri Torr.—Rare. Wooded, damp hillsides. FAYETTE: Fayette, 1893, Fink, ISC.

Habenaria leucophaea (Nutt.) Gray—Rare. Moist, low prairies. BLACK HAWK: Cedar Falls, 1894, Carver, ISC. CHICKASAW: RR 1 mile e. of New Hampton, 1925, Spiker, ISC. FAYETTE: woods near Fayette, no date, Parker, ISC. GRUNDY: SW part of county, 1903, Sherbon, IA. JOHNSON: meadow, T-80N, R-8W,

sec. 5, 1960, Sorensen #249, IA. LINN: RR prairie, Cedar Rapids, 1905, Shimek, IA. WINNESHIEK: RR prairie, sec. 14 Lincoln twp., 1933, Tolstead, ISC.

Habenaria psycodes (L.) Spreng.—Rare. Low, damp prairies and riverbanks. CHICKASAW: woods w. of Little Cedar River, 1 mile n. of Chickasaw, 1926, Spiker, ISC. FAYETTE: riverbank, Fayette, 1893, Fink, ISC. LINN: meadow n. of Konigsmark along Crandic, 1913, Berry, IA; meadow 2 miles n. of Marion, 1913, Berry, IA.

Habenaria viridis (L.) R. Br.—Rare. Upland woods and bluffs. CERRO GORDO: Buffalo Slough, Mason City, 1924, Shimek, ISC. FAYETTE: Fayette, 1893, Fink, ISC. FLOYD: 3. IOWA: woods n. of Homestead, 1915, Shimek, ISC. JOHNSON: Newport twp., 1892, Shimek, IA. LINN: Palisades-Kepler State Park, 1893, Newton, ISTC.

Liparis liliifolia (L.) Rich.—Rare. Moist upland woods and slopes. IOWA: woods n.e. of Homestead, 1926, Marts, ISC. JOHNSON: Penn twp., 1903, Shimek, IA. JONES: slope along Maquoketa River, sec. 5 Washington twp., 1956, Cooperrider, IA.

Liparis loeselii (L.) Rich.—Rare. Damp woods. BLACK HAWK: Raymond, no date, Hitchcock, ISC. CERRO GORDO: Buffalo Slough, Mason City, 1922, Shimek, IA.

Malaxis unifolia Michx.—Rare. Upland woods. JOHNSON: Coufals, 1907, Shimek, IA.

Orchis spectabilis L.—Frequent. Dense upland woods and ravines. Thr.

Pogonia ophioglossoides (L.) Ker—Rare. Low, boggy swamp near river. LINN: Ely, 1913, Berry, IA.

Spiranthes cernua (L.) Rich.—Infrequent. Moist lowland prairie remnants. Thr.

Triphora trianthophora (Sw.) Rydb.—Rare. Moist woods. BENTON: 9. BREMER: near Denver, 1927, Lantz, ISTC. FAYETTE: Fayette, 1895, Fink, ISC. LINN: no location, 1909, Berry, IA.

Pontederiaceae

Heteranthera dubia (Jacq.) MacM.—Rare. Shallow water of ponds and lakes. CERRO GORDO: Mason City, 1896, Shimek, IA. HOWARD: 5. LINN: Cedar Rapids, 1895, Shimek, IA.

Pontederia cordata L.—Infrequent. Shallow water of marshes and ponds. In scattered localities.

Potamogetonaceae

Potamogeton amplifolius Tuckerm.—Rare. FLOYD: Charles City, 188-, Hitchcock, ISC.

Potamogeton crispus L.—Rare. Marsh at head of lake. TAMA: 2.

Potamogeton epihydrus Raf.—Rare. Shallow water in marsh. BREMER: 1.

Potamogeton foliosus Raf.—Infrequent. Shallow, quiet water. Thr.

Potamogeton natans L.—Rare. Shallow water of ponds. LINN: Cedar Rapids, 1894, Shimek, IA.

Potamogeton nodosus Poir. (*P. americanus* C. & S.)—Infrequent. Shallow water of marshes, lakes and ponds. Thr.

Potamogeton pectinatus L.—Rare. Shallow, quiet water. BREMER: 1. LINN: Monroe twp., 1913, Berry, IA; Cedar Rapids, 1895, Shimek, IA.

Potamogeton richardsonii (A. Benn.) Rydb.—Rare. Shallow, quiet water. LINN: Monroe twp., 1913, Berry, IA.

Potamogeton vaseyi Robbins—Rare. Shallow water in sandy pasture. LINN: 2.5 miles s. of Coggon, 1953, Thorne #12285, IA.

Potamogeton zosteriformis Fern.—Rare. Shallow, quiet water of lakes and ponds. HOWARD: 5. LINN: Cedar Rapids, 1895, Shimek, IA.

Typhaceae

Sparganium americanum Nutt. (incl. S. *androcladum* (Engelm.) Morong)—Rare. Shallow marshes and ponds. BENTON: 5. JOHNSON: Swan Lake, sec. 32 Madison twp., 1950, Thorne #10469, IA; sec. 17 Madison twp., 1952, Thorne #10889, IA. LINN: 2.5 miles s. of Coggon, 1952, Thorne #10843, IA.

Sparganium eurycarpum Engelm.—Rare. Moist lowland prairie and sandy marsh. BLACK HAWK: 8. BREMER: 8. CERRO GORDO: Buffalo Slough, Mason City, 1926, Shimek, IA. CHICKASAW: 2. LINN: Cedar Rapids, 1892, Shimek, IA.

Typha angustifolia L.—Rare. Marshes and ponds. JOHNSON: limestone quarry, sec. 33 Penn twp., 1963, Sorensen & Cuany #5012, IA. WINNESHIEK: 1.

Typha latifolia L.—Frequent. Shallow water of marshes and ponds. Thr.

List of Collection Stations

Collecting station number	Habitat	Section, township, and range
	BENTON COUNTY	
1	Calcareous upland woods and adjacent roadside	23, 26-85-9
2	Disturbed, sandy terrace along Cedar River	20-85-9
3	Sandy roadsides and fields	10, 14, 16, 20-85-9

Collecting station number	Habitat	Section, township, and range
4	Wooded limestone bluff and adjacent lowland areas, Wildcat Bluff County Park	10-85-9
5	Sand terrace above Cedar River including small marsh	15-85-9
6	Sandy woods and open meadow along Cedar River	6-86-10
8	Roadside ditch	6-84-12
		18, 30-85-12
9	Disturbed upland woods and adjacent roadside	3-86-9
10	Margin of sandy pond and adjacent lowland woods along Cedar River	5-86-10
12	Upland woods and moist ravines with limestone outcrops	16-85-9
13	Wooded slope above Cedar River	13-85-9
	BLACK HAWK COUNTY	
1	Disturbed alluvial woods along Cedar River in Black Hawk County Park	34-90-14
2	Sandy alluvial woods and prairie openings along Cedar River in George Wyth State Park	7, 8, 16-89-13
3	Marsh and adjacent disturbed alluvial woods	33-88-14
4	Low, sandy roadside ditch	27-88-14
5	Dry, sandy roadside	3-88-14
6	Upland woods and moist ravines with limestone outcrops	17-89-13
7	Sandy margin of pond and adjacent, open alluvial woods	17-89-13
8	Sandy marsh, east edge of Cedar Falls	9-89-13
9	Remnant prairie along railroad	10-87-12
	BREMER COUNTY	
1	Sandy margin of lake in Sweet Marsh Area	34-93-12
2	Sandy alluvial woods along Wapsipinicon River	13-92-12
3	Sandy lowland woods along Wapsipinicon River in Sweet Marsh Area	34-93-12
4	Roadside fence row	11-92-12
5	Open woods and adjacent disturbed places in Sweet Marsh Area	34-93-12
8	Moist lowland prairie	1-92-12
	BUCHANAN COUNTY	
1	Roadside ditch	16-88-9
2	Prairie along railroad	32, 33-87-8

Collecting station number	Habitat	Section, township, and range
4	Wooded limestone slopes and adjacent sandy areas along Wapsipinicon River	29, 32-88-8
6	Wooded uplands and alluvial flat along Cedar River	31-87-10
7	Upland prairie remnant along railroad	22-90-9
9	Moist prairie opening in lowland woods along Buffalo Creek	24-90-8
10	Open upland woods and adjacent disturbed areas	25-90-8
12	Moist, sandy roadside	26-87-8
13	Sandy marsh and adjacent alluvial areas in Troy Mills Fish and Game Area	25-87-8
15	Roadside ditch	27-90-10
	BUTLER COUNTY	
1	Alluvial woods along Shell Rock River in Heery Woods State Park	19-92-15
2	Margin of Big Marsh	24-91-17
	CHICKASAW COUNTY	
1	Moist, sandy roadside	28-95-13
2	Small pond and surrounding marsh	28-95-13
5	Moist roadside ditch	22-94-13
	DELAWARE COUNTY	
1	Upland woods and limestone bluffs Milo Township Woods	9, 10-88-5
2	Edge of open woods	1-87-5
4	Sandy roadside	2-88-5
5	Disturbed, sandy prairie along railroad	18-88-4
6	Unpastured slough	27-88-6
8	Native upland woods and ravines, Brayton Timber	31-88-3
9	Sandy alluvial prairie along Maquoketa River	9-88-5
10	Open, disturbed woods on limestone slopes in Turtle Creek Recreation Area	25-88-5
12	Disturbed, open area in Backbone State Park	15-88-6
	FAYETTE COUNTY	
1	Sandy, upland railroad prairie with moist swales	3-92-9 27, 34-93-9
3	Weedy gravel pit	29-93-9

Collecting station number	Habitat	Section, township, and range
5	Sandy roadside	2-92-9
6	Steep, wooded limestone slopes and adjacent lowlands along Crane Creek	36-95-10
8	Roadside ditch	1-94-10
	FLOYD COUNTY	
1	Open, grazed upland woods with grassy openings and sloughs	22-95-15
2	Sandy-loam prairie along railroad	23-96-16
3	Wooded, sandy terrace and adjacent uplands along Cedar River, Idlewild Access	5-96-16
4	Native slough, prairie, and adjacent roadside	26-96-16
5	Disturbed woods and adjacent areas, Rotary County Park	23-96-16
6	Sandy margin of alluvial pond and adjacent disturbed area	21-95-15
	GRUNDY COUNTY	
1	Hillside seepage marsh	15-87-16
3	Alluvial woods along Black Hawk Creek and adjacent areas	12-87-15
4	Remnant prairie along railroad	12-87-15
7	Roadside ditch	17-87-16
	HARDIN COUNTY	
1	Upland woods and sandstone slopes, Pine Island State Park	4-87-19
2	Sandstone bluffs and adjacent lowlands along west bank of Iowa River north of Eldora	8-87-19
3	Sandstone bluffs and adjacent lowlands along east bank of Iowa River south of Steamboat Rock	28, 29, 32-88-19
	HOWARD COUNTY	
1	Native upland prairie with moist swales, Hayden Prairie	33-100-13
3	Upland and alluvial woods along Turkey River	2-98-11
5	Small artificial lake and shore at Vernon Springs	33-99-11
7	Xeric prairie on south-facing limestone bluff (Steamboat Rock) above Turkey River	2-98-11
8	Steep, wooded limestone bluffs and adjacent areas above Upper Iowa River	11-100-11

Collecting station number	Habitat	Section, township, and range
11	Roadside ditch	2-98-11
12	Disturbed alluvial woods	20-100-12
	LINN COUNTY	
1	Upland woods, moist ravines and disturbed margins in Palisades Kepler State Park	22, 23-82-6
2	Sandy marsh and adjacent prairie, Rock Island Preserve	1-83-8
3	Wooded slopes and adjacent lowlands along Wapsipinicon River	36-85-5
4	Margin of Coggon Bog and adjacent sandy area	27-86-6
6	Disturbed marsh in Palo Marsh Wildlife Refuge	21-84-8
8	Open alluvial woods along Cedar River	11, 14-82-6
	MITCHELL COUNTY	
2	Disturbed, open upland woods in Pioneer State Park	1-98-16
3	Remnant, sandy, upland prairie in Brownville Cemetery	6-98-15
	TAMA COUNTY	
1	Upland woods, ravines and adjacent disturbed area, Union Grove State Park	32-85-16
2	Marsh and adjacent roadside in Union Grove State Park	32-85-16
3	Disturbed railroad right-of-way	27-85-16
4	Disturbed, open upland woods in T. F. Clark State Park	25-86-14
	WINNESHIEK COUNTY	
1	Margin of lake and adjacent sandy lowlands in Cardinal Marsh	6, 7-98-10

STATISTICAL SUMMARY

A. COMPONENTS OF THE FLORA OF THE IOWAN LOBE:

	Families	Genera	Species	
			Native	Naturalized
Pteridophytes	10	22	40	0
Conifers	3	3	4	0
Dicotyledons	88	337	635	146
Monocotyledons	17	104	276	28
Subtotal			955	174
Total	118	466	1129	

B. LARGEST FAMILIES, WITH THE NUMBER OF SPECIES AND GENERA IN EACH:

	Species	Genera		Species	Genera
Compositae	134	49	Labiatae	31	18
Gramineae	115	46	Ranunculaceae	29	11
Cyperaceae	94	9	Polygonaceae	27	3
Leguminosae	52	25	Liliaceae	23	13
Rosaceae	46	12	Umbelliferae	22	17
Cruciferae	37	19	Orchidaceae	20	12
Scrophulariaceae	32	17	Salicaceae	18	2

C. LARGEST GENERA, WITH NUMBER OF SPECIES IN EACH:

Carex	64	*Galium*	10
Aster	21	*Potamogeton*	10
Polygonum	17	*Ranunculus*	10
Salix	13	*Solidago*	10
Asclepias	12	*Eleocharis*	9
Euphorbia	12	*Juncus*	9
Panicum	12	*Rumex*	9
Viola	12		

FLORISTIC COMPARISON

Since floristic surveys had recently been completed in the areas adjacent to the west, south, and east of the Iowa area (Fig. 1), an attempt was made to measure the similarities of these floras to that of the Iowan area, and to each other. Data from the following areas were compiled from the literature and analyzed: The portions of the "Driftless" area in NE Iowa surveyed by Hartley (1966); Clinton, Jackson, and Jones counties (Cooperrider, 1962); southeastern Iowa (Davidson, 1959); and the Cary (Des Moines) lobe (Monson, 1959).

The index used to measure the floristic resemblances was an empirical formula developed by zoologists to measure faunal resemblances (Simpson, 1960):

$$\frac{C}{N_1 + N_2 - C} \times 100$$

Where:

C = Number of taxa common to both floras.

N_1 = Total taxa in first flora (N_h = Hartley's flora of the "Driftless" area, N_c = Cooperrider's flora, etc.)

N_2 = Total taxa in second flora.

VALUES OF N

N_E	N_H	N_C	N_D	N_M
1129	1042	1003	1200	1142

These figures disagree, to a minor extent, with those previously published because of adjustments necessitated by nomenclatural differences between the several floras. The value of N given for Hartley's flora accounts only for those plants he listed from Iowa.

VALUES OF C

$C_{E,H}$	$C_{E,C}$	$C_{E,D}$	$C_{E,M}$	$C_{H,M}$	$C_{H,D}$	$C_{M,D}$
897	905	965	928	844	870	942

The flora of the three counties studied by Cooperrider was only compared to that of the Iowan area and not to the others because there were few species in these counties that were not present in the adjacent areas surveyed by Hartley and Davidson.

INDEX OF FLORAL RESEMBLANCE VALUES IN PERCENT

$I_{E,H}$	$I_{E,C}$	$I_{E,D}$	$I_{E,M}$	$I_{H,M}$	$I_{H,D}$	$I_{M,D}$
70.4	73.8	70.7	69.0	63.0	63.3	67.3

The floral resemblance values seem quite high, but the exact significance of these data is difficult to evaluate because of the paucity of similar data from other floristic studies. Comparisons of these floras with both similar and dissimilar floras of other areas would provide a better basis for comparison, and it is hoped that this method will receive wider application in the future. However, the lack of variation is perhaps the most significant feature of the above comparative indices. The flora of the Iowan area shows a greater resemblance to the flora of each of the other areas than the latter do to each other because of geographic position: the Iowan area is adja-

cent to each of the other areas, but they are separated from each other. The results seem to indicate rather clearly that changes in the floras—either from north to south, or from east to west—reflect gradual transitions in species compositions, rather than major disjunctions. It might be expected otherwise, since the "Driftless" area is a region that was covered by the Nebraskan glaciation; southeastern Iowa by the Kansan glaciation; and the area to the west of the Iowan by the last substage of the Wisconsin glaciation to enter Iowa, the Cary lobe (Fig. 2). Thus, if the glaciations had had long-lasting effects on the distribution of many plant species, this likely would have resulted in major floristic discontinuities across the glacial boundaries. This is not the case, and it seems clear that there has been sufficient time, even since the Cary substage, for most plants to have become widely disseminated throughout the state. To the extent that the glaciations modified the soils and the available habitats, they likely did have some secondary effects on present-day plant distributions, but probably the species composition of the flora is most influenced by the gradations in growing season length from north to south, and in precipitation from west to east. A more thorough discussion of the phytogeography of the Iowan area and its relationship to the Wisconsin glaciations can be found in Eilers (1967).

LIST OF EXCLUDED SPECIES

The species listed below have been reported in the literature, but have been excluded from the Annotated Catalog of vascular plants for various reasons. If no voucher specimens were seen—the usual case—only the county name and publication are given. Otherwise, the reason for exclusion is given following the binomial. The taxonomic order follows that of the catalog.

Aspidiaceae

Dryopteris filix-mas (L.) Schott—MITCHELL: Tuttle (1919).

Thelypteris noveboracensis (L.) Nieuwl.—MITCHELL: Tuttle (1919).

Cupressaceae

Juniperis horizontalis Moench—FLOYD: Tuttle (1919), and Pammel (1924). Field investigations by the author indicated that this population of junipers was highly variable in habit, varying from prostrate to the characteristic upright form of *J. virginiana*. However, the fruit and seed characters were all of *J. virginiana*,

and I think it best to use this name for the entire population until more detailed study indicates otherwise.

Aceraceae

Acer rubrum L.—MITCHELL: Tuttle (1919).

Amaranthaceae

Amaranthus arenicola Johnst.—BLACK HAWK: Burk (1931).
A. spinosus L.—MITCHELL: Tuttle (1919).

Araliaceae

Panax trifolius L.—MITCHELL: Tuttle (1919).

Asclepiadaceae

Asclepias longifolia Michx.—BLACK HAWK: Burk (1931).
Asclepias meadii Torr.—BLACK HAWK: Burk (1931).

Boraginaceae

Cynoglossum virginianum L.—MITCHELL: Tuttle (1919).
Myosotis stricta Link—BLACK HAWK: Burk (1931).

Caprifoliaceae

Viburnum dentatum L.—BLACK HAWK: Burk (1931).
V. prunifolium L.—MITCHELL: Tuttle (1919).

Caryophyllaceae

Cerastium arvense L.—MITCHELL: Tuttle (1919).

Chenopodiaceae

Atriplex patula L.—MITCHELL: Tuttle (1919).

Compositae

Aster commutatus (T. & G.) A. Gray—BLACK HAWK: Burk (1931).
A. divaricatus L.—MITCHELL: Tuttle (1919).
A. tradescanti L.—BLACK HAWK: Burk (1931).
A. undulatus L.—MITCHELL: Tuttle (1919).
Bidens laevis (L.) BSP.—BLACK HAWK: Burk (1931). Misidentified *B. cernua.*
Cirsium undulatum (Nutt.) Spreng.—BLACK HAWK: Burk (1931). Misidentified *C. hillii.*
Coreopsis tripteris L.—LINN: Lazell (1927).
Echinacea purpurea (L.) Moench—MITCHELL: Tuttle (1919).
Helianthus divaricatus L.—BLACK HAWK: Burk (1931). Incomplete specimen.
H. mollis Lam.—BLACK HAWK: Burk (1931).
Inula helenium L.—LINN: Lazell (1927).

Lactuca ludoviciana (Nutt.) Riddell–BLACK HAWK: Burk (1931). Immature specimen, probably *L. scariola.*

Solidago juncea Ait.–BLACK HAWK: Burk (1931).

S. mollis Bartl.–BLACK HAWK: Burk (1931).

Cornaceae

Cornus foemina Mill.–BLACK HAWK: Burk (1931).

Cruciferae

Arabis virginica (L.) Trelease–BLACK HAWK: Burk (1931). MITCHELL: Tuttle (1919).

Raphanus raphanistrum L.–BLACK HAWK: Burk (1931).

Rorippa sinuata (Nutt.) Hitchc.–BLACK HAWK: Burk (1931). Specimen immature and unidentifiable.

Ericaceae

Pyrola rotundifolia L.–MITCHELL: Tuttle (1919).

Euphorbiaceae

Euphorbia serpyllifolia Pers.–BLACK HAWK: Burk (1931). Misidentified *E. geyeri.*

Gentianaceae

Gentiana linearis Froel.–MITCHELL: Tuttle (1919).

Guttiferae

Hypericum canadense L.–BLACK HAWK: Burk (1931).

H. ellipticum Hook.–BLACK HAWK: Burk (1931).

Hydrophyllaceae

Hydrophyllum canadense L.–MITCHELL: Tuttle (1919).

Phacelia bipinnatifida Michx.–MITCHELL: Tuttle (1919).

Juglandaceae

Carya glabra (Mill.) Sweet–MITCHELL: Tuttle (1919).

Labiatae

Origanum vulgare L.–MITCHELL: Tuttle (1919).

Physostegia purpurea (Walt.) Blake–BLACK HAWK: Burk (1931).

Scutellaria integrifolia L.–BLACK HAWK: Burk (1931).

Stachys aspera Michx.–MITCHELL: Tuttle (1919).

Leguminosae

Desmanthus illinoensis (Michx.) MacM.–BLACK HAWK: Burk (1931).

Vicia cracca L.–BLACK HAWK: Burk (1931). Misidentified *V. villosa.*

Martyniaceae

Martynia louisiana Mill.–BLACK HAWK: Burk (1931). LINN: Lazell (1927).

Menispermaceae

Calycocarpum lyoni (Pursh) Gray–MITCHELL: Tuttle (1919).

Oleaceae

Fraxinus quadrangulata Michx.–LINN: Lazell (1927).

Oxalidaceae

Oxalis corniculata (L.) Small–BLACK HAWK: Burk (1931). MITCHELL: Tuttle (1919).

Papaveraceae

Corydalis aurea Willd.–MITCHELL: Tuttle (1919).
C. crystallina Engelm.–BLACK HAWK: Burk (1931).

Polygonaceae

Polygonum douglasii Greene–BLACK HAWK: Burk (1931).

Ranunculaceae

Ranunculus purshii Richards–BLACK HAWK: Burk (1931).
Thalictrum polygamum Muhl.–BLACK HAWK: Burk (1931). MITCHELL: Tuttle (1919).
T. revolutum DC.–MITCHELL: Tuttle (1919).

Rosaceae

Agrimonia rostellata Wallr.–BLACK HAWK: Burk (1931). Misidentified *A. pubescens*.
Geum macrophyllum Willd.–MITCHELL: Tuttle (1919).
G. virginianum L.–BLACK HAWK: Burk (1931). Misidentified *G. laciniatum*.
Potentilla tridentata Soland–MITCHELL: Tuttle (1919).
Pyrus aucuparia (L.) Gaertn.–MITCHELL: Tuttle (1919).
P. decora (Sarg.) Hyland–MITCHELL: Tuttle (1919).

Rubiaceae

Houstonia purpurea L.–MITCHELL: Tuttle (1919).

Rutaceae

Ptelea trifoliata L.–BLACK HAWK: Burk (1931). Specimen cultivated. LINN: Lazell (1927).

Salicaceae

Populus candicans Ait.–MITCHELL: Tuttle (1919).

Saxifragaceae

Heuchera villosa Michx.–MITCHELL: Tuttle (1919).

Ribes lacustre (Pers.) Poir.–BLACK HAWK: Burk (1931). Sterile specimen.

R. oxyacanthoides L. MITCHELL: Tuttle (1919).

Scrophulariaceae

Gratiola virginiana L.–BLACK HAWK: Burk (1931).

Penstemon hirsutus (L.) Willd.–LINN: Lazell (1927).

Solanaceae

Physalis pruinosa L.–BLACK HAWK: Burk (1931).

P. pubescens L.–BLACK HAWK: Burk (1931).

Umbelliferae

Cynosciadium pinnatum DC.–BLACK HAWK: Burk (1931).

Violaceae

Viola affinis Le Conte–BLACK HAWK: Burk (1931).

V. cucullata Ait.–MITCHELL: Tuttle (1919).

Vitaceae

Vitis cordifolia Michx.–BLACK HAWK: Burk (1931).

V. palmata Vahl–BLACK HAWK: Burk (1931).

Alismataceae

Alisma graminium K. C. Gmel.–LINN: Beal and Monson (1954). Misidentified *A. subcordatum.*

Sagittaria australis (J. G. Sm.) Small–BLACK HAWK: Burk (1931). Misidentified *S. engelmanniana.*

Commelinaceae

Tradescantia virginiana L.–BLACK HAWK: Burk (1931). Misidentified *T. bracteata.*

Cyperaceae

Carex formosa Dewey–BLACK HAWK: Burk (1931). Misidentified *C. davisii.*

C. granularis Muhl.–BLACK HAWK: Burk (1931).

Cyperus diandrus Torr.–BLACK HAWK: Burk (1931).

Gramineae

Agropyron spicatum (Pursh.) Scribn. & Sm.–MITCHELL: Tuttle (1919).

Bromus commutatus Schrad.–MITCHELL: Tuttle (1919).

Juncaceae

Juncus brachycarpus Engelm.—BLACK HAWK: Burk (1931).

Liliaceae

Trillium grandiflorum (Michx.) Salisb.—MITCHELL: Tuttle (1919).
T. undulatum Willd.—MITCHELL: Tuttle (1919).

Orchidaceae

Cypripedium acaule Ait.—MITCHELL: Tuttle (1919).

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APPENDIX
CHARTS OF SPECIES DISTRIBUTIONS

The charts that follow show the distribution of vascular plant species by county in the Iowan area. The number of counties has been restricted to the eighteen from which we have the most floristic data. They have been abbreviated as below:

Mit–Mitchell
How–Howard
Win–Winneshiek
CeG–Cerro Gordo
Flo–Floyd
Chi–Chickasaw
But–Butler
Bre–Bremer
Fay–Fayette
Har–Hardin
Gru–Grundy
BlH–Black Hawk
Buc–Buchanan
Del–Delaware
Tam–Tama
Ben–Benton
Lin–Linn
Joh–Johnson

It should be understood that a species may well occur in a given county, even thought I now have no record of its presence there. Time did not permit a search for every species in each county. Thus, the list for any county is admittedly incomplete, and I hope that this publication will serve to stimulate additional floristic research to complete the record. Careful and intensive county surveys are needed, and information is particularily lacking on plants of urban areas, including the very important "weeds."

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
LYCOPODIACEAE																		
Lycopodium clavatum																		x
L. complanatum						x							x				x	x
L. lucidulum						x				x				x				x
L. selago						x												
SELAGINELLACEAE																		
Selaginella rupestris						x						x		x				
EQUISETACEAE																		
Equisetum arvense	x	x	x	x	x			x	x	x	x	x	x	x		x	x	
E. fluviatile				x										x			x	
E. hyemale		x							x	x				x		x	x	x
E. laevigatum	x	x		x	x		x	x	x	x	x	x	x	x		x	x	x
E. pratense									x									
E. sylvaticum						x								x			x	
OPHIOGLOSSACEAE																		
Botrychium dissectum													x					x
B. simplex																	x	
B. virginianum	x	x		x	x	x		x	x	x		x	x	x	x	x	x	x
Ophioglossum vulgatum																	x	
OSMUNDACEAE																		
Osmunda claytoniana	x	x				x			x	x			x	x	x	x	x	x
PTERIDACEAE																		
Adiantum pedatum	x	x		x				x	x	x		x	x	x	x	x	x	x
Cryptogramma stelleri				x					x									
Pellaea glabella	x	x		x						x				x			x	x
Pteridium aquilinum	x	x							x					x		x	x	x
ASPIDIACEAE																		
Athyrium filix-femina	x	x		x	x			x	x	x			x	x	x	x	x	x
A. pycnocarpon														x				
A. thelypteroides														x		x	x	x
Cystopteris bulbifera		x		x					x	x				x		x	x	x
C. fragilis	x	x		x	x				x	x		x	x	x	x	x	x	x
Dryopteris cristata								x						x				
D. goldiana										x								
D. marginalis										x								
D. spinulosa										x				x			x	x
Gymnocarpium dryopteris										x								x
Matteuccia struthiopteris		x				x			x					x		x	x	x

	Mitt	How	Win	Cel G	Fil o	Chi	But	Bre	Fay	Har	Gru	Bla M	Buc	Del	Tam	Ben	Lin	John
Onoclea sensibilis		x		x		x		x	x			x	x	x		x	x	x
Polystichum acrostichoides																x	x	x
Thelypteris hexagonoptera										x				x			x	x
T. palustris				x							x		x	x		x	x	
Woodsia obtusa										x							x	x
ASPLENIACEAE																		
Asplenium platyneuron																		x
A. rhizophyllum										x				x			x	x
POLYPODIACEAE																		
Polypodium vulgare										x							x	
SALVINIACEAE																		
Azolla mexicana																		x
PINACEAE																		
Pinus strobus		x								x				x				
CUPRESSACEAE																		
Juniperus communis									x					x				
J. virginiana		x	x	x	x				x	x		x	x	x		x	x	x
TAXACEAE																		
Taxus canadensis	x	x			x				x					x			x	
ACANTHACEAE																		
Ruellia humilis														x		x	x	x
ACERACEAE																		
Acer negundo	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
A. saccharinum	x	x	x		x	x	x	x	x	x		x	x	x	x	x	x	x
A. saccharum	x	x	x		x			x	x	x		x		x		x	x	x
ADOXACEAE																		
Adoxa moschatellina	x				x				x	x								x
AIZOACEAE																		
Mollugo verticillata			x					x				x	x			x	x	x
AMARANTHACEAE																		
Amaranthus albus													x			x		
A. graecizans			x									x				x		x
A. retroflexus			x									x			x	x		x
A. tamariscinus							x	x			x		x		x		x	
A. tuberculatus														x				
Froelichia floridana												x				x	x	
ANACARDIACEAE																		

	Mit	How	Wtn	CeG	Flo	Cni	But	Bre	Fay	Har	Gru	Blh	Buc	Del	Tam	Ben	Lin	Joh
Rhus aromatica										x				x		x	x	x
R. glabra	x	x		x	x			x	x	x		x	x	x		x	x	x
R. radicans	x	x		x	x			x	x	x		x		x		x	x	
R. typhina										x				x			x	
APOCYNACEAE																		
Apocynum androsaemifolium	x	x		x				x		x				x		x	x	x
A. cannabinum								x		x		x		x	x		x	x
A. sibiricum		x									x	x			x		x	
AQUIFOLIACEAE																		
Ilex verticillata																	x	
ARALIACEAE																		
Aralia nudicaulis		x		x	x			x		x		x	x	x		x	x	x
A. racemosa		x			x					x			x			x	x	x
Panax quinquefolius		x	x							x		x		x		x	x	x
ARISTOLOCHIACEAE																		
Asarum canadense	x	x		x					x	x		x	x	x		x	x	x
ASCLEPIADACEAE																		
Asclepias amplexicaulis												x					x	x
A. exaltata	x		x			x			x									x
A. hirtella		x	x	x		x		x	x				x	x			x	x
A. incarnata		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
A. ovalifolia	x	x				x												
A. purpurascens																		x
A. quadrifolia																		x
A. sullivantii				x														
A. syriaca		x	x		x			x	x	x	x	x	x	x	x	x	x	x
A. tuberosa		x		x	x				x					x			x	
A. verticillata		x	x	x			x			x	x	x	x	x	x	x	x	x
A. viridiflora				x				x	x			x	x					
BALSAMINACEAE																		
Impatiens biflora	x	x	x	x	x			x	x			x		x			x	
I. pallida	x	x			x				x	x		x		x	x		x	x
BERBERIDACEAE																		
Berberis thunbergii										x			x			x	x	
B. vulgaris				x		x								x				
Caulophyllum thalictroides	x	x								x			x	x	x	x	x	x
Podophyllum peltatum		x			x			x	x	x		x	x	x	x	x	x	x

	Mit	How	Wtn	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	Bil	Buc	Uel	Tam	Ben	Lin	Joh
BETULACEAE																		
Alnus rugosa		x	x			x						x	x					
Betula lutea	x								x	x								
B. nigra						x		x	x	x			x	x		x	x	x
B. papyrifera	x	x							x	x				x			x	
B. pumila v. glandulifera						x												
Carpinus caroliniana	x					x			x	x				x		x	x	x
Corylus americana	x	x	x	x	x			x	x	x		x	x	x	x	x	x	x
C. cornuta			x															
Ostrya virginiana	x	x	x	x	x			x	x	x		x	x	x		x	x	x
BIGNONIACEAE																		
Catalpa speciosa															x			
BORAGINACEAE																		
Cynoglossum officinale										x								
Hackelia americana														x				
H. virginiana		x			x					x		x	x			x		x
Lappula echinata				x	x				x									
L. redowskii												x						
Lithospermum canescens	x	x	x	x	x				x		x	x	x		x	x	x	
L. carolinense												x		x			x	x
L. incisum				x	x	x	x		x			x	x	x		x	x	x
L. latifolium	x	x				x			x	x							x	
Mertensia virginica	x	x	x	x					x				x			x	x	x
Myosotis verna												x	x				x	
Onosmodium molle v. hispidissimum									x					x				
Onosmodium molle v. occidentale				x	x				x			x				x	x	x
CACTACEAE																		
Opuntia humifusa																		x
CALLITRICHACEAE																		
Callitriche heterophylla																		x
CAMPANULACEAE																		
Campanula americana		x		x	x			x	x	x		x	x	x	x	x	x	x
C. aparinoides		x		x	x			x	x			x		x			x	x
C. rapunculoides									x		x							
C. rotundifolia		x							x					x			x	x
Lobelia cardinalis						x	x	x		x		x			x		x	
L. inflata	x		x				x						x	x		x		x
L. siphilitica			x		x	x		x	x	x		x	x	x	x	x	x	x
L. spicata	x	x	x	x				x	x		x		x	x			x	x

	Mit	How	Win	CeG	Fle	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Triodanis perfoliata										x		x						x
CAPPARIDACEAE																		
Cleome serrulata																	x	
Polanisia dodecandra			x													x	x	x
CAPRIFOLIACEAE																		
Diervilla lonicera									x	x		x						
Lonicera dioica		x		x		x		x	x	x		x						
L. morrowi										x				x				
L. prolifera				x	x	x			x				x	x		x	x	x
L. tatarica										x		x		x			x	x
Sambucus canadensis		x		x	x			x	x	x	x	x	x	x	x	x	x	x
S. pubens		x																
Symphoricarpos occidentalis	x		x	x	x				x			x		x		x		
S. orbiculatus												x						x
Triosteum aurantiacum	x	x							x									x
T. perfoliatum	x	x		x	x				x	x		x	x	x		x	x	x
Viburnum lentago	x	x			x			x	x	x			x	x	x	x	x	x
V. opulus v. opulus										x								
V. rafinesquianum	x	x		x						x			x	x			x	x
CARYOPHYLLACEAE																		
Agrostemma githago																	x	
Arenaria lateriflora		x				x			x	x		x	x			x	x	
A. stricta														x				
Cerastium nutans																		x
C. viscosum													x				x	
C. vulgatum				x					x	x			x	x		x	x	x
Lychnis alba		x			x						x			x	x	x	x	x
L. coronaria																	x	
Paronychia canadensis										x				x				
P. fastigiata																	x	x
Saponaria officinalis		x	x		x		x				x			x	x	x		x
Silene antirrhina				x					x		x			x		x	x	x
S. cserei											x							
S. cucubalus																		x
S. nivea	x					x		x	x			x		x			x	x
S. stellata	x	x	x	x	x				x	x	x	x	x		x		x	x
Stellaria aquatica					x													

	Mit	How	Win	CeG	Flo	Chi	But	Bra	Fay	Har	Gru	BlM	Buc	Del	Tam	Ben	Lin	Joh
Stellaria longifolia				x		x		x	x					x	x	x	x	x
S. media		x								x							x	
CELASTRACEAE																		
Celastrus scandens		x			x			x	x	x			x	x		x	x	x
Euonymus atropurpureus			x		x					x		x		x		x	x	x
CERATOPHYLLACEAE																		
Ceratophyllum demersum		x						x							x	x		x
CHENOPODIACEAE																		
Chenopodium album		x	x		x		x	x			x	x	x		x	x		x
C. ambrosioides																		x
C. berlandieri	x												x					
C. hybridum		x		x						x							x	x
C. pratericola												x				x		x
C. standleyanum										x							x	x
C. urbicum										x								
Cycloloma atriplicifolium																x	x	x
Kochia scoparia																		x
Salsola kali v. tenuifolia					x						x							x
CISTACEAE																		
Helianthemum bicknellii		x		x						x						x		x
H. canadense														x		x	x	x
Lechea stricta				x						x				x			x	x
L. tenuifolia														x				
COMPOSITAE																		
Achillea millefolium	x	x	x	x	x			x	x	x	x	x	x	x		x	x	x
Agoseris cuspidata				x														
Ambrosia artemisiifolia			x	x	x		x	x			x	x	x		x	x	x	x
A. psilostachya												x				x		x
A. trifida			x	x	x		x			x	x	x	x	x	x	x	x	x
Anaphalis margaritacea									x								x	
Antennaria neglecta	x			x	x			x	x	x		x	x			x	x	x
A. plantaginifolia				x				x	x	x		x	x	x	x	x	x	x
Anthemis cotula		x		x						x		x			x	x		x
Arctium minus					x			x		x	x			x	x	x	x	
Artemisia biennis					x		x											x
A. caudata			x	x				x		x			x	x		x	x	x
A. dracunculus			x	x	x		x	x	x									

	Mtt	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Artemisia ludoviciana	x			x	x	x	x	x	x		x	x	x	x		x	x	x
A. serrata				x		x		x	x				x					
Aster azureus		x		x	x		x						x	x			x	x
A. cordifolius										x				x				x
A. drummondii	x								x					x	x		x	x
A. ericoides	x	x	x	x	x		x	x	x			x	x	x	x	x	x	
A. junciformis				x														
A. laevis		x		x	x	x			x	x				x	x		x	
A. lateriflorus								x								x	x	x
A. novae-angliae	x	x		x	x			x	x				x	x	x		x	x
A. oblongifolius				x				x						x				x
A. ontarionis	x		x		x	x	x	x				x	x			x	x	x
A. parviceps																		x
A. pilosus																	x	x
A. praealtus														x				
A. prenanthoides														x			x	x
A. ptarmicoides																	x	
A. puniceus		x	x	x	x						x			x			x	x
A. sagittifolius		x	x	x				x	x	x						x	x	x
A. sericeus		x		x		x		x	x			x		x				
A. shortii								x	x					x			x	x
A. simplex					x			x	x						x			x
A. umbellatus	x		x	x		x			x	x				x			x	x
Bidens cernua			x	x			x	x					x		x		x	x
B. coronata				x	x													
B. frondosa						x	x						x		x		x	x
B. polylepis								x					x					x
B. tripartita			x				x	x									x	x
B. vulgata			x				x	x	x				x				x	
Boltonia asteroides												x	x					x
Cacalia atriplicifolia				x														x
C. muhlenbergii	x					x			x					x			x	x
C. suaveolens	x		x			x			x					x				
C. tuberosa		x	x	x	x	x			x	x			x	x			x	x
Chrysanthemum leucanthemum		x	x	x					x								x	
Cichorium intybus																x		x
Cirsium altissimum					x			x								x		

	Mit	Huw	Win	Cef	Tln	Cht	But	Bre	Tay	Mar	Gru	DlH	Buc	Cel	Tam	Ben	Lkx	Jon
Cirsium arvense		x	x							x	x			x	x		x	
C. discolor		x	x				x		x	x	x	x	x		x	x	x	
C. flodmanii					x													x
C. hillii	x	x		x	x			x		x	x	x		x			x	x
C. muticum				x														
C. vulgare		x			x					x		x		x		x	x	
Conyza canadensis			x		x		x					x	x		x	x	x	x
C. ramosissima																		x
Coreopsis palmata		x							x	x	x		x	x			x	
C. tinctoria									x								x	
Dyssodia papposa																	x	
Echinacea pallida				x	x				x		x		x	x	x	x	x	
Eclipta alba																		x
Erechtites hieracifolia						x										x		x
Erigeron annuus		x	x		x			x	x	x	x	x	x	x	x	x	x	x
E. philadelphicus					x				x	x							x	x
E. pulchellus									x					x			x	x
E. strigosus		x		x	x			x	x	x	x		x	x		x	x	
Eupatorium altissimum		x			x		x					x			x	x		x
E. maculatum		x	x	x	x				x		x		x				x	x
E. perfoliatum		x	x		x			x	x			x	x			x	x	x
E. purpureum	x				x					x		x	x	x	x	x	x	x
E. rugosum	x	x			x		x		x	x		x		x	x	x	x	x
Galinsoga ciliata														x				
Gnaphalium obtusifolium								x					x			x	x	x
Grindelia squarrosa	x																	
Helenium autumnale		x	x		x							x	x			x	x	x
Helianthus annuus													x		x			x
H. decapetalus	x			x						x		x				x	x	x
H. grosseserratus	x	x			x	x	x	x			x		x		x		x	x
H. maximiliani					x		x	x										
H. occidentalis			x			x			x				x	x			x	x
H. rigidus		x	x	x	x				x				x					x
H. strumosus										x					x		x	
H. tuberosus			x	x	x		x						x		x	x		
Heliopsis helianthoides	x	x		x	x			x		x	x	x	x	x		x		x
Hieracium longipilum														x				

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Hieracium scabrum			x			x				x							x	x
H. umbellatum	x	x	x	x	x	x		x	x	x				x			x	x
Iva xanthifolia			x														x	
Krigia biflora				x				x	x					x			x	x
Kuhnia eupatorioides		x	x	x			x					x		x		x	x	x
Lactuca canadensis		x	x		x		x	x		x		x	x	x	x	x	x	x
L. floridana																x		x
L. scariola												x						x
Liatris aspera		x		x	x					x			x				x	x
L. cylindracea		x	x	x	x	x			x								x	
L. ligulistylis	x	x	x		x	x												
L. pycnostachya	x	x	x	x	x			x		x	x		x				x	x
Matricaria matricarioides		x			x			x	x		x					x	x	x
Parthenium integrifolium		x							x		x		x	x				
Prenanthes alba		x		x					x	x				x		x	x	x
P. aspera				x	x													x
P. racemosa		x	x	x	x			x					x					x
Ratibida columnifera				x														
R. pinnata	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x
Rudbeckia hirta		x			x				x	x	x	x	x	x		x	x	
R. laciniata		x			x		x			x		x				x	x	
R. subtomentosa	x					x		x					x			x	x	x
R. triloba				x			x			x				x		x	x	x
Senecio aureus													x					x
S. pauperculus									x									
S. plattensis		x		x				x	x	x			x	x		x	x	x
Silphium integrifolium										x	x					x	x	x
S. laciniatum		x		x							x	x						x
S. perfoliatum		x	x	x	x			x		x	x	x				x	x	x
Solidago canadensis	x	x		x	x	x			x	x	x		x	x	x	x	x	x
S. flexicaulis										x				x		x	x	x
S. gigantea		x	x	x	x		x	x	x	x	x	x	x			x	x	
S. graminifolia		x		x				x			x		x			x	x	
S. missouriensis		x	x	x									x				x	
S. nemoralis		x	x	x	x	x				x			x	x		x	x	x
S. riddellii		x		x	x													
S. rigida	x	x	x	x	x	x			x			x	x		x	x	x	x

	Mit	How	Won	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Solidago speciosa	x			x	x									x			x	x
S. ulmifolia					x					x		x		x	x	x	x	x
Sonchus asper									x									x
Tanacetum vulgare									x									x
Taraxacum erythrospermum					x				x	x					x	x	x	x
T. officinale		x			x				x	x	x	x	x	x		x	x	
Tragopogon dubius					x					x		x	x	x		x		x
T. pratensis									x									
Vernonia fasciculata					x	x		x			x	x	x	x		x	x	x
Xanthium strumarium			x				x									x	x	
CONVOLVULACEAE																		
Convolvulus arvensis					x				x			x					x	x
C. sepium		x		x				x	x	x	x	x	x	x		x	x	
Cuscuta cuspidata																	x	
C. gronovii																	x	
C. polygonorum			x															
Ipomoea pandurata																	x	x
CORNACEAE																		
Cornus alternifolia	x	x			x				x	x		x	x	x		x	x	x
C. drummondii							x							x		x	x	x
C. obliqua		x		x		x		x	x	x	x	x	x		x	x	x	x
C. racemosa	x	x			x			x	x	x	x	x	x	x	x	x	x	x
C. rugosa		x		x					x	x				x			x	
C. stolonifera		x		x					x					x				
CRASSULACEAE																		
Sedum acre																	x	
CRUCIFERAE																		
Arabis canadensis				x						x								x
A. drummondi		x				x			x				x				x	x
A. glabra		x							x									
A. hirsuta		x								x				x			x	
A. lyrata			x											x				
A. shortii		x			x					x						x	x	x
Armoracia rusticana															x	x		
Barbarea vulgaris					x				x	x			x	x		x	x	
Berteroa incana					x			x										
Brassica campestris																	x	

	Mit	How	Win	CeG	Fle	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Brassica juncea											x							
B. kaber					x			x	x		x		x				x	
B. nigra					x													
Capsella bursa-pasturis										x			x	x	x	x	x	x
Cardamine bulbosa				x					x	x	x		x					x
C. douglassii																	x	
C. parviflora v. arenicola													x			x	x	x
C. pensylvanica		x								x			x			x	x	x
Dentaria laciniata					x					x			x			x	x	x
Descurainia pinnata					x				x		x					x		
Draba reptans				x									x			x	x	x
D. verna													x					
Erysimum asperum															x			
E. cheiranthoides			x	x					x	x				x		x	x	
Iodanthus pinnatifidus				x				x									x	x
Lepidium campestre									x		x						x	
L. densiflorum		x		x	x			x	x		x		x	x	x	x		
L. virginicum													x	x		x	x	x
Lobularia maritima															x		x	
Nasturtium officinale										x						x		
Neslia paniculata																	x	
Rorippa islandica		x	x	x				x	x		x	x	x	x			x	x
R. sessiliflora															x	x		x
R. sylvestris												x						x
Sisymbrium altissimum											x							
S. officinale		x			x				x	x	x							
Thlaspi arvense											x					x		x
CUCURBITACEAE																		
Echinocystis lobata		x	x	x						x		x					x	
Sicyos angulatus											x						x	x
ELAEAGNACEAE																		
Elaeagnus angustifolia												x						
ERICACEAE																		
Chimaphila umbellata																	x	
Gaylussacia baccata																	x	
Monotropa uniflora				x				x	x				x	x		x	x	x
Pyrola elliptica	x	x	x						x				x	x		x	x	x

	Mitt	Mow	Wil	Cel	Fol	Chi	Bur	Bre	Fay	Har	Gru	Hil	Duc	Del	Tam	Bex	Lis	Jcn
EUPHORBIACEAE																		
Acalypha rhomboidea			x	x			x	x							x	x	x	x
A. virginica																		x
Croton glandulosus																x		
Euphorbia corollata	x	x	x						x	x	x	x	x	x		x	x	x
E. cyparissias					x				x								x	
E. dentata							x					x					x	x
E. dictyosperma																	x	x
E. esula												x		x				
E. geyeri					x													x
E. glyptosperma				x	x										x		x	x
E. heterophylla							x										x	x
E. hexagona												x				x		
E. maculata							x					x	x			x	x	x
E. marginata																		x
E. supina					x							x				x		x
FAGACEAE																		
Quercus alba					x			x		x		x	x	x		x	x	x
Q. bicolor						x		x	x	x			x			x		x
Q. ellipsoidalis	x	x	x	x	x	x		x	x	x		x	x	x			x	
Q. macrocarpa	x	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x
Q. bicolor x Q. macrocarpa								x										
Q. muhlenbergii														x		x	x	x
Q. rubra	x	x			x		x	x		x		x		x			x	x
Q. velutina										x		x	x	x	x	x	x	x
GENTIANACEAE																		
Gentiana andrewsii		x	x	x	x	x		x	x	x	x		x	x			x	x
G. crinita						x			x								x	x
G. flavida				x		x			x	x				x			x	x
G. procera				x														
G. puberula				x	x	x	x	x	x	x	x	x	x	x				x
G. quinquefolia	x			x	x	x			x			x		x		x	x	x
GERANIACEAE																		
Geranium carolinianum						x			x			x	x			x	x	x
G. maculatum	x	x			x			x	x	x	x	x	x	x	x	x	x	x
GUTTIFERAE																		

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Hypericum boreale																	x	
H. majus		x				x		x	x				x			x		x
H. mutilum																	x	x
H. perforatum	x																	x
H. punctatum			x		x	x			x				x	x		x	x	x
H. pyramidatum		x	x	x		x			x									x
H. sphaerocarpum							x				x	x	x	x		x	x	x
Triadenum fraseri				x				x	x							x	x	
HALORAGACEAE																		
Myriophyllum spicatum v. exalbescens																	x	
HYDROPHYLLUM																		
Ellisia nyctelea		x			x				x	x	x	x	x	x		x	x	x
Hydrophyllum appendiculatum	x	x			x				x	x								
H. virginianum		x			x		x		x	x			x	x	x	x	x	x
JUGLANDACEAE																		
Carya cordiformis	x	x	x		x	x	x	x	x	x	x		x	x	x	x	x	x
C. ovata					x	x		x	x	x	x	x	x	x	x	x	x	x
Juglans cinerea	x	x	x	x			x		x	x		x	x	x		x	x	x
J. nigra		x			x		x		x	x	x	x	x	x	x	x	x	
LABIATAE																		
Agastache nepetoides					x		x								x	x		x
A. scrophulariaefolia	x						x			x						x	x	x
Blephilia hirsuta			x							x				x			x	x
Dracocephalum parviflorum	x					x												
Galeopsis tetrahit		x																
Glecoma hederacea		x			x				x	x							x	x
Hedeoma hispida		x		x					x		x	x		x			x	x
Leonurus cardiaca	x	x			x				x	x			x	x				x
Lycopus americanus	x	x	x	x	x	x	x		x	x		x	x		x		x	x
L. uniflorus				x	x			x				x				x		
L. virginicus																x	x	
Mentha arvensis				x	x								x				x	
M. gentilis			x														x	
Monarda fistulosa	x	x			x	x			x	x		x			x	x	x	x
M. punctata																x	x	x
Nepeta cataria		x			x			x	x	x			x	x	x	x	x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Physostegia parviflora			x			x	x	x	x			x	x				x	x
Prunella vulgaris	x	x			x	x			x	x		x	x	x	x	x	x	x
Pycnanthemum flexuosum																	x	x
P. pilosum																	x	x
P. virginianum	x	x			x	x		x	x		x	x	x	x		x	x	x
Scutellaria galericulata				x													x	
S. lateriflora	x			x		x						x			x	x	x	x
S. nervosa																	x	
S. ovata									x									x
S. parvula		x		x	x	x	x		x	x				x		x	x	x
Stachys hispida					x					x	x	x					x	
S. palustris		x		x	x	x		x			x	x	x	x			x	
S. tenuifolia					x							x				x	x	x
Teucrium canadense	x	x	x		x		x		x		x	x	x	x	x	x	x	x
Trichostema brachiatum		x		x					x							x	x	x
LEGUMINOSAE																		
Amorpha canescens	x	x							x	x	x			x		x	x	
A. fruticosa		x							x	x							x	x
Amphicarpa bracteata	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x
Apios americana	x			x						x			x				x	x
Astragalus canadensis	x			x	x			x	x	x				x			x	x
A. crassicarpus		x	x	x								x						
A. distortus												x				x	x	
Baptisia leucantha	x	x						x	x		x		x	x		x		
B. leucophaea		x	x	x	x		x	x				x	x	x			x	
Cassia marilandica																	x	x
Cercis canadensis																		x
Chamaecrista fasciculata							x			x		x	x	x	x	x	x	x
Crotalaria sagittalis																	x	x
Desmodium canadense		x		x	x					x	x	x		x		x	x	x
D. canescens																		x
D. cuspidatum		x		x	x				x			x			x	x	x	x
D. glutinosum		x		x	x				x			x	x	x	x	x	x	x
D. illinoense								x	x							x		
D. nudiflorum						x										x	x	
D. paniculatum																x		
Gleditsia triacanthos			x		x		x			x		x		x	x	x	x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Gymnocladus dioica							x		x			x		x		x	x	x
Lathyrus ochroleucus	x			x														
L. palustris				x	x	x			x				x	x				x
L. venosus	x	x		x	x	x			x				x	x				
Lespedeza capitata	x	x		x	x	x		x	x	x	x	x	x	x		x	x	x
L. leptostachya		x		x														
L. stipulacea																		x
L. violacea																x		x
Lotus corniculatus														x			x	
Medicago lupulina		x		x	x				x	x		x		x		x	x	x
M. sativa					x			x	x		x			x		x	x	x
Melilotus alba		x		x			x	x	x		x	x		x	x	x	x	x
M. officinalis			x		x				x		x				x			
Petalostemum candidum				x				x	x	x		x		x			x	x
P. purpureum	x	x		x	x	x	x		x			x	x	x			x	
P. villosum												x						
Psoralea argophylla	x	x		x	x													
Robinia pseudoacacia						x				x		x		x	x		x	x
Schrankia uncinata															x			
Strophostyles helvola							x						x			x	x	x
S. leiosperma													x			x	x	x
Tephrosia virginiana										x				x		x	x	x
Trifolium agrarium		x												x				
T. hybridum	x		x	x	x		x	x	x			x		x		x	x	
T. pratense	x	x		x								x		x	x	x	x	x
T. procumbens				x	x				x					x				
T. reflexum																	x	
T. repens				x				x	x	x		x		x	x	x	x	x
Vicia americana	x	x		x	x		x	x		x		x	x	x			x	
V. angustifolia		x																
V. villosa														x				
LENTIBULARIACEAE																		
Utricularia gibba																		x
U. vulgaris			x														x	x
LINACEAE																		
Linum sulcatum		x	x	x	x				x	x		x		x			x	
L. usitatissimum			x						x								x	

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
LYTHRACEAE																		
Ammannia coccinea												x						
Decodon verticillatus																	x	
Lythrum alatum		x		x			x	x			x	x	x	x			x	x
Rotala ramosior																		x
MALVACEAE																		
Abutilon theophrasti												x		x	x			x
Hibiscus trionum															x	x		
Malva neglecta										x								
M. sylvestris															x		x	
Napaea dioica		x										x						
MENISPERMACEAE																		
Menispermum canadense		x			x					x			x	x		x	x	x
MENYANTHACEAE																		
Menyanthes trifoliata				x														
MORACEAE																		
Cannabis sativa			x		x					x	x	x	x		x	x	x	x
Humulus lupulus	x	x	x		x				x				x	x			x	x
Morus alba							x			x		x	x	x	x	x	x	x
M. rubra														x		x	x	x
NYCTAGINACEAE																		
Mirabilis nyctaginea			x	x			x		x		x	x	x	x		x	x	
NYMPHAEACEAE																		
Brasenia schreberi																	x	x
Nuphar luteum sub. *variegatum*		x		x								x					x	
Nymphaea tuberosa	x	x										x					x	x
OLEACEAE																		
Fraxinus americana					x				x	x		x	x	x		x	x	x
F. nigra	x	x	x	x	x				x	x		x	x	x		x	x	x
F. pennsylvanica	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ONAGRACEAE																		
Circaea quadrisulcata	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x
Epilobium angustifolium														x				
E. coloratum			x	x	x		x	x				x	x		x		x	x
E. glandulosum					x													
E. leptophyllum		x		x				x										
Gaura biennis																	x	

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Ludwigia alternifolia																	x	x
L. palustris							x						x				x	x
L. polycarpa						x		x				x	x				x	x
Oenothera biennis					x					x		x			x		x	x
O. laciniata																	x	
O. parviflora					x										x	x		
O. perennis		x															x	
O. rhombipetala													x	x		x	x	x
O. serrulata			x	x														x
O. strigosa		x		x					x			x					x	x
OROBANCHACEAE																		
Orobanche uniflora																	x	
OXALIDACEAE																		
Oxalis dillenii				x	x									x			x	x
O. stricta		x		x	x			x		x	x	x		x	x	x	x	x
O. violacea					x							x	x			x	x	x
PAPAVERACEAE																		
Chelidonium majus			x															
Corydalis micrantha				x			x				x	x				x	x	
Dicentra canadensis										x		x					x	
D. cucullaria					x	x				x		x	x		x	x	x	
Sanguinaria canadensis		x		x	x	x			x	x		x	x	x		x	x	x
PHRYMACEAE																		
Phryma leptostachya	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x
PHYTOLACCACEAE																		
Phytolacca americana																		x
PLANTAGINACEAE																		
Plantago aristata																		x
P. lanceolata																	x	x
P. major		x		x								x						
P. purshii												x	x	x				x
P. rugelii		x	x		x			x	x	x	x	x	x	x	x	x	x	x
P. virginica																	x	
PLATANACEAE																		
Platanus occidentalis							x						x	x			x	x
POLEMONIACEAE																		
Collomia linearis												x					x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	Sil	Buc	Del	Tam	Ben	Lin	Joh
Phlox bifida												x				x	x	
P. divaricata		x			x					x			x	x		x	x	x
P. maculata		x		x	x	x		x	x								x	x
P. paniculata																		x
P. pilosa			x	x					x		x	x	x	x	x	x	x	
Polemonium reptans	x	x		x	x			x	x	x	x	x	x	x	x	x	x	x
POLYGALACEAE																		
Polygala cruciata																	x	
P. incarnata								x										
P. sanguinea	x	x	x	x					x				x	x		x	x	x
P. senega		x	x	x					x					x		x	x	x
P. verticillata			x	x						x		x					x	x
POLYGONACEAE																		
Fagopyrum esculentum			x		x				x							x	x	
Polygonum achoreum																		x
P. amphibium			x	x								x						
P. aviculare					x						x	x	x	x		x		x
P. coccineum	x		x		x	x	x									x	x	x
P. convolvulus	x	x		x	x			x	x	x	x	x	x	x		x	x	x
P. erectum					x							x	x				x	x
P. hydropiper	x		x	x	x	x	x	x		x			x		x		x	
P. lapathifolium		x	x	x				x			x	x			x	x	x	x
P. orientale																	x	
P. pensylvanicum			x		x		x	x	x			x	x	x	x	x	x	x
P. persicaria		x		x				x						x			x	
P. punctatum			x	x		x		x				x	x	x		x	x	x
P. ramosissimum							x	x				x	x			x	x	x
P. sagittatum						x		x			x	x	x		x	x	x	x
P. scandens			x							x			x	x		x		x
P. tenue																		x
P. virginianum										x		x				x	x	x
Rumex acetosella			x	x				x	x	x		x	x	x		x	x	x
R. altissimus					x	x	x	x	x	x	x	x	x	x		x	x	x
R. crispus		x					x	x	x	x	x	x	x	x			x	x
R. maritimus																		
R. mexicanus					x													
R. obtusifolius												x						

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Rumex orbiculatus						x		x				x						x
R. patientia												x						
R. verticillatus												x						
PORTULACACEAE																		
Claytonia virginica	x								x	x		x	x		x	x	x	x
Portulaca oleracea					x							x			x			
PRIMULACEAE																		
Androsace occidentalis				x								x	x			x	x	x
Dodecatheon meadia		x				x			x			x	x	x		x	x	x
Lysimachia ciliata		x		x			x	x	x	x	x	x	x	x	x		x	x
L. hybrida	x					x						x				x	x	x
L. nummularia									x	x		x	x			x	x	x
L. quadriflora		x		x	x				x				x	x		x	x	
L. terrestris								x					x			x	x	x
L. thyrsiflora				x													x	x
RANUNCULACEAE																		
Actaea pachypoda												x				x	x	x
Actaea rubra	x	x		x	x					x			x				x	x
Anemone canadensis		x			x	x	x	x	x	x	x	x	x	x	x	x	x	x
A. caroliniana				x								x						
A. cylindrica	x	x		x	x		x	x	x		x	x		x				x
A. patens		x				x	x		x			x		x		x	x	
A. quinquefolia	x									x		x	x		x	x	x	x
A. virginiana	x	x		x	x				x	x		x	x	x	x	x	x	x
Aquilegia canadensis		x		x	x				x	x		x	x		x	x	x	x
Caltha palustris	x			x					x	x	x	x			x	x	x	x
Clematis pitcheri												x	x	x		x	x	x
C. virginiana		x	x	x	x				x	x			x			x	x	x
Delphinium virescens		x	x	x	x		x	x	x			x					x	x
Hepatica acutiloba	x			x		x				x		x		x		x	x	x
Isopyrum biternatum	x				x					x		x				x	x	x
Myosurus minimus													x			x	x	
Ranunculus abortivus	x	x		x	x			x	x	x		x	x	x		x	x	x
R. aquatilis																	x	
R. fascicularis				x	x					x			x	x		x	x	
R. flabellaris																	x	
R. longirostris																	x	

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	Bll	Buc	Del	Tam	Ben	Lin	Joh
Ranunculus pensylvanicus							x					x				x	x	x
R. recurvatus									x								x	x
R. rhomboideus												x						
R. sceleratus			x														x	x
R. septentrionalis	x	x		x	x		x		x	x	x		x		x	x	x	x
Thalictrum dasycarpum	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
T. dioicum	x	x	x	x					x									
T. thalictroides									x	x				x		x	x	x
RHAMNACEAE																		
Ceanothus americanus	x	x		x	x		x	x	x		x	x	x	x		x	x	x
C. ovatus											x							
Rhamnus cathartica	x	x	x		x					x	x							
R. lanceolata																		x
ROSACEAE																		
Agrimonia gryposepala	x	x		x	x					x		x	x	x	x	x	x	x
A. parviflora																		x
A. pubescens		x		x		x			x			x		x				x
Amelanchier arborea		x								x				x			x	x
A. laevis														x				
A. sanguinea			x	x										x				
A. spicata				x												x	x	
Crataegus calpodendron		x			x					x			x				x	x
C. coccinea										x							x	
C. crus-galli																		x
C. margaretta										x			x		x	x	x	x
C. mollis					x		x	x		x	x	x	x	x	x	x	x	x
C. punctata		x			x			x	x	x		x	x	x	x	x		
C. succulenta				x						x				x				
Fragaria vesca		x		x	x				x	x			x	x			x	x
F. virginiana	x	x		x	x			x	x	x	x		x	x	x	x	x	x
Geum aleppicum				x				x						x				
G. canadense	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
G. laciniatum		x				x		x	x		x	x	x	x				
G. triflorum		x		x	x	x		x	x			x						
Physocarpus opulifolius		x		x		x				x		x	x	x			x	x
Potentilla anserina																	x	
P. argentea														x				

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Potentilla arguta	x	x		x	x		x	x	x	x	x	x	x				x	
P. norvegica		x	x		x		x	x	x	x	x	x	x	x	x	x	x	x
P. palustris				x													x	
P. recta								x		x		x	x	x		x	x	
P. rivalis								x										x
P. simplex		x		x	x		x	x	x	x			x	x	x	x	x	x
Prunus americana		x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
P. pensylvanica	x		x	x						x								
P. serotina	x	x		x	x			x	x	x	x	x	x	x	x	x	x	x
P. virginiana	x	x			x			x	x	x	x	x	x	x	x	x	x	x
Pyrus ioensis		x		x	x		x	x		x	x		x	x		x	x	x
P. malus														x				
Rosa blanda	x	x		x	x		x	x	x			x	x		x	x	x	x
R. carolina		x	x	x	x			x			x		x	x		x	x	x
R. multiflora																		x
R. suffulta		x		x				x			x	x	x	x	x	x		x
R. carolina X R. suffulta				x														
R. woodsii		x		x														x
Rubus allegheniensis					x			x	x	x		x	x	x	x	x	x	x
R. flagellaris								x					x					x
R. occidentalis	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x
R. strigosus		x			x									x			x	
Spiraea alba		x			x	x		x	x		x	x				x	x	
RUBIACEAE																		
Cephalanthus occidentalis							x					x				x	x	x
Galium aparine		x			x			x	x	x	x		x	x		x	x	x
G. asprellum														x				
G. boreale	x	x		x	x	x	x	x	x	x	x	x	x	x			x	
G. circaezans		x															x	
G. concinnum	x	x		x	x				x	x	x	x	x	x	x	x	x	
G. labradoricum				x														
G. obtusum		x		x	x	x		x			x		x	x			x	x
G. tinctorium	x						x	x									x	x
G. trifidum			x															
G. triflorum	x	x		x					x	x		x	x	x		x	x	
Houstonia minima												x	x			x	x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
RUTACEAE																		
Xanthoxylum americanum	x	x		x	x		x	x	x			x	x	x	x	x	x	x
SALICACEAE																		
Populus alba									x									x
P. balsamifera	x	x																
P. deltoides	x		x	x	x	x	x	x	x	x	x	x		x		x	x	x
P. grandidentata					x			x		x		x	x	x		x	x	x
P. tremuloides	x	x		x	x	x		x	x	x	x	x	x	x		x	x	x
Salix amygdaloides		x		x	x				x	x		x	x		x		x	x
S. babylonica												x						
S. bebbiana	x	x		x					x		x			x				
S. candida				x														
S. discolor	x	x		x	x			x			x		x	x			x	x
S. fragilis		x			x					x	x					x	x	
S. humilis	x	x		x	x	x	x	x	x		x	x	x	x		x	x	x
S. interior		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x
S. lucida			x	x														
S. nigra	x	x	x	x			x	x	x	x	x	x	x	x		x	x	x
S. pedicellaris				x														
S. petiolaris	x	x			x	x		x	x		x					x		x
S. rigida				x	x	x		x	x		x	x		x			x	x
SANTALACEAE																		
Comandra umbellata	x	x		x	x		x		x	x	x	x	x	x		x	x	x
SAXIFRAGACEAE																		
Heuchera richardsonii	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x
Mitella diphylla		x			x				x	x		x				x	x	x
Parnassia glauca				x					x								x	
Penthorum sedoides				x						x	x	x	x			x	x	x
Ribes americanum	x	x		x					x	x	x	x		x			x	
R. cynosbati	x	x		x					x	x							x	x
R. missouriense	x	x			x		x		x	x	x	x	x	x	x	x	x	x
R. odoratum																	x	x
R. sativum				x														
Saxifraga pensylvanica	x	x		x	x			x	x		x		x	x			x	x
Sullivantia renifolia																	x	
SCROPHULARIACEAE																		
Bacopa rotundifolia																	x	

	Mit	How	Wln	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Castilleja coccinea		x		x				x	x					x		x	x	x
C. sessiliflora			x	x						x				x				
Chaenorrhinum minus													x				x	x
Chelone glabra	x			x										x				x
Dasistoma macrophylla																		x
Gerardia aspera			x	x					x									
G. auriculata												x						
G. purpurea			x					x					x			x	x	
G. tenuifolia		x		x			x						x				x	x
Gratiola neglecta		x							x							x	x	x
Linaria canadensis																	x	x
L. vulgaris							x								x	x	x	
Lindernia anagallidea																		x
L. dubia						x		x										
Mimulus glabratus																	x	
M. ringens		x	x	x			x	x	x	x	x	x	x		x		x	x
Pedicularis canadensis		x		x					x		x	x	x	x	x		x	x
P. lanceolata		x		x	x						x		x				x	x
Penstemon digitalis			x														x	
P. grandiflorus													x	x				
Scrophularia lanceolata	x			x	x	x		x	x		x	x	x	x		x	x	x
S. marilandica		x	x		x		x			x		x		x		x	x	x
Verbascum blattaria																		x
V. phlomoides						x												
V. thapsus		x							x	x		x		x		x	x	x
Veronica anagallis-aquatica			x															
V. catenata				x														
V. longifolia																	x	
V. peregrina					x				x	x	x		x	x		x	x	x
Veronicastrum virginicum	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x
Wulfenia bullii												x					x	
SOLANACEAE																		
Datura stramonium														x	x	x		x
Lycium halimifolium																		x
Physalis heterophylla			x	x	x		x	x	x	x		x	x	x	x	x	x	x
P. longifolia												x					x	x
Physalis virginiana		x		x				x				x	x	x			x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	Blh	Buc	Del	Tam	Ben	Lin	Joh
Solanum carolinense							x				x	x				x		x
S. dulcamara														x				
S. nigrum		x	x	x						x	x		x	x	x	x	x	x
S. rostratum																	x	
STAPHYLEACEAE																		
Staphylea trifolia		x		x	x					x			x	x		x	x	x
THYMELAEACEAE																		
Dirca palustris																	x	x
TILIACEAE																		
Tilia americana	x	x	x	x	x		x	x	x	x		x	x	x	x	x	x	x
ULMACEAE																		
Celtis occidentalis		x	x		x		x		x	x	x	x	x	x	x	x	x	x
Ulmus americana	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
U. pumila												x			x		x	x
U. rubra		x	x		x		x		x	x	x	x	x	x	x	x	x	x
U. thomasi	x		x		x	x	x	x	x	x		x		x	x		x	
UMBELLIFERAE																		
Angelica atropurpurea				x														
Chaerophyllum procumbens					x											x		
Cicuta bulbifera			x	x				x									x	
C. maculata		x		x		x		x			x			x		x	x	
Conium maculatum																	x	
Cryptotaenia canadensis		x		x	x		x	x	x	x	x	x	x	x	x	x	x	x
Daucus carota													x			x		
Eryngium yuccifolium		x		x					x		x		x	x		x		x
Heracleum lanatum	x	x		x						x		x						
Osmorhiza claytoni	x	x		x	x			x	x	x	x	x	x	x		x	x	x
O. longistylis		x			x		x		x	x	x		x	x		x	x	x
Oxypolis rigidior		x	x		x				x		x		x	x				x
Pastinaca sativa		x	x	x	x					x	x			x	x	x	x	
Polytaenia nuttallii									x			x					x	
Sanicula canadensis		x			x		x		x	x		x	x	x		x	x	x
S. gregaria	x	x		x	x			x	x	x	x	x	x	x	x	x	x	x
S. marilandica				x					x					x				
Sium suave				x	x							x						
Taenidia integerrima		x														x		x
Thaspium barbinode										x			x	x		x	x	x

	Mitt	How	Win	CeG	Flo	Cht	But	Bre	Fay	Har	Gru	Blh	Buc	Del	Tam	Ben	Lin	Joh
Zizia aptera		x	x	x														
Z. aurea	x	x		x	x			x	x		x	x	x	x		x	x	x
URTICACEAE																		
Boehmeria cylindrica												x	x					x
Laportia canadensis		x			x		x	x		x		x		x		x	x	x
Parietaria pensylvanica		x			x					x				x				x
Pilea fontana								x										
P. pumila	x	x		x	x		x			x	x	x		x	x	x	x	x
Urtica dioica		x			x		x	x	x	x	x	x	x	x	x	x	x	
VALERIANACEAE																		
Valeriana ciliata		x																
VERBENACEAE																		
Lippia lanceolata						x				x		x				x	x	x
Verbena bracteata					x							x		x	x	x	x	
V. hastata			x	x	x	x	x	x		x	x	x	x	x		x	x	x
V. simplex				x				x				x	x			x	x	x
V. stricta	x		x	x	x	x		x	x	x	x	x		x		x	x	x
V. stricta x V. simplex												x						x
V. urticifolia		x	x	x	x				x	x	x	x	x			x	x	
VIOLACEAE																		
Viola eriocarpa	x	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x
V. lanceolata																x		x
V. macloskeyi sub. pallens																	x	
V. missouriensis					x			x		x			x			x	x	x
V. nephrophylla		x		x					x		x		x			x		x
V. papilionacea		x				x					x	x	x	x	x	x		x
V. pedata			x	x	x				x			x	x			x	x	
V. pedatifida		x		x			x	x	x				x	x	x	x	x	
V. rugulosa														x				
V. sagittata		x							x				x			x	x	x
V. sagittata x V. pedatifida																		x
V. sororia	x	x		x	x	x			x	x	x		x	x	x	x	x	x
VITACEAE																		
Parthenocissus quinquefolia		x		x	x				x	x		x	x	x	x	x	x	
P. vitacea	x	x			x			x	x	x	x	x	x	x		x	x	x
Vitis riparia	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x

	Mit	How	Win	CeG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
ZYGOPHYLLACEAE																		
Tribulus terrestris																	x	
ALISMATACEAE																		
Alisma subcordatum		x	x	x	x		x	x				x	x			x	x	x
Sagittaria cuneata					x							x						
S. englemanniana												x						x
S. graminea												x						x
S. latifolia			x	x		x	x	x	x			x			x	x	x	x
S. rigida						x	x									x	x	x
AMARYLLIDACEAE																		
Hypoxis hirsuta	x	x		x	x				x				x	x	x		x	x
ARACEAE																		
Acorus calamus				x		x						x					x	x
Arisaema dracontium								x									x	x
A. triphyllum	x	x		x	x		x		x	x	x	x	x	x	x	x	x	x
Symplocarpus foetidus																x	x	
COMMELINACEAE																		
Commelina communis													x				x	x
Tradescantia bracteata			x	x				x			x		x			x	x	x
T. ohiensis						x		x	x		x	x	x	x			x	x
CYPERACEAE																		
Carex albursina										x				x		x	x	x
C. annectens								x				x	x	x			x	x
C. atherodes												x						x
C. bebbii			x	x							x			x			x	
C. bicknellii	x	x			x	x					x	x	x	x			x	x
C. blanda		x			x					x			x	x		x	x	x
C. brevior	x	x		x	x			x	x			x		x			x	x
C. buxbaumii		x			x				x				x	x				x
C. careyana														x				
C. cephaloidea									x	x			x	x				x
C. cephalophora								x	x	x			x	x				x
C. comosa																	x	
C. conjuncta										x							x	
C. conoidea		x							x								x	x
C. convoluta		x	x	x	x			x	x	x			x	x		x	x	x
C. cristatella				x	x				x		x		x	x			x	

	Mit	How	Win	CoG	Flo	Chi	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Carex davisii												x						x
C. diandra				x														
C. digitalis																	x	x
C. eburnea														x				
C. festucacea																	x	
C. gracillima																		x
C. gravida	x	x			x				x	x	x		x				x	
C. grayii												x				x		x
C. grisea					x					x	x		x		x		x	x
C. haydenii		x			x			x					x	x			x	x
C. hirtifolia		x								x				x		x	x	x
C. hitchcockiana										x							x	
C. hystricina									x		x	x		x			x	x
C. interior		x						x			x						x	x
C. jamesii										x							x	x
C. lacustris				x														x
C. laeviconica																x		x
C. lanuginosa		x		x					x		x		x	x			x	x
C. leavenworthii				x								x						x
C. lupulina		x				x		x				x						x
C. meadii																	x	x
C. molesta	x												x	x			x	x
C. muhlenbergii												x						x
C. muskingumensis																		x
C. normalis	x								x				x	x	x		x	x
C. oligocarpa										x			x					x
C. pedunculata										x								
C. pensylvanica				x						x			x	x		x	x	x
C. praegracilis	x																	
C. prairea				x														
C. projecta						x						x		x				
C. rostrata						x		x										
C. sartwellii		x		x														x
C. scoparia	x	x	x	x	x			x	x		x	x	x	x			x	x
C. shortiana																		x
C. sparganioides	x			x						x							x	x
C. sprengelii	x			x	x					x			x			x	x	x

	Mitt	How	Win	Cel	Flo	Cha	But	Bre	Fay	Har	Gru	Bat	Buc	Det	Tam	Ken	Lin	Jon
Carex stipata								x	x	x							x	x
C. stricta									x	x	x		x	x			x	
C. suberecta				x										x			x	
C. tenera								x										
C. tetanica					x						x							x
C. tribuloides												x					x	x
C. trichocarpa																		x
C. typhina						x												
C. vesicaria								x				x					x	
C. vulpinoidea			x	x	x			x	x		x	x	x	x	x	x	x	x
C. woodii														x				
Cyperus aristatus																		x
C. erythrorhizos																		x
C. esculentus			x									x				x	x	x
C. ferruginescens												x					x	x
C. filiculmis												x	x	x		x	x	x
C. rivularis																		x
C. schweinitzii			x									x			x	x	x	x
C. striposus		x	x	x	x	x	x	x				x	x			x	x	
Dulichium arundinaceum								x								x	x	x
Eleocharis acicularis				x				x				x					x	x
E. calva								x				x		x			x	x
E. compressa		x											x					x
E. engelmanni														x				
E. obtusa			x			x		x						x			x	x
E. olivacea																		x
E. palustris	x					x		x				x	x				x	x
E. tenuis								x				x						
E. wolfii																		x
Eriophorum angustifolium		x		x										x			x	
E. gracile				x														
Fimbristylis autumnalis																		x
Hemicarpha micrantha												x						x
Scirpus acutus														x				x
S. atrovirens	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
S. cyperinus		x	x			x		x				x	x	x		x	x	x
S. fluviatilis											x	x						x

	Jan	Mar	May	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Scirpus heterochaetus																					x
S. lineatus								x				x	x						x	x	
S. validus		x						x	x		x	x		x						x	
Scleria triglomerata												x								x	
DIOSCOREACEAE																					
Dioscoria villosa	x	x			x			x	x	x		x	x	x	x				x	x	
GRAMINEAE																					
Agropyron repens	x	x		x	x			x					x	x					x	x	x
A. smithii		x		x	x							x		x						x	x
A. trachycaulum	x	x		x								x		x							
Agrostis alba	x	x	x	x	x		x	x		x	x	x	x	x					x	x	x
A. hyemalis									x			x	x	x						x	x
A. perennans	x		x							x		x								x	x
A. scabra	x	x																			
Alopecurus aequalis																x					
A. carolinianus																				x	x
Andropogon gerardi	x	x	x	x	x	x	x	x				x	x	x	x	x			x	x	x
A. scoparius	x	x	x	x	x	x	x	x		x		x	x	x					x	x	x
Aristida basiramea										x			x								x
A. intermedia																					x
A. oligantha																				x	x
Avena fatua							x						x								
A. sativa											x			x	x						x
Bouteloua curtipendula		x	x	x		x	x	x				x		x					x	x	x
B. hirsuta																				x	
Brachyelytrum erectum										x			x								x
Bromus ciliatus				x																	
B. inermis	x			x	x			x	x		x	x							x	x	x
B. japonicus												x									x
B. kalmii		x	x	x																x	
B. latiglumis	x		x	x			x		x											x	
B. purgans	x	x		x								x	x	x	x					x	x
B. secalinus																				x	
B. tectorum								x			x	x								x	
Calamagrostis canadensis	x	x		x	x	x		x	x		x		x	x					x	x	x
Cenchrus longispinus			x		x								x						x	x	x
Cinna arundinacea												x								x	x

	Mitt	How	Woth	CeG	Flo	Chf	But	Bre	Fay	Hear	Gru	Bil H	Buc	Net	Tam	Ben	Lin	Joh
Dactylis glomerata								x		x	x			x		x	x	x
Danthonia spicata										x								
Diarrhena americana													x		x			x
Digitaria ischaemum																		x
D. sanguinalis					x	x						x			x			x
Echinochloa crusgalli				x	x							x						x
E. pungens		x	x	x	x		x					x	x				x	x
E. walteri																	x	
Elymus canadensis	x		x	x	x	x	x	x				x	x	x		x	x	x
E. villosus	x	x	x	x			x			x					x		x	x
E. virginicus	x				x		x	x			x	x	x				x	x
E. canadensis X E. virginicus														x			x	
Eragrostis capillaris										x								
E. ciliaensis					x						x	x		x		x	x	x
E. frankii							x							x				
E. hypnoides			x	x				x		x								
E. pectinacea			x		x					x		x	x			x	x	x
E. spectabilis								x				x				x	x	x
Festuca arundinacea								x										x
F. elatior					x									x			x	x
F. obtusa	x	x			x			x	x	x		x	x	x			x	x
F. octoflora										x		x	x	x			x	x
F. paradoxa		x																x
Glyceria borealis																	x	
G. grandis		x		x				x	x			x						
G. septentrionalis																		x
G. striata				x				x	x								x	x
Hierochloe odorata	x							x										
Hordeum jubatum	x	x	x	x	x		x	x			x	x	x	x			x	x
H. pusillum																		x
Hystrix patula	x	x		x						x		x	x	x	x	x	x	x
Koeleria cristata	x	x	x	x	x			x				x		x			x	
Leersia lenticularis																		x
L. oryzoides	x		x	x		x		x				x	x		x	x	x	x
L. virginica	x				x		x					x	x			x	x	x
Leptoloma cognatum																		x

	Mit	How	Win	CeG	Flo	Cht	But	Bre	Fay	Har	Gru	BlH	Buc	Del	Tam	Ben	Lin	Joh
Lolium perenne v. italicum												x						
Melica nitens																		x
Muhlenbergia cuspidata		x		x														
M. frondosa					x		x					x	x				x	
M. glomerata		x		x														
M. mexicana			x	x														x
M. schreberi										x						x		x
M. sobolifera										x								x
Oryzopsis racemosa				x													x	x
Panicum capillare			x	x	x			x				x		x		x		x
P. clandestinum																		
P. commonsianum v. euchlamydeum																		x
P. dichotomiflorum							x						x	x				x
P. implicatum		x						x		x			x	x		x	x	x
P. latifolium			x	x				x	x	x				x			x	x
P. leibergii	x		x	x					x		x		x	x				x
P. lindheimeri								x										
P. perlongum																		x
P. praecocius																		x
P. scribnerianum		x	x	x					x		x	x	x	x		x	x	x
P. virgatum		x		x		x	x						x		x	x	x	x
Paspalum setaceum v. stramineum												x				x	x	x
Phalaris arundinacea		x	x					x	x		x	x					x	x
P. canariensis																		x
Phleum pratense		x		x				x	x	x			x	x		x		x
Phragmites communis				x								x						
Poa annua		x								x								
P. compressa		x	x	x	x			x	x	x		x	x	x		x	x	x
P. palustris		x		x				x			x		x	x		x		
P. pratensis	x	x		x	x			x	x	x	x	x	x	x			x	x
P. sylvestris																	x	x
Setaria faberii			x		x							x						x
S. italica			x															
S. lutescens	x	x	x		x		x					x	x		x	x	x	x
S. verticillata			x															
S. viridis			x		x		x					x	x		x	x	x	x

	Mit	How	Win	CeG	Fln	Chi	Sut	Bre	Fay	Mar	Gru	DlH	BuL	DeT	Tam	Ben	Lin	Jon
Sorghastrum nutans	x	x	x	x	x	x	x	x					x		x	x	x	x
Spartina pectinata	x	x	x	x	x	x		x					x			x	x	x
Sphenopholis intermedia				x													x	
S. obtusata													x				x	x
Sporobolus asper								x				x	x				x	x
S. cryptandrus												x				x		x
S. heterolepis	x	x		x	x		x	x										
S. neglectus				x														
S. vaginiflorus																		x
Stipa spartea	x	x	x	x	x			x	x		x	x	x	x		x	x	x
Triplasis purpurea																		x
Triticum aestivum											x							
Zizania aquatica v. interior																	x	
HYDROCHARITACEAE																		
Elodea nuttallii		x				x		x				x				x	x	x
IRIDACEAE																		
Belamcanda chinensis																	x	
Iris virginica v. shrevei					x				x			x	x			x		x
Sisyrinchium angustifolium																		x
S. campestre		x	x	x	x				x			x	x	x		x	x	x
JUNCACEAE																		
Juncus acuminatus														x			x	x
J. balticus																	x	
J. canadensis																	x	x
J. dudleyi		x		x	x				x		x	x	x				x	x
J. greenei		x	x															
J. interior												x	x	x		x	x	x
J. nodosus		x	x									x					x	
J. tenuis				x	x			x	x	x		x	x	x		x	x	x
J. torreyi				x													x	
Luzula campestris		x			x									x				
LEMNACEAE																		
Lemna minor		x	x	x		x	x	x				x			x	x	x	x
L. trisulca						x						x					x	
Spirodela polyrhiza		x	x				x	x				x			x	x	x	x
Wolffia columbiana		x	x									x					x	x

	Tott	Hon	Won	Cus	Flu	Cnt	But	Bre	Fay	Har	Gru	Blh	Buc	Del	Tam	Den	Lin	Jon
Wolffia punctata												x					x	
LILIACEAE																		
Allium canadense				x				x	x	x	x		x				x	x
A. tricoccum	x	x											x	x		x	x	x
Asparagus officinalis		x	x	x	x			x	x	x	x	x		x	x	x		
Erythronium albidum					x					x		x				x	x	
Hemerocallis fulva		x												x	x			x
Lilium michiganense	x	x		x		x		x	x				x		x	x	x	x
L. philadelphicum v. andicum		x		x									x	x			x	
Malanthemum canadense										x								
Polygonatum biflorum	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x
Smilacina racemosa	x	x		x	x				x	x	x	x	x	x		x	x	x
S. stellata		x		x		x		x		x	x		x		x		x	x
Smilax ecirrhata	x	x			x					x		x	x	x	x	x	x	x
S. herbacea	x	x			x			x	x	x			x	x	x	x	x	x
S. hispida		x			x			x	x	x			x	x		x	x	x
Trillium cernuum	x	x							x					x		x		
T. flexipes	x	x	x	x					x	x		x		x		x	x	x
T. nivale						x				x		x					x	x
T. recurvatum																	x	x
Uvularia grandiflora		x		x						x		x	x	x	x	x	x	x
U. sessilifolia									x			x	x				x	x
Veratrum virginicum												x				x	x	x
Zygadenus elegans			x	x								x						
Z. glaucus		x	x															
NAJADACEAE																		
Najas flexilis		x																
ORCHIDACEAE																		
Aplectrum hyemale		x							x								x	x
Calopogon pulchellus		x			x				x								x	
Corallorhiza odontorhiza																	x	x
Cypripedium calceolus v. pubescens	x	x		x		x			x	x		x		x	x	x	x	x
C. candidum		x	x	x					x		x	x				x	x	
C. reginae						x			x						x		x	x
Goodyera pubescens																	x	x
Habenaria clavellata									x									

	Mit	How	Win	CeG	Fln	Chi	But	Bre	Fay	Har	Gru	BlH	BuC	Del	Tam	BrH	Lin	Jnh
Habenaria flava								x										
H. hookeri									x									
H. leucophaea			x			x			x		x	x					x	x
H. psycodes						x			x								x	
H. viridis				x	x				x								x	x
Liparis liliifolia																		x
L. loeselii				x								x						
Malaxis unifolia																		x
Orchis spectabilis	x	x				x			x	x		x	x	x	x		x	x
Pogonia ophioglossoides																	x	
Spiranthes cernua		x	x	x		x		x	x				x				x	x
Triphora trianthophora								x	x							x	x	
PONTEDERIACEAE																		
Heteranthera dubia		x		x													x	
Pontederia cordata						x						x				x	x	x
POTAMOGETONACEAE																		
Potamogeton amplifolius					x										x			
P. crispus															x			
P. epihydrus								x										
P. foliosus		x	x	x		x		x				x					x	x
P. natans																	x	
P. nodosus		x						x		x					x		x	
P. pectinatus								x									x	
P. richardsonii																	x	
P. vaseyi																	x	
P. zosteriformis		x															x	
TYPHACEAE																		
Sparganium americanum																x	x	x
S. eurycarpum				x		x		x				x					x	
Typha angustifolia			x															x
T. latifolia								x	x		x			x		x	x	x

INDEX TO FAMILIES AND GENERA