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THE VASCULAR PLANTS OF  
CLINTON, JACKSON AND JONES  
COUNTIES, IOWA

TOM S. COOPERRIDER

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## THE VASCULAR PLANTS OF CLINTON, JACKSON AND JONES COUNTIES, IOWA<sup>1</sup>

This paper is one of several that have been published recently on the floras of counties in eastern Iowa (Davidson, 1959; Fay, 1951; Guldner, 1960; Thorne, 1955; Wagenknecht, 1954). The three counties named in the title represent an area that was, heretofore, relatively unexplored botanically (Thorne, 1954). A meager amount of literature on the plants of these counties was available. Fitzpatrick (1899) listed 37 species of plants from Jackson County and 21 from Clinton County. Fitzpatrick and Fitzpatrick (1901) named 29 species from islands in the Mississippi River near Sabula in Jackson County. Pammel (1920) listed about 50 species from Jackson and Dubuque Counties. Brown (1947) included 492 species in his report on the flora of Jones County.

As a part of this study, approximately 1200 herbarium specimens were examined and their identity checked. These included all the specimens from these counties in the Herbarium of the State University of Iowa and all but those of the most common species in the Herbarium of Iowa State University. A few specimens were examined from the Barnes Herbarium of the Davenport Public Museum, and the specimen of *Isoetes melanopoda* Gay and Dur. was checked in the Herbarium of the St. Louis Missouri Botanical Garden.

Most of these collections were made by but a few men. The most extensive work was done by R. G. Brown in Jones County in 1948. J. E. Cameron did some valuable collecting in the vicinity of Onslow (Jones County) in 1895. C. R. Ball collected several species from Clinton County in the late 1890's. B. Shimek and L. H. Pammel made a few collecting trips into each of the three counties during the last part of the nineteenth century and the early part of the present century.

In the course of the present study, 4,294 numbered collections were made from a total of 227 stations in the growing seasons of 1955 through 1959, most of these in 1956. The collecting stations were distributed more or less evenly throughout the counties, with at least one in each of the 57 townships in the area.

A preliminary report on this work included a list of eight species new to the Iowa flora as well as an over-all summary of results (Cooperrider, 1958). A second paper dealt with the marsh and aquatic plants (Cooper-

<sup>1</sup> Based on a dissertation for the degree of Ph.D. of the State University of Iowa.

riders, 1959). A third paper (Cooperrider, in press) considers the plants of north-facing slopes and their limitation to that habitat.

The author is indebted to many persons who gave assistance in the course of this work. These include the following curators for granting permission to examine specimens in their herbaria: Dr. L. F. Guldner of the Barnes Herbarium of the Davenport Public Museum, Dr. R. W. Pohl of Iowa State University, Dr. R. F. Thorne of the State University of Iowa, and Dr. G. B. van Schaack of the St. Louis Missouri Botanical Garden. Dr. N. H. Russell identified all collections of *Viola*. The first draft of the sections on geology, topography, drainage, and soils was read critically by Mr. T. V. Jennings and Dr. S. D. Tuttle.

It is a pleasure to acknowledge the assistance of several residents of the area, particularly Mr. Howard Lovrein, State Conservation Officer of Clinton and Jackson Counties, for trips on the Mississippi and Wapsipinicon Rivers in his motor-driven canoe; Mr. Austin Bowman, editor of the Lost Nation Press, for an extremely profitable collecting trip on the Maquoketa River; Mr. William Maish, former State Conservation Officer at Bellevue and Wapsipinicon State Parks, for his interest and assistance on several hikes through those parks; and to the Rev. Albert E. Coe, formerly of Monticello, for a correspondence that included directions leading to the rediscovery of the station for *Vaccinium angustifolium* Ait. in Jones County.

The author is indebted to his wife, Miwako K. Cooperrider, for countless hours of assistance in the course of this study and in the preparation of the dissertation on which this paper is based. A predoctoral fellowship awarded by the National Science Foundation during the final year of this study is gratefully acknowledged, as are funds, which helped defray travel expenses, from grants to Dr. Robert F. Thorne from the National Science Foundation and from the State University of Iowa's Old Gold Development Fund, and travel funds for the 1959 field work which were provided from the Alumni Development Fund of Kent State University.

Special thanks are extended to Dr. Robert F. Thorne for cordial guidance and valuable instruction throughout the course of the work.

DEPARTMENT OF BIOLOGICAL SCIENCES,  
KENT STATE UNIVERSITY,  
KENT, OHIO  
NOVEMBER, 1961

## DESCRIPTION OF THE AREA

### LOCATION AND EXTENT

The three counties included in this study are located in extreme eastern Iowa (Figure I) with the Mississippi River forming the eastern boundary of two of them. The area extends from 41°43' north latitude to 42°23' north latitude and from 90°7' west longitude to 91°22' west longitude. It is forty-six miles from north to south and sixty-three miles from east to west.

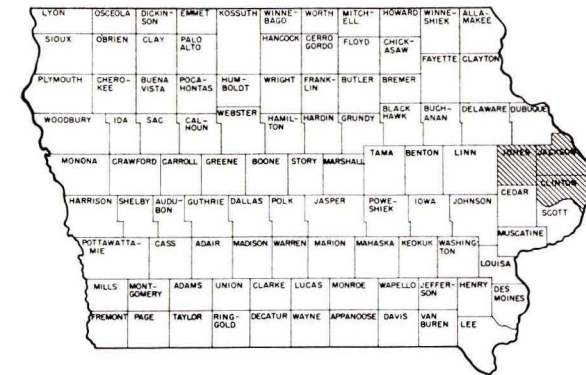


Figure I. Map of the state of Iowa. The shaded counties are those covered by this study.

The land within these counties totals some 1900 square miles or approximately 1,220,000 acres. Of this total, the 1956 Iowa Agriculture Census reported that 550,000 acres (45% of the total) were not in cropland during that year.

### Pertinent Aspects of the Geology

*The Bedrock.* The area is underlain by sedimentary rocks of Paleozoic age which are essentially horizontal with a very slight regional dip to the southwest. Three systems are exposed. The oldest of these, the Ordovician, forms the bedrock in eastern Jackson County and a small part of extreme northeastern Clinton County. Two formations of this system are found in the area. That in northeastern Jackson County is Galena dolomite. In some places, where exposed, it "has weathered into a number of picturesque pinnacles . . . twenty to thirty feet in height" (Savage, 1906, p. 595). These exposures were observed to support an unusually luxuriant growth of *Cheilanthes feei* Moore. The remaining part of the Ordovician system in this area is represented by the Maquoketa formation. This is composed of shale and some dolomitic limestone.

The Hopkinton and Gower formations of Silurian age form the bedrock in nearly all the remainder of the area. The Hopkinton covers over

five-sixths of Jackson County, the northeastern half of Jones County, and the northeastern half of Clinton County. This is largely dolomitic limestone as is the Gower formation which extends over the southwestern half of Jones County and the southwestern half of Clinton County.

The surface of the bedrock of all three counties is dotted intermittently with small outliers of Pennsylvanian sandstone. Nearly all of these are too small to support a sandstone flora and are almost invariably in heavily grazed fields. One exception is in southwestern Jackson County where sandstone provides the habitat for the only station of *Polypodium vulgare* L. that the author was able to discover.

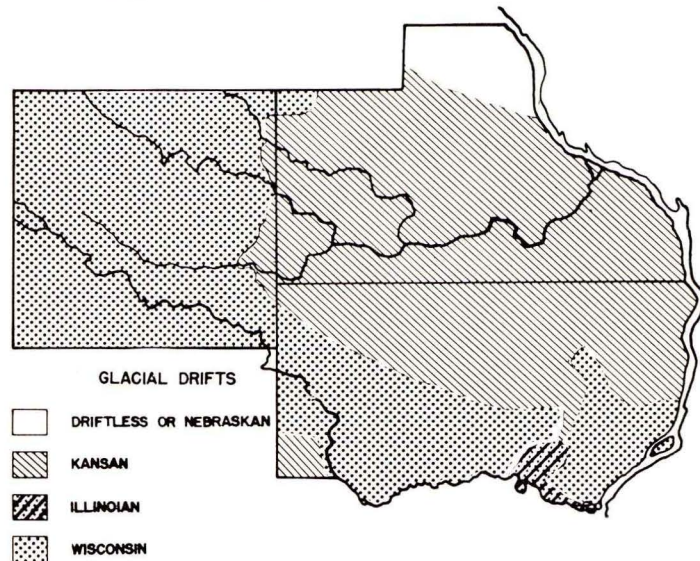


Figure II. Map of glacial geology. Sources: line between Driftless or Nebraskan and Kansan from Map of Glacial Geology of Iowa, Iowa Geological Survey, 1955; Illinoian line from Shaffer (1954); Kansas-Wisconsin line from unpublished material by S. D. Tuttle.

The bedrock just described, is available for habitation by plants only in places where it has been exposed by erosion. Such exposures occur to a varying extent in nearly every township of the three counties. The greatest exposures occur along the Maquoketa River and its tributaries where precipitous ledges and steep escarpments reach a height of 150 feet. Prominent exposures are also found along the Mississippi River, Tete des Morts Creek, Elk River, and, to a lesser extent, along the Wapsipinicon River and Goose Lake Channel.

*The Mantle.* Blanketing this bedrock in most places is a mantle of unconsolidated material which ranges in depth from 0-200 feet. The surface of this mantle provides substratum for countless plants, native,

naturalized, and cultivated. With regard to origin, material transported to its present location by glaciers, wind, or water makes up all but a small fraction of the mantle. The remainder is residual.

During Pleistocene time, that is approximately the last million years, parts of midwestern United States, including Iowa, were subjected to four major periods of glaciation. The four have been named, in order of their appearance, the Nebraskan, the Kansan, the Illinoian, and the Wisconsin.

Exposures of material deposited by three, and perhaps four, of these glaciations are found in the three counties (see Figure II). The doubtful case is that of the Nebraskan. Some workers have thought that this glaciation covered the entire state, including the "driftless area" of northeastern Iowa. If so, it covered that small part of the "driftless area" present in extreme northeastern Jackson County. Nearly all the remainder of Jackson County, as well as parts of Clinton County and Jones County, were glaciated only once more, by the Kansan. During the Illinoian period of glaciation, a small area in southeastern Clinton County was again glaciated. During the Wisconsin, much of Clinton and Jones Counties and a small part of Jackson County were once again covered by glacial ice. Each of these glaciers, when it retreated, left behind deposits of glacial drift that had been ground or gouged from the rock it had crossed on its path.

On two separate occasions, first during the Illinoian and again during the Wisconsin, a glacier moved westward into Clinton County, crossing the valley of the Mississippi River and effectively damming it. On both these occasions, the river took an alternate course that skirted the western margin of the glaciers. It began by moving westward up the Maquoketa River valley, then turned southward across Clinton County through the present site of the village of Goose Lake and continued south to the valley of the Wapsipinicon River. This alternate route, the Goose Lake Channel, is still plainly visible on topographic maps (see Figure III) because of the valley that remains. This former route is discussed in detail by Schoewe (1923) and Shaffer (1954).

In regions covered only by Nebraskan or by both Nebraskan and Kansan glaciations, some of the drift has been removed by subsequent erosion. In many places a fine material of silt-size particles, thought to have been deposited by wind, overlies the remaining drift in these regions. This material, called "loess," may average from fifteen to twenty feet in depth and reach thicknesses of thirty feet locally. In a few places, loess may also be found over Wisconsin drift.

Along all major streams and particularly along the Mississippi River, water-borne sediments have been recently deposited. These may be in terraces (formerly subject to submergence beneath river overflow) or

in floodplains (presently subjected to periodic inundation by water).

A small amount of residual material is also present in the mantle surface. This has been formed on and from rock subjected to weathering, and has remained in place.

The geological history summarized above is presented in detail in county geological studies. That of Clinton County was done by Udden (1909), Jackson County by Savage (1906), and Jones County by Calvin (1895). In more general terms, McGee (1891) and Kay (1943) discuss the Pleistocene history of northeastern Iowa and of the entire state of Iowa, respectively.

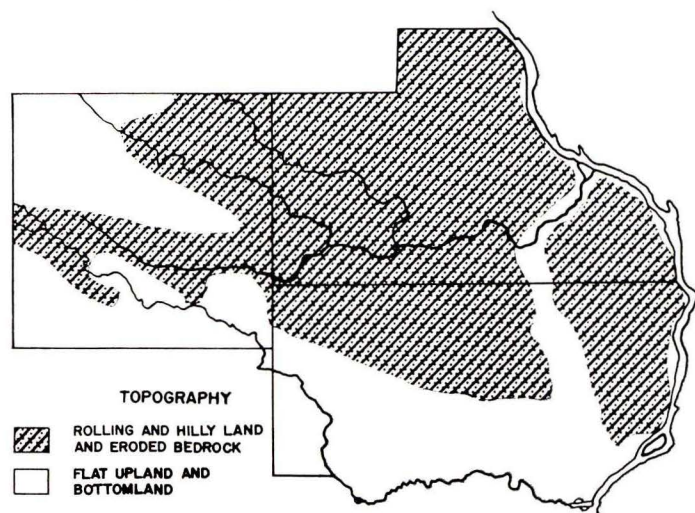


Figure III. Map showing major topographic regions. Much simplified from topographic maps of U.S. Geological Survey and from map of "general patterns of topography in Iowa" by Reicken and Smith (1949).

#### TOPOGRAPHY

The highest point in the area, 1190 feet above sea level, is near the center of Sec. 6, Prairie Springs Twp., Jackson County. The lowest elevation, 566 feet, occurs at the low-water stage of the Mississippi River near the city of Clinton in Clinton County.

There are, in general, four types of topography in the region (see Figure III). *One* type, found over more than half of the total area, is rolling to hilly country, essentially all in slope and with well-developed drainage. The amount of relief may be as great as 250 feet within one mile. Throughout this area are places where streams have eroded into bedrock. These slopes with rock outcrops and talus constitute a *second* type of topography.

A *third* type, covering approximately one-third of the area, is that of broad, flat, undissected uplands. The *fourth* type is river bottomlands.

Often the line separating the hilly and eroded bedrock topography from the more flat uplands and bottomlands is definite and easily mapped. For example, as one drives on north-south roads in Clinton County, there is an abrupt change in topography upon leaving the hilly land in the northern part and entering the level southern part. In other instances, as in parts of Jones County, the transition between the two is more gradual, and a separating line more difficult to place.

In many cases these topographic differences reflect differing glacial histories. In general, the more recently an area has been glaciated, the more likely it is to be a flat, poorly drained, undissected plain, the dissection of this plain increasing with the passage of post-glacial time. As one would expect, then, the land which has not been glaciated since Kansan or Nebraskan time has great local relief with many hills and deeply dissected valleys, rivers bordered by steep rock cliffs, and much land that is non-tillable because of its steepness. Land covered again by the recent Wisconsin glaciation, on the other hand, tends to be flat, to have streams with broad floodplains, and to contain (unless altered by man) many marshy areas where there is standing water all or part of the year.

The contrast between these two types of topography is reflected in the fact that in Jackson County only 49 per cent of the land is cropped, while in Clinton County, 66 per cent is in cropland, with that part of Clinton County covered by Wisconsin glaciation apparently responsible for the difference.

In some areas of Jones County, however, the Wisconsin drift may measure only a few inches in depth, and there, where the influence of this glaciation was apparently less, there is a dissected topography like that of the "Kansan" area, and thus, one finds steep bluffs along the Wapsipinicon River at Anamosa and Stone City and along both the North and South Forks of the Maquoketa River and their tributaries.

An additional factor influencing the topography is the uneven deposition of loess. Because the loess tended to accumulate deepest on the crests of ridges and hills already in existence, and only slightly or not at all in the valleys, it has served to accentuate the pre-existing topography, sometimes adding as much as thirty feet to the height of hills.

A final factor shaping the topography is the action of rivers and streams. The dissecting effects of erosion have been previously mentioned. In addition, floodplain development, where the topography has been altered by the addition of water-borne sediment, is present to some

extent along all streams and rivers in the area. It is especially evident along the Mississippi and Wapsipinicon Rivers, floodplains along the former ranging locally from one to two miles in width.

The topography is discussed to some extent in the three county geological studies: Calvin (1895), Udden (1905), and Savage (1906). It is also considered in soil surveys of each county, that of Clinton County by Stevenson, Brown, *et al.* (1918); Jackson County by Swenson, *et al.* (1941); Jones County by O'Neal and Devereux (1928), and by Stevenson, Brown, *et al.* (1929).

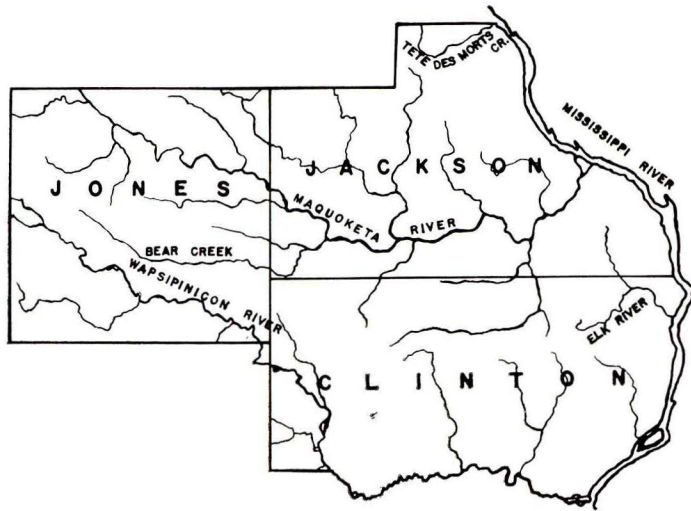


Figure IV. Drainage map.

#### DRAINAGE

Two major rivers, the Maquoketa and the Wapsipinicon, drain this area as they cross it from northwest to southeast before joining the Mississippi River (see Figure IV). These two rivers are fed by many tributaries, the largest of which is Bear Creek, which empties into the Maquoketa. Several smaller streams also empty directly into the Mississippi River, the two chief ones being Tete des Morts Creek in northeastern Jackson County and Elk River in northeastern Clinton County.

Although most parts of the three counties are well drained, there are local areas where drainage is poor and habitats thereby provided for aquatic and marsh plants. One such example is in Goose Lake Channel. Although much of this area has been altered by the tiling of fields and the digging of drainage ditches to make the land more suitable for farm-

ing, a hunting reserve near the village of Goose Lake contains a remnant of marshy ground and has, in addition, a lake in which there is standing water much of the year.

Another hunting area with standing water is Muskrat Slough in southern Jones County. This lake is apparently the result of a depression in the Wisconsin drift plain which has left the surface of the land lower than the water table.

Additional marshy and aquatic habitats resulting from poor drainage are found in the meander scars, ox-bow lakes, and low places in the floodplains of the major rivers.

#### Soils

Soils may be classified according to origin or according to size of component particles. With regard to origin, 60% of the area's soils have been formed on loess, 23% on glacial drift, 5½% on river terrace, and 11% on river bottomlands. One half of one per cent of the soils are residual.

With regard to composition, the most extensive soil types are silt loams which cover 85% of the three counties. Forty per cent is covered with Clinton silt loam of loessial origin, 16% with Carrington silt loam of drift origin, and the remaining 29% of various silt loams originating from loess, glacial drift, terrace and floodplain deposits. By definition, these silt loams contain at least 20% clay particles (1/256 mm. in diameter or less) and 50% or more silt particles (1/256 - 1/16 mm. in diameter) mixed with some sand particles (1/16 - 2mm. in diameter).<sup>2</sup>

Chief among the soils covering the remaining land is Carrington loam, a drift soil found on 5% of the total area. Loam soils contain less than 20% clay, less than 50% silt, and 30-50% sand.

Approximately 1½% of the area is covered with sands of various origins. Sand is found particularly along the Mississippi River and along the northeastern side of the Wapsipinicon River.

The remaining land, 8½%, is covered with loams, sandy loams, fine sandy loams, very fine sandy loams, stony loams, and undifferentiated alluvial soils.

This information on soils is taken from the detailed county soil reports by O'Neal and Devereux (1928); Stevenson, Brown, *et al.* (1918 and 1929); and Swenson *et al.* (1941).

#### CLIMATE

In Trewartha's classification (Goode, 1957), the climate of Iowa is classed as "humid continental, warm summer, constantly moist" (sum-

<sup>2</sup> These limits of particle size are those of Wentworth (1922).



marized by the symbols, "Daf"). Climates of this particular type are those in which the average temperature of the coldest month is less than 32° F. and of the warmest month is more than 71.6° F., and with rainfall distributed more-or-less evenly throughout the year. Examination of the figures below (compiled from U.S. Dept. Commerce, 1956) indicates that the climate of this tri-county area meets all these limits. This same type of climate is found in bordering states of midwestern United States, in northern Japan, Korea, and northeastern China, and in an area of Europe that includes parts of Rumania, Bulgaria, and Yugoslavia.

In Table I, are given averages of monthly, long-term temperature means taken at three stations in the area.

TABLE I

Averages of long-term temperature means (in degrees Fahrenheit)

Month	Long-term Mean		
January	21.1° F.	July	74.4
February	23.3	August	72.2
March	35.4	September	64.0
April	48.4	October	52.2
May	60.6	November	38.3
June	69.5	December	25.6
		Yearly average	48.8

The last killing frost of Spring usually occurs in late April or early May, the first killing frost of Autumn in early October, leaving an average growing season of 152-165 days.

Presented in Table II are averages of monthly, long-term precipitation means based on information from four stations in the area.

TABLE II

Averages of long-term precipitation means (in inches of precipitation)

Month	Long-term mean		
January	1.34 inches	July	3.65
February	1.27	August	3.84
March	2.08	September	4.18
April	2.74	October	2.66
May	3.88	November	1.99
June	4.48	December	1.39
		Total	33.50

## ANNOTATED CATALOGUE

The pteridophyte and gymnosperm families in this catalogue are arranged in the sequence presented in *The New Britton and Brown Illustrated Flora* (Gleason, 1952). This, in turn, is a form of the traditional Englerian system, modified so as to conform with current thought on the phylogeny of these groups. In place of the Polypodiaceae (*sensu lato*), however, four families are substituted. These are as defined by Copeland (1947), and are arranged alphabetically. For flowering plants, the Englerian system is considered by many present-day taxonomists to be too artificial to warrant its continued usage, yet no replacement has been devised which approaches sufficiently close to the envisioned phylogenetic arrangement to have gained wide acceptance among taxonomists. Because of this, and because of the simple convenience of an alphabetical arrangement, the families of monocotyledonous plants and then dicotyledonous plants are presented in alphabetical order. In most instances, the families are delimited as by Fernald (1950) and/or Gleason (1952). The writer follows Thorne (1955), however, in those cases where he departs from traditional family circumscription.

Infrafamilial categories are also arranged alphabetically.

The nomenclature used is in accord with the *International Code of Botanical Nomenclature*. Common names are not included.

The sources of the nomenclature, and the manuals used for identification, were largely *Gray's Manual of Botany* (Fernald, 1950) and *The New Britton and Brown Illustrated Flora* (Gleason, 1952). In cases where these two differ on nomenclature or species delimitation, the writer usually follows Thorne (1955) and/or Jones (1955). In all such cases, the name not used is given in parentheses. In a few instances, the writer follows recently published works which differ from both the above manuals. This is noted in each case and reference given to the appropriate publication.

Except in special cases, infraspecific names are not used.

An asterisk placed immediately before a binomial indicates an introduced or adventive species. This categorization is taken mostly from information in *Gray's Manual of Botany* (1950).

Based on the following scale, a word is assigned to each species describing its relative frequency in the area. This is departed from in a few cases to comply with the writer's judgment.

Common	10 or more stations
Frequent	7-9 stations
Infrequent	3-6 stations
Rare	1-2 stations

If no county names are given after the frequency term, the reader may assume that the species was found in all three counties. If it was found in only one or two of the counties, those county names are listed.

A general statement is made of the habitat(s) in which each species was found. For rare species, complete collection data are given. For the writer's specimens, the township and range system is usually used to identify the location from which the collection was made. To conserve space, these locations have been abbreviated as in this example: "NE ¼ 15-82-1E" represents, Northeast quarter, Section 15, Township 82 North, Range 1 East. Because of the limited time period during which all of these collections were made, no date is listed. These collections may be recognized by the presence of the writer's collection number following each location. For other collector's specimens, the location within the county is copied from the label, if it is given there, and the complete date, if available, is given. Because most of these other collections were made by but a few men, only the last names of the following are used: C. R. Ball, R. G. Brown, J. E. Cameron, L. H. Pammel, and B. Shimek. The letters IA following the date indicate that the specimen is in the Herbarium of the State University of Iowa; ISC, in the Herbarium of Iowa State University. The names of other herbaria are given in full. Of this writer's collections, at least one specimen of each species from each county will be housed in the Herbarium of the State University of Iowa.

In order to avoid the possibility of perpetuating errors, no literature reports of county records of species in this area are included.

A map for each species is on file at the Herbarium of the State University of Iowa. On these maps the site of each collection is marked, and on the back of the map, complete data for each collection are given. The citation of specimens in the dissertation (Cooperrider, 1958) was more extensive than in this paper, including exact location for at least one specimen of each species from each county. Microfilm copies of this thesis are available from University Microfilms, Inc., 313 No. First St., Ann Arbor, Michigan.

## P T E R I D O P H Y T E S

### SELAGINELLACEAE

*Selaginella rupestris* (L.) Spring.—Rare. JONES: open, sandy field near Wapsipinicon River, NW¼ 18-83-1W, 1747.

### ISOETACEAE

*Isoetes melanopoda* Gay & Dur.—Rare. CLINTON: Clinton, Vasey,

1863, Herbarium of the Missouri Botanical Garden. Pfeiffer (1922) reports a duplicate specimen at Gray Herbarium. This is the only Iowa station known for this species.

### EQUISETACEAE

*Equisetum arvense* L.—Common. Roadsides, railroad ballast, woods, and open, sandy places.

*Equisetum fluviatile* L.—Rare. CLINTON: marshy ground in pastured field, NE¼ 15-82-1E, 1315, 2066.

*Equisetum hiemale* L. (incl. *E. robustum* A. Br.)—Common. Margins of streams and ponds.

*Equisetum laevigatum* A. Br. (incl. *E. kansanum* Schaffner)—Frequent. Open, sandy places, especially roadsides.

*Equisetum pratense* Ehrh.—Infrequent. JACKSON, JONES. Rich woods, particularly on north-facing slopes.

### OPHIOGLOSSACEAE

*Botrychium dissectum* Spreng.—Rare. JONES: Rich, wooded hillside, SE¼ 28-86-1W, 4288.

*Botrychium virginianum* (L.) Sw.—Common. Rich woodlands, particularly upland woods.

### SALVINIACEAE

*Azolla mexicana* Presl.—Infrequent. JACKSON. Floating on shallow water at edge of Mississippi River, or on nearby lakes.

### OSMUNDACEAE

*Osmunda cinnamomea* L.—Rare. JACKSON: Green Island, Pammel, 1905, ISC.

*Osmunda claytoniana* L.—Common. Woods.

*Osmunda regalis* L.—Rare. CLINTON: shady, sandy bank at margin of marsh in meander scar of Wapsipinicon R., NE¼ 36-81-1E, 3993.

### ASPIDIACEAE

*Athyrium filix-femina* (L.) Roth.—Common. Woods.

*Athyrium pycnocarpon* (Spreng.) Tidestr.—Infrequent. JACKSON, JONES. Rich woods, particularly on north-facing slopes.

*Athyrium thelypteroides* (Michx.) Desv.—Frequent. JACKSON, JONES. Rich, wooded ravines and slopes.

*Cystopteris bulbifera* (L.) Bernh.—Common. Moist wooded slopes with limestone outcrops or talus.

*Cystopteris fragilis* (L.) Bernh.—Common. Woods.

- Dryopteris goldiana* (Hook.) Gray.—Rare. JACKSON: T. H. Macbride, IA. JONES: Rich, north-facing hillside below limestone bluff along Jerden Creek, 33-86-2W, 4216.
- Dryopteris spinulosa* (O. F. Muell.) Watt (?*D. austriaca* (Jacq.) Woy-nar).—Infrequent. CLINTON, JONES. Rich, moist, wooded ground.
- Matteuccia struthiopteris* (L.) Todaro (*Pteretis pennsylvanica* (Willd.) Fern.)—Frequent. Moist woods.
- Onoclea sensibilis* L.—Frequent. Moist woods, especially seepage slopes; marshes.
- Polystichum acrostichoides* (Michx.) Schott.—Rare. JACKSON: T. H. Macbride, IA.
- Thelypteris hexagonoptera* (Michx.) Weatherby. (*Dryopteris hexagonoptera* (Michx.) Christens.).—Infrequent. JACKSON, JONES. Rich, moist woods.
- Thelypteris palustris* Schott (*Dryopteris thelypteris* (L.) Gray).—Infrequent. CLINTON, JONES. Marshy ground.
- Woodsia obtusa* (Spreng.) Torr.—Frequent. JACKSON, JONES. Sandstone and limestone outcrops; wooded, rocky hillsides.

## ASPLENIACEAE

- Asplenium platyneuron* (L.) Oakes—Rare. JACKSON: in rather open, wooded ravine next to limestone boulders, NW¼ 33-84-1E, 1909. JONES: open, sheltered, sandy ravine between limestone outcrops on crest of bluff, NW¼ 8-86-1W, 3294.
- Asplenium rhizophyllum* L. (*Camptosorus rhizophyllum* (L.) Link).—Common. In woods; on moist, limestone rocks.

## POLYPODIACEAE

- Polypodium vulgare* L. (incl. *P. virginianum* L.).—Infrequent. JACKSON, JONES. Crevices in sandstone outcrops.

## PTERIDACEAE

- Adiantum pedatum* L.—Common. Woods.
- Cheilanthes feei* Moore.—Infrequent. Dry, exposed, dolomitic limestone outcrops.
- Cryptogramma stelleri* (Gmel.) Prantl.—Infrequent. Wet, usually moss-covered, limestone ledges on north-facing slopes.
- Pellaea glabella* Mett. (*P. atropurpurea* (L.) Link var. *bushii* Mack.).—Common. Limestone crevices.
- Pteridium aquilinum* (L.) Kuhn.—Frequent. Dry, open woods and open, sandy places.

## GYMNOSPERMS

## TAXACEAE

- Taxus canadensis* Marsh.—Common. Moist, wooded, usually north-facing, calcareous hillsides, especially along Maquoketa R., and its tributaries.

## PINACEAE

- Pinus strobus* L.—Rare. JACKSON: deep, rich woods at Bellevue St. Pk., 19-86-5E, 2036. The origin of these trees is uncertain. They may be indigenous at this station. A large stand of white pines at Wapsipinicon St. Pk. in Jones County is known to have been planted (Bulletin, Iowa State Parks 1924 and 1925).

## CUPRESSACEAE

- Juniperus virginiana* L.—Common. Limestone bluffs and dry, open woods.

## MONOCOTYLEDONS

## AGAVACEAE

- \**Yucca smalliana* Fern. (evidently included by Gleason in *Y. filamentosa* L.).—Rare. JONES: open south-facing slope above creek in Wapsipinicon St. Pk. 10-84-4W, 3314. Origin uncertain; the older plants may have been planted. Several young plants in the area appear well established.

## ALISMATACEAE

- Alisma plantago-aquatica* L. (incl. *A. subcordatum* Raf. following Hendricks (1957) in this treatment).—Common. Shallow water in marshes; muddy borders.
- Sagittaria engelmanniana* J. G. Smith (incl. *S. brevirostra* Mack. & Bush).—Infrequent. JACKSON, JONES. Shallow water of marshes and ditches.
- Sagittaria graminea* Michx.—Infrequent. CLINTON, JONES. Shallow water of marshes and pond margins.
- Sagittaria latifolia* Willd.—Common. Shallow water of marshes; margins of ponds and streams.
- Sagittaria montevidensis* Cham. & Schlecht. (incl. *Lophocarpus calycinus* (Engelm.) J. G. Sm. and *L. spongiosus* (Engelm.) J. G. Sm.).—Rare. JONES: marshy ground near margin of Maquoketa R., NE¼ 22-86-3W, 39.

*Sagittaria rigida* Pursh.—Infrequent. CLINTON, JONES. Shallow water in marshes.

## AMARYLLIDACEAE

*Allium canadense* L.—Frequent. Dry roadsides and open woods, often in sandy soil.

*Allium cernuum* Roth.—Rare. JONES: T. H. Macbride, Aug., 1895, IA.

*Allium tricoccum* Ait.—Common. Rich, wooded hillsides.

## ARACEAE

*Acorus calamus* L.—Infrequent. Marshes.

*Arisaema dracontium* (L.) Schott.—Infrequent. Lower ground on wooded hillsides.

*Arisaema triphyllum* (L.) Schott (incl. *A. atrorubens* (Ait.) Blume).—Common. Rich woods.

## COMMELINACEAE

\**Commelina communis* L.—Infrequent. CLINTON, JACKSON. Weed in dooryards and around dumps.

*Tradescantia ohioensis* Raf.—Frequent. Open, dry, sandy ground.

## CYPERACEAE

*Bulbostylis capillaris* (L.) C. B. Clarke—Infrequent. JACKSON, JONES. Open, dry, sandy soil.

*Carex albursina* Sheldon (*C. laxiflora* Lam. var. *latifolia* Boott).—Common. Rich, wooded ravines and slopes.

*Carex atherodes* Spreng. (incl. *C. laeviconica* Dew.) Following Thorne (1955) in considering these one species.—Infrequent. CLINTON, JACKSON. Wet ground in marshes; margins of streams and ponds.

*Carex bebbii* Olney.—Rare. CLINTON: rich, seeping, marshy ground surrounded by woods, SE¼, 2-82-6E, 4120. JACKSON: marsh in wet meadow, SE¼ 21-84-2E, 4076.

*Carex bicknellii* Britt.—Rare. JONES: sandy prairie between highway 151 and RR., NW¼ 4-85-3W, 1207.

*Carex blanda* Dew. (*C. laxiflora* Lam. var. *blanda* (Dew.) Boott).—Common. Wooded ravines and slopes.

*Carex brevior* (Dew.) Mack.—Infrequent. JACKSON, JONES. Open, sandy soil; prairie remnants.

*Carex careyana* Torr.—Rare. JACKSON: rich, rocky, wooded, south-facing slope along Bear Creek, NW¼ 33-84-1E, 826.

*Carex cephaloidea* Dew. (*C. sparganioides* Muhl. var. *cephaloidea* (Dew.) Carey).—Rare. CLINTON: rather open, upland woods at Arrowhead Hunting Reserve, SW¼ 5-82-5E, 1425.

*Carex cephalophora* Muhl.—Common. Woods.

*Carex conjuncta* Boott.—Infrequent. JACKSON, JONES. Rich, moist woods: marsh in wet meadow.

*Carex cristatella* Britt. Rare. JACKSON: marsh in wet meadow, SE¼ 21-84-2E, 4079.

*Carex crus-corvi* Shuttlw.—Rare. CLINTON: Mississippi bottoms, Geo. D. Butler 2, July 15, 1878, ISC.

*Carex davisii* Schwein. & Torr.—Rare. CLINTON: sandy ground along Wapsipinicon R., NE¼ 18-82-1E, 1283; wet alluvial and marshy ground along meander scar of Wapsipinicon R., NE¼ 36-81-1E, 4009.

*Carex eburnea* Boott.—Frequent. JACKSON, JONES. Both open and wooded limestone bluffs.

*Carex festucacea* Schkuhr.—Rare. CLINTON: marsh in pasture field, NE¼ 15-82-1E, 1321; about one mile north of MacCausland, L. F. Guldner, July 2, 1951, Davenport Museum.

*Carex frankii* Kunth.—Rare. JACKSON: marshy ground in meander scar of Maquoketa R., SW¼ 16-84-2E, 4163.

*Carex granularis* Muhl.—Rare. CLINTON: Geo. D. Butler 66, June 10, 1878, ISC.

*Carex gravida* Bailey.—Infrequent. Open, dry woods and roadsides.

*Carex grayii* Carey.—Infrequent. CLINTON. Open-wooded alluvial ground along Wapsipinicon and Mississippi Rivers.

*Carex grisea* Wahl. (*C. amphibola* Steud. var. *turgida* Fern.).—Common. Moist woods.

*Carex hirtifolia* Mack.—Rare. JONES: wooded hillside at Wapsipinicon St. Pk., SE¼ 10-84-4W, 3871.

*Carex hitchcockiana* Dew.—Rare. JONES: rich, wooded slope with occasional limestone outcrops, SW¼ 28-86-2W, 3961, 3979.

*Carex hystricina* Muhl.—Infrequent. CLINTON, JACKSON. Seeping, marshy ground.

*Carex interior* Bailey.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 1180.

*Carex jamesii* Schw.—Rare. JACKSON: rich, north-facing, rocky hillside at Maquoketa Caves St. Pk., NW¼ 6-84-2E, 899. JONES: rich woods at base of limestone bluff, NE¼ 33-86-2W, 3942.

*Carex laevivaginata* (Kuk.) Mack.—Rare. CLINTON: rich, seeping, marshy ground surrounded by woods, SE¼ 2-82-6E, 4119.

*Carex lasiocarpa* Ehrh. (incl. *C. lanuginosa* Michx.).—Rare. CLINTON: marsh in pasture field, NE¼ 15-82-1E, 1319.

*Carex laxiculmis* Schwein.—Rare. JONES: rich woods at base of limestone bluff, NE¼ 33-86-2W, 3943, 3958.

- Carex leavenworthii* Dew.—Rare. CLINTON: sandy ground along Wapsipinicon R., NE¼ 18-82-1E, 1284.
- Carex lupulina* Muhl.—Frequent. Moist alluvial woods and marshes.
- Carex meadii* Dew.—Rare. JONES: dry, rocky prairie at limestone quarry; thin, sandy soil, NE¼ 18-85-1W, 875.
- Carex molesta* Mack. (included by Gleason (1952) in *C. brevior* (Dew.) Mack.).—Infrequent. Dry, sandy and gravelly soil; roadsides.
- Carex muhlenbergii* Schkuhr.—Infrequent. JACKSON, JONES. Dry, sandy soil.
- Carex muskingumensis* Schwein.—Infrequent. CLINTON. Alluvial marshes and wet alluvial woods, along Wapsipinicon River.
- Carex normalis* Mack.—Infrequent. JACKSON, JONES. Woods.
- Carex oligocarpa* Schkuhr.—Rare. JONES: rich, wooded, rocky hillside below Eagle Rock, NW¼ 13-85-1W, 949; rich, wooded ground at base of limestone bluff, NE¼ 33-86-2W, 3947, 3980.
- Carex pedunculata* Muhl.—Infrequent. Moist, wooded, usually north-facing hillsides with limestone outcrops and talus.
- Carex pennsylvanica* Lam.—Common. Open, upland woods; open, sandy ground.
- Carex plantaginea* Lam.—Rare. JACKSON: rich, wooded hillside with limestone outcrops at Maquoketa Caves St. Pk., 711, 903. JONES: steep, rich, north-facing slope above Jerden Creek, SE¼ Sec. 23, Richland Twp., Cooperrider, Sept. 12, 1959, IA.
- Carex retroflexa* Muhl.—Rare. JONES: wet, sandy ground along small, rocky stream at base of limestone outcrops, SE¼ 2-86-4W, 1662; sandy prairie opening on hill top, SW¼ 28-86-2W, 3984. (These are apparently the only stations known for Iowa.)
- Carex rosea* Schkuhr. (incl. *C. convoluta* Mack.).—Common. Woods.
- Carex rostrata* Stokes.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 4037.
- Carex scoparia* Schkuhr.—Infrequent. CLINTON, JONES. Marshes; alluvial woods.
- Carex sparganioides* Muhl.—Infrequent. JACKSON, JONES. Rich, moist woods.
- Carex spengelii* Dew.—Frequent. Rich, wooded slopes; often rooted on limestone or sandstone outcrops.
- Carex stipata* Muhl.—Rare. CLINTON: rich, seeping marsh surrounded by woods, SW¼ 2-82-6E, 3875. JACKSON: marsh in meander scar of Maquoketa R., 16-84-2E, 3927.
- Carex stricta* Lam.—Rare. CLINTON: disturbed sand hills around small pool, SE¼ 29-81-6E, 1507. JONES: sandy marsh, SW¼ 6-83-2W, 850, 1173.

- Carex tribuloides* Wahl. (incl. *C. projecta* Mack.) Following Thorne (1955) in considering these as one species—Infrequent. CLINTON, JACKSON. Marshes and moist, alluvial woods.
- Carex trichocarpa* Muhl.—Rare. JACKSON: marsh in meander scar of Maquoketa R., 16-84-2E, 3929. JONES: bank of Jerden Creek, NW¼ 28-86-2W, 4031.
- Carex typhina* Michx.—Rare. CLINTON: wet, alluvial and marshy ground along meander scar of Wapsipinicon R., NE¼ 36-81-1E, 4004; rather low woods below Camanche, Shimek, Sept. 17, 1930, IA.
- Carex vesicaria* L.—Rare. JONES: in shallow water near sandy marsh, SW¼ 6-83-2W, 1160.
- Carex vulpinoidea* Michx.—Common. Marshes.
- Cyperus aristatus* Rottb. (*C. inflexus* Muhl.).—Rare. CLINTON: Lyons, Pammel 2, Sept. 4, 1896, ISC. JONES: sandy ground along bank of Maquoketa R., S½ 33-86-2W, 4220.
- Cyperus diandrus* Torr.—Rare. CLINTON: Lyons, Pammel, Sept. 4, 1896, IA & ISC.
- Cyperus erythrorhizos* Muhl.—Infrequent. Margins of marshes, streams, and ponds.
- Cyperus esculentus* L.—Infrequent. CLINTON, JONES. Open, sandy, and marshy ground.
- Cyperus filiculmis* Vahl.—Frequent. Open, sandy ground.
- Cyperus odoratus* L. (incl. *C. ferruginescens* Boeckl.) Following Jones (1955) in considering these one species.—Infrequent. CLINTON, JACKSON. Muddy or sandy ground at margins of streams and ponds.
- Cyperus rivularis* Kunth.—Rare. JACKSON: Mississippi R. bank, one mile north of Bellevue, 2682.
- Cyperus schweinitzii* Torr.—Common. Dry, sandy ground.
- Cyperus strigosus* L.—Common. Marshes; margins of ponds and streams.
- Eleocharis acicularis* (L.) R. & S.—Frequent. Wet, sandy margins and marshes.
- Eleocharis calva* Torr.—Rare. CLINTON: low ground around pond, SW¼ 5-82-5E, 1431. JONES: marshy ground at Muskrat Slough, SW¼ 21-83-3W, 1725.
- Eleocharis compressa* Sulliv.—Infrequent. CLINTON, JONES. Open, dry or moist, sandy ground.
- Eleocharis engelmannii* Steud.—Rare. JACKSON: margin of ponds in sand and gravel pit at old sand dunes, NE¼ 1-86-4E, 2366.

- Eleocharis obtusa* (Willd.) Schultes.—Infrequent. JACKSON, JONES. Wet margins of marshes and ponds.
- Eleocharis palustris* (L.) R. & S. (incl. *E. macrostachya* Britt.).—Rare. CLINTON: in water two feet deep at Goose Lake Marsh, SE¼ 29-83-5E, 2334. JACKSON: wet, marshy ground at Green Island Slough, 20-85-6E, 1583.
- Eriophorum angustifolium* Honckeny. —Rare. JONES: sandy marsh, SW¼ 6-83-2W, 1168.
- Fimbristylis autumnalis* (L.) R. & S.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 3698.
- Scirpus atrovirens* Willd.—Frequent. Marshes and wet, sandy places.
- Scirpus cyperinus* (L.) Kunth (incl. *S. atrocinctus* Fern.).—Infrequent. CLINTON, JACKSON. Marshes, wet margins, and ditches.
- Scirpus fluviatilis* (Torr.) Gray.—Infrequent. JACKSON, JONES. Marshy ground.
- Scirpus heterochaetus* Chase.—Rare. JACKSON: low ground along inlet from Maquoketa R., SE¼ 21-84-2E, 3017.
- Scirpus validus* Vahl.—Infrequent. Marshes and pond margins.
- Scleria triglomerata* Michx.—Rare. JONES: SE¼ 5, Wayne Twp., Brown, 1948, IA.

## DIOSCOREACEAE

- Dioscorea villosa* L.—Frequent. Woods.

## GRAMINEAE

- \**Agropyron repens* (L.) Beauv.—Common. Roadsides and weedy places.
- Agropyron smithii* Rybd.—Infrequent. Open sandy ground along railroads.
- Agropyron trachycaulum* (Link) Malte.—Rare. CLINTON: Wheatland, C. R. Ball, July 3, 1895, IA. JONES: NE¼ Sec. 23, Richland Twp., Brown, 1948, IA.
- \**Agrostis alba* L. (included by Gleason (1952) in *A. stolonifera* L.).—Frequent. Moist ground at margins of marshes and streams; moist prairie.
- Agrostis hyemalis* (Walt.) BSP.—Infrequent. Open places along paths through woods.
- Agrostis perennans* (Walt.) Tuckerm.—Frequent. Woods, especially on sandy soil.
- Alopecurus aequalis* Sobol.—Rare. JONES: sandy marsh, NW¼ 25-83-1W, 1927.

- Andropogon gerardii* Vitman.—Common. Prairie remnants and dry roadsides.
- Andropogon scoparius* Michx.—Common. Prairie remnants and dry, sandy soil.
- Aristida basiramea* Engelm.—Frequent. Dry, sandy ground.
- Aristida curtissii* (Gray) Nash (*A. dichotoma* Michx. var. *curtissii* Gray).—Rare. CLINTON: dry clay-sand bluffs, Clinton, Robert P. Adams, Sept. 15, 1929, IA. Mixed sheet with *A. intermedia*.
- Aristida intermedia* Scribn. & Ball.—Rare. CLINTON: dry clay-sand bluffs, Clinton, Robert P. Adams, Sept. 15, 1929, IA. Mixed sheet with *A. curtissii*.
- Aristida oligantha* Michx.—Infrequent. CLINTON. Sandy, weedy places.
- Aristida tuberculosa* Nutt.—Infrequent. Open, dry, sand.
- \**Avena fatua* L.—Rare. JONES: along the sidewalk of Onslow, at back door of feedstore, Brown, 1948, IA.
- \**Avena sativa* L.—Rare. CLINTON: roadside ditch, NE¼ 31-83-3E, 1549; sandy ground along R.R. tracks, NW¼ 6-80-6E, 3227.
- Bouteloua curtipendula* (Michx.) Torr.—Common. Prairie remnants and open, sandy soil.
- Bouteloua hirsuta* Lag.—Rare. JONES: open, dry, sandy field near Wapsipinicon R., NW¼ 18-83-1W, 3636, and Brown, 1948, IA, and R. W. Pohl 6611, Aug. 21, 1948, ISC.
- Brachyelytrum erectum* (Schreb.) Beauv.—Infrequent. JACKSON, JONES. Thickets and woods.
- \**Bromus inermis* Leyss.—Infrequent. Roadsides and open, sandy ground.
- \**Bromus japonicus* Thunb.—Rare. CLINTON: dry, sandy pasture, NE¼ 36-81-1E, 4016.
- Bromus kalmii* Gray.—Rare. CLINTON: dry, roadside prairie on limestone rocks, SW¼ 4-83-1E, 1888. JONES: dry, rocky prairie at limestone quarry; thin sandy soil, NE¼ 18-85-1W, 1642.
- Bromus latiglumis* (Shear) Hitchc.—Infrequent. JACKSON, JONES. Lower wooded slopes.
- Bromus purgans* L.—Frequent. JACKSON, JONES. Woods.
- \**Bromus secalinus* L.—Rare. CLINTON: Calamus, M. J. Thiel, June, 1919, ISC.
- \**Bromus tectorum* L.—Frequent. Open, dry ground and waste places, especially along R.R. tracks.
- Calamagrostis canadensis* (Michx.) Beauv.—Infrequent. Marshes.
- Cenchrus pauciflorus* Benth.—Common. Open, dry, sandy places.

- Cinna arundinacea* L.—Common. Moist woods; marshes.
- \**Dactylis glomerata* L.—Rare. JONES: deeply wooded hillside at base of limestone cliff, NE¼ 33-86-1W, 1373.
- Danthonia spicata* (L.) Beauv.—Rare. JACKSON: Bellevue, Pammel, July 20, 1919, ISC. JONES: on crest of limestone bluff partially covered with cedar trees, SE¼ 28-86-1W, 4274, and Brown, 1948, IA.
- Diarrhena americana* Beauv.—Rare. JONES: rich, rocky, wooded hillside below limestone bluff (Eagle Rock), NW¼ 13-85-1W, 941, 2502, 3469.
- \**Digitaria ischaemum* (Schreb.) Muhl.—Common. Waste places; cultivated ground.
- \**Digitaria sanguinalis* (L.) Scop.—Common. Waste places; cultivated ground.
- \**Echinochloa crusgalli* (L.) Beauv.—Infrequent. JACKSON, JONES. Moist, waste places and cultivated ground.
- Echinochloa pungens* (Poir.) Rydb.—Common. Wet and dry waste places; marshes; cultivated ground.
- \**Eleusine indica* (L.) Gaertn.—Infrequent. Waste places.
- Elymus canadensis* L.—Common. Prairie remnants and open, dry, sandy soil.
- Elymus villosus* Muhl.—Frequent. Woods.
- Elymus virginicus* L.—Common. CLINTON, JONES. Alluvial woods and open, grassy places.
- \**Eragrostis cilianensis* (All.) Link. (? *E. megastachya* (Koel.) Link.).—Common. Dry roadsides, waste places, and cultivated ground.
- Eragrostis frankii* C. A. Mey.—Infrequent. Sandy, lightly wooded, alluvial ground.
- Eragrostis hypnoides* (Lam.) BSP.—Common. Margins of ponds and streams.
- Eragrostis pectinacea* (Michx.) Nees.—Common. Open, sandy ground; waste places.
- Eragrostis spectabilis* (Pursh) Steud.—Common. Open, dry, sandy places.
- \**Festuca elatior* L.—Rare. CLINTON: Clinton, Pammel, 3219, June 29, 1901, ISC.
- Festuca obtusa* Biehler.—Common. Rich, moist woods.
- Festuca octoflora* Walt. (*Vulpina octoflora* (Walt.) Rydb.).—Infrequent. Open, dry, sandy places.
- Festuca paradoxa* Desv.—Rare. CLINTON: Wheatland, C. R. Ball 278, July 3, 1895, ISC.

- Glyceria grandis* S. Wats.—Infrequent. JACKSON, JONES. Wet meadows; marshes.
- Glyceria striata* (Lam.) Hitchc.—Infrequent. Marshy places and moist, alluvial woods.
- Hordeum jubatum* L.—Frequent. CLINTON, JONES. Roadsides and waste places.
- Hordeum pusillum* Nutt.—Rare. CLINTON: sandy ground along Wapipinicon R., NE 18-82-1E, 1280; dry sandy pasture field, NE¼ 36-81-1E, 4017.
- Hystrix patula* Moench.—Common. Woods.
- Koeleria cristata* (L.) Pers.—Infrequent. JACKSON, JONES. Open, dry, sandy places.
- Leersia lenticularis* Michx.—Rare. CLINTON: Lyons, Pammel 242, Sept. 4, 1896, ISC. JACKSON: sandy, marshy ground, 7-84-7E, 2652.
- Leersia oryzoides* (L.) Sw.—Common. Marshy ground.
- Leersia virginica* Willd.—Common. Moist woods.
- Leptoloma cognatum* (Schultes) Chase.—Common. Open, sandy places.
- \**Lolium temulentum* L.—Rare. JONES: Stone City, Mr. Miller July 26, 1922, ISC.
- Melica nitens* Nutt.—Infrequent. JACKSON, JONES. Open, dry, limestone and sandstone outcrops.
- \**Miscanthus sacchariflorus* (Maxim.) Hack.—Infrequent. Roadsides near dwellings.
- Muhlenbergia frondosa* (Poir.) Fern.—Frequent. JACKSON, JONES. Woods, stream banks, and waste places.
- Muhlenbergia glomerata* (Willd.) Trin. (evidently included by Gleason (1952) in *M. racemosa* (Michx.) BSP.).—Rare. JONES: rather shaded openings among cedar trees at crest of limestone bluff, NE¼ 33-86-1W, 3489. This habitat is unusual for the species.
- Muhlenbergia mexicana* (L.) Trin.—Infrequent. CLINTON, JONES. Moist or dry, sandy ground.
- Muhlenbergia racemosa* (Michx.) BSP.—Infrequent. CLINTON, JONES. Crevices on limestone bluff.
- Muhlenbergia schreberi* J. F. Gmel.—Frequent. Prairie openings on limestone bluffs, waste places, and cultivated ground.
- Muhlenbergia sobolifera* (Muhl.) Trin.—Infrequent. JONES. Wooded places on or near limestone outcrops.
- Muhlenbergia sylvatica* Torr.—Rare. CLINTON: Lyons, Pammel 250, Sept. 4, 1896, ISC.

- Muhlenbergia tenuiflora* (Willd.) BSP.—Rare. JACKSON: deep, rich woods at Maquoketa Caves St. Pk., NW 6-84-2E, 3426.
- Oryzopsis racemosa* (Sm.) Ricker.—Common. JACKSON, JONES. Rich, moist woods with limestone outcrops, along Maquoketa R. and tributaries, usually on north-facing slopes.
- Panicum capillare* L.—Common. Waste places, roadsides, cultivated ground; mostly in sandy soil.
- Panicum commonsianum* Ashe (these specimens are all var. *euchlamydeum* (Shinners) Pohl).—Infrequent. JACKSON, JONES. Open, dry sand.
- Panicum dichotomiflorum* Michx.—Common. Sandy stream banks, roadsides, and waste places.
- Panicum implicatum* Scribn. (incl. *P. praecocius* H. & C., *P. huachucae* Ashe, *P. tennesseense* Ashe). Following Thorne (1955) in considering these to be one species. All are considered by Fernald (1950) and Gleason (1952) as varieties of *P. lanuginosum* Ell. except *P. praecocius* which they treat as a distinct species.—Frequent. Open woods and open sandy places.
- Panicum latifolium* L.—Frequent. Woods.
- Panicum lindheimeri* Nash (*P. lanuginosum* Ell. var. *lindheimeri* (Nash) Fern.). Following Pohl (1954) in considering this specifically distinct from *P. lanuginosum*.—Infrequent. CLINTON, JONES. Open, dry, sandy, or gravelly places.
- Panicum perlongum* Nash.—Rare. JONES: sandy prairie between R.R. and Highway 151, NW¼ 4-85-3W, 1212; sandy soil on crest of limestone bluff, NE¼ 33-86-2W, 3945.
- Panicum scribnerianum* Nash. Following Pohl (1954) in treating this taxon as a distinct species. Perhaps better is the treatment of Fernald (1950) and Gleason (1952) in which it is treated as *P. oligoanthes* var. *scribnerianum* (Nash) Fern.—Frequent. Open, dry, sandy soil.
- Panicum virgatum* L.—Common. Moist or dry, open, sandy places.
- Paspalum ciliatifolium* Michx.—Common. Dry, sandy ground.
- Phalaris arundinacea* L.—Infrequent. Moist, alluvial woods and marshy places.
- \**Phleum pratense* L.—Common. Roadsides and open, grassy places.
- \**Poa annua* L.—Rare. CLINTON: Lyons, Pammel, Sept. 4, 1896, IA.
- \**Poa compressa* L.—Common. Roadsides and other grassy places.
- \**Poa pratensis* L.—Common. All grassy places.
- Poa sylvestris* Gray.—Rare. JONES: deep, rich, wooded ravines and slopes in Wapsipinicon St. Pk., 10-84-4W, 1348, 1359.

- Schizachne purpurescens* (Torr.) Swallen.—Rare. JONES: sparingly wooded area near crest of limestone bluff, NE¼ 33-86-2W, 3973.
- \**Secale cereale* L.—Collected only once. JONES: weedy roadside at Martelle, 1262.
- \**Setaria faberii* Herrm.—Rare. JONES: roadside, open and steeply sloping, along Highway 151, just west and south of intersection with county trunk J, NE¼ Sec. 36, Cass Twp., R. W. Pohl 7018, Aug. 23, 1950 ISC.
- Setaria geniculata* (Lam.) Beauv.—Rare. JONES: few, in damp hollow along R.R. track, sandy plain, bottoms of Wapsipinicon R., NW¼ Sec. 18, Oxford Twp., R. W. Pohl 6607, Aug. 21, 1948, ISC; SE¼ Sec. 10, Hale Twp., Brown, 1948, IA.
- \**Setaria lutescens* (Weigel) F. T. Hubb. (? *S. glauca* (L.) Beauv.) Following Pohl (1954) in using this specific epithet.—Common. Roadsides and other waste places and disturbed ground.
- \**Setaria verticillata* (L.) Beauv.—Infrequent. Waste places.
- \**Setaria viridis* (L.) Beauv.—Common. Dry, disturbed ground.
- Sorghastrum nutans* (L.) Nash.—Common. Prairie remnants and open, sandy ground.
- Spartina pectinata* Link.—Infrequent. Marshes and other wet ground.
- Sphenopholis intermedia* (Rydb.) Rydb.—Infrequent. Moist woods; marshes.
- Sphenopholis obtusata* (Michx.) Scribn.—Rare. JONES: dry, prairie opening on bluff, NE¼ 33-86-2W, 3969.
- Sporobolus asper* (Michx.) Kunth.—Common. Prairie remnants; open, sandy soil.
- Sporobolus cryptandrus* (Torr.) Gray.—Common. Dry, sandy ground.
- Sporobolus heterolepis* Gray.—Infrequent. JACKSON, JONES. Open, sandy prairie.
- Sporobolus neglectus* Nash.—Infrequent. CLINTON, JACKSON. Dry, sandy ground.
- Sporobolus vaginiflorus* (Torr.) Wood.—Frequent. CLINTON, JONES. Dry, sandy ground.
- Stipa spartea* Trin.—Infrequent. Open, sandy places.
- Tridens flavus* (L.) Hitchc. (*Triodia flava* (L.) Smyth). Following Pohl (1954) in using this generic name.—Rare. CLINTON: Camanche, Pammel, Sept. 13, 1918, ISC.
- Triplasis purpurea* (Walt.) Chapm.—Infrequent. Open, dry, sandy places.
- \**Triticum aestivum* L.—Collected only once. CLINTON: cinder bank along R.R. tracks in Wheatland, 4025.



## HYDROCHARITACEAE

*Elodea canadensis* Michx. (*Anacharis canadensis* (Michx.) Rich.)—Rare. JACKSON: submersed in pond near Mississippi R., 12-86-4E, 3464; shallow water at margin of Mississippi R., NE¼ 1-86-4E, 4243.

*Elodea nuttallii* (Planch.) St. John (*Anacharis nuttallii* Planch.)—Infrequent. CLINTON, JACKSON. Submersed in shallow water.

## HYPOXIDACEAE

*Hypoxis hirsuta* (L.) Coville.—Frequent. Prairie remnants; open, grassy places.

## IRIDACEAE

*Iris virginica* L.—Frequent. Marshy places and other wet ground.

*Sisyrinchium campestre* Bickn.—Common. Prairie remnants and openings.

## JUNCACEAE

*Juncus balticus* Willd.—Rare. JACKSON: O. M. Oleson, July, 1903, ISC.  
*Juncus canadensis* J. Gay.—Rare. JONES: sandy marsh, NW¼ 7-83-2W, 1962, 3697, 4141.

*Juncus dudleyi* Wieg.—Rare. CLINTON: marsh in pasture field, NE¼ 15-82-1E, 1326; roadside ditch, NE¼ 31-83-3E, 1552.

*Juncus interior* Wieg.—Infrequent. JONES. Moist or dry sand.

*Juncus tenuis* Willd.—Common. Pastures and other open places.

*Juncus torreyi* Coville.—Rare. CLINTON: wet, sandy ground along R.R. tracks, 20-83-7E, 2713.

*Luzula campestris* (L.) DC.—Rare. JONES: sandy, prairie opening on hilltop, SW¼ 28-86-2W, 3982; sparsely wooded, sandy hillside, 30-85-4W, 4047.

## LEMNACEAE

*Lemna minor* L.—Common. Floating on shallow water of ponds and marshes.

*Lemna trisulca* L.—Rare. CLINTON: Shallow water of Goose Lake Marsh, SE¼ 29-83-5E, 2340. JONES: shallow water in Muskrat Slough, NW¼ 21-83-3W, 2504.

*Spirodela polyrhiza* (L.) Schleid.—Common. Floating on shallow water of ponds and marshes.

*Wolffia columbiana* Karst.—Infrequent. CLINTON, JACKSON. Shallow water of ponds, lakes, and river margins.

*Wolffia punctata* Griseb.—Rare. CLINTON: in shallow water of Crystal Lake, 14-81-3E, 538.

## LILIACEAE

\**Asparagus officinalis* L.—Frequent. Weed in woods and waste ground.  
*Erythronium albidum* Nutt.—Infrequent. Moist, alluvial woods.

\**Hemerocallis fulva* L.—Frequent. Roadsides.

*Lilium michiganense* Farw.—(included by Gleason (1952) in *L. superbum* L.)—Infrequent. JONES. Wet, grassy places.

*Lilium philadelphicum* L.—Rare. JONES: low, moist, sandy prairie between R.R. and Highway 151, NE¼ 4-85-3W, 1627, and Brown, 1948, IA; in cut-over timberland, Sec. 12, Wyoming Twp., Brown, June, 1932, ISC.

\**Lilium tigrinum* L.—Rare. JONES: SE¼ Sec. 18, Greenfield Twp., Brown, 1948, IA.

*Polygonatum canaliculatum* (Muhl.) Pursh.—Common. Woods and roadsides.

*Smilacina racemosa* (L.) Desf.—Common. Rich, moist woods.

*Smilacina stellata* (L.) Desf.—Common. Woods and moist, open places.

*Uvularia grandiflora* Sm.—Common. Rich, moist woods.

*Zigadenus glaucus* Nutt.—Rare. JONES: opening at crest of limestone bluff (Eagle Rock), NW¼ 13-85-1W, 2490.

## ORCHIDACEAE

*Corallorhiza odontorhiza* (Willd.) Nutt.—Rare. JONES: growing among needles in dense stand of white pine, Wapsipinicon St. Pk., Cooperrider, Sept. 14, 1959, IA.

*Cypripedium calceolus* L.—Frequent. JACKSON, JONES. Rich, upper wooded slopes.

*Cypripedium reginae* Walt.—Rare. JONES: this specimen, no. 4213, was transplanted from a nearby woods early in Spring of 1956 along with six other plants to a woods near a shack in Sec. 28, 86-2W. Three of the plants flowered in 1956, none in 1957.

*Goodyera pubescens* (Willd.) R. Br.—Rare. JONES: Onslow, Cameron, July 23, 1895, IA.

*Habenaria viridis* (L.) R. Br.—Infrequent. Open, grassy woods.

*Liparis liliifolia* (L.) Rich.—Infrequent. JACKSON, JONES. Wooded ridges and hillsides.

*Orchis spectabilis* L.—Frequent. JACKSON, JONES. Rich woods.

*Spiranthes cernua* (L.) Rich.—Infrequent. CLINTON, JONES. Dry prairie; open woods; grassy places.

## PONTEDERIACEAE

*Heteranthera dubia* (Jacq.) MacM. (*Zosterella dubia* (Jacq.) Small).—

Infrequent. CLINTON, JACKSON. Submersed in shallow water of lakes, ponds, and river margins.

*Pontederia cordata* L.—Infrequent. CLINTON, JONES. Shallow water in marshy areas.

## POTAMOGETONACEAE

\**Potamogeton crispus* L.—Infrequent. CLINTON, JACKSON. Shallow water in or near Mississippi River.

*Potamogeton diversifolius* Raf.—Rare. CLINTON: sandy marsh, NW¼ 6-82-2E, 2898.

*Potamogeton foliosus* Raf.—Rare. CLINTON: in shallow pond, SW¼ 5-82-5E, 1434. JACKSON: in pond at sand and gravel pit, NE¼ 1-86-4E, 2373.

*Potamogeton nodosus* Poir.—Infrequent. JACKSON, JONES. Shallow water in ponds and river margins.

*Potamogeton pectinatus* L.—Infrequent. JACKSON. Shallow water of ponds and sloughs along Mississippi R.

## SMILACACEAE

*Smilax ecirrhata* (Engelm.) S. Wats.—Common. JACKSON, JONES. Rich woods.

*Smilax herbacea* L. (incl. *S. lasioneura* Hook.)—Common. Woods and thickets.

*Smilax hispida* Muhl. (*S. tamnoides* L. var. *hispida* (Muhl.) Fern.).—Common. Woods and thickets.

## TRILLIACEAE

*Trillium flexipes* Raf. (*T. gleasoni* Fern.)—Common. Rich, wooded ravines and hillsides.

*Trillium nivale* Riddell.—Rare. CLINTON: hillside meadow, Spring (Valley?) Twp., Brown, 1933, ISC. JONES: rich, rocky, wooded hillside below Eagle Rock, NW¼ 13-85-1W, 944.

*Trillium recurvatum* Beck.—Infrequent. Rich, alluvial woods.

## TYPHACEAE (incl. SPARGANIACEAE)

*Sparganium eurycarpum* Engelm.—Frequent. Water in marshy ground, ponds and sloughs.

*Typha angustifolia* L.—Rare. JACKSON: slough east of Green Island, 20-85-6E, 4136. JONES: NE¼ Sec. 20, Washington Twp., Brown, 1948, IA.

*Typha latifolia* L.—Common. Marshes and other wet places.

## DICOTYLEDONS

## ACANTHACEAE

*Ruellia humilis* Nutt.—Frequent. CLINTON, JONES. Open, dry sandy places; prairie openings.

## ACERACEAE

*Acer negundo* L.—Common. Alluvial woods and other moist places.

*Acer saccharinum* L.—Common. Alluvial woods.

*Acer saccharum* Marsh. (incl. *A. nigrum* Michx. f.) Thorne (1955) is followed in considering the hard maples here as one species.—Common. Wooded hillsides.

## ADOXACEAE

*Adoxa moschatellina* L.—Rare. JONES: rich, wooded slope with occasional limestone outcrops, SW¼ 28-86-2W, 3959.

## AIZOACEAE

*Mollugo verticillata* L.—Common. Open, sandy ground; railroad ballast; waste places.

## AMARANTHACEAE

*Amaranthus albus* L.—Infrequent. Open, sandy soil; waste places; cultivated ground.

*Amaranthus graecizans* L. (*A. blitoides* S. Wats.)—Infrequent. Waste places; cultivated ground.

\**Amaranthus hybridus* L.—Rare. JACKSON: weed in dooryard, 20-84-7E, 2646. JONES: dry, sandy creek bottom in pastured field, NE¼ 8-85-2W, 3274.

\**Amaranthus retroflexus* L.—Infrequent. Weed of grain fields; creek banks.

\**Amaranthus tamariscinus* Nutt. (*Acnida tamariscina* (Nutt.) Wood) In considering this species and the next as part of *Amaranthus*, the writer is following Sauer (1955). The intermediate nature of some characters makes it somewhat doubtful if this species is distinct, in this area, from *A. tuberculatus*.—Infrequent. JACKSON, JONES. Open or lightly wooded alluvial ground.

*Amaranthus tuberculatus* (Moq.) J. D. Sauer (*Acnida altissima* Riddell) See notes under last species.—Frequent. River banks and margins of marshy places.

*Froelichia floridana* (Nutt.) Moq. (incl. *F. campestris* Small, and *F. gracilis* (Hook.) Moq.) The writer follows Thorne (1955) and

Davidson (1959) in considering this complex as one species.—Frequent. Open, dry, sandy soil; railroad ballast.

## ANACARDIACEAE

*Rhus aromatica* Ait.—Infrequent. JACKSON, JONES. Open, dry, sandy ground.

*Rhus glabra* L.—Common. Thickets; openings in upland woods.

*Rhus radicans* L.—Common. Woods; banks; stream margins.

*Rhus typhina* L.—Frequent. Rich, rocky, wooded hillsides.

## ANNONACEAE

*Asimina triloba* (L.) Dunal.—Rare. CLINTON: low ground on wooded bank above margin of Mississippi R., at base of calcareous hillside, 20-82-7E, 3195, and Lyons, Pammel, Aug. 14, 1914, ISC. JACKSON: south-facing, rocky hillside at base of limestone bluffs, NW¼ 33-84-1E, 429, 1154.

## APOCYNACEAE

*Apocynum androsaemifolium* L.—Infrequent. JACKSON, JONES. Woodland borders; openings in woods.

*Apocynum cannabinum* L.—Frequent. Roadsides; railroad ballast; open places in general.

*Apocynum sibiricum* Jacq.—Infrequent. Moist or dry sand and other open places.

## ARALIACEAE

*Aralia nudicaulis* L.—Infrequent. JACKSON, JONES. Rich, wooded ravines.

*Aralia racemosa* L.—Common. Wooded, rocky hillsides, usually north-facing, often directly on limestone outcrops or boulders.

*Panax quinquefolius* L.—Common. Deep, rich woods.

## ARISTOLOCHIACEAE

*Asarum canadense* L.—Common. Rich, wooded, rocky hillsides.

## ASCLEPIADACEAE

*Asclepias amplexicaulis* Sm.—Infrequent. Open, sandy fields.

*Asclepias exaltata* L.—Rare. JONES: rich, moist woods, NW¼ 24-83-2W, 1840; sandy upland woods, SW¼ 28-86-2W, 3987.

*Asclepias hirtella* (Pennell) Woodson (*Acerates hirtella* Pennell).—Rare. CLINTON: moist, sandy, roadside ditch, NE¼ 36-81-1E, 4142. JONES: SE¼ Sec. 14, Hale Twp., Brown, 1948, IA.

*Asclepias incarnata* L.—Frequent. Marshy places.

*Asclepias purpurascens* L.—Infrequent. JACKSON, JONES. Dry openings on wooded bluffs.

*Asclepias syriaca* L.—Common. Open roadsides and fields.

*Asclepias tuberosa* L.—Infrequent. Prairie remnants; dry roadsides; sandy places.

*Asclepias verticillata* L.—Common. Sandy roadsides; prairie remnants.

*Asclepias viridiflora* Raf. (*Acerates viridiflora* (Raf.) Eat.).—Rare. CLINTON: sandy terrace along road no. 99, Camanche, Shimek, June 6, 1930, ISC.

## BALSAMINACEAE

*Impatiens biflora* Walt. (? *I. capensis* Meerb.)—Common. Stream banks; marshy places.

*Impatiens pallida* Nutt.—Common. Stream banks; marshy places.

## BERBERIDACEAE

\**Berberis thunbergii* DC.—Infrequent. Woods.

\**Berberis vulgaris* L.—Now rare due to eradication. Woods.

*Caulophyllum thalictroides* (L.) Michx.—Common. Rich woods.

*Podophyllum peltatum* L.—Common. Open woods.

## BETULACEAE

*Betula nigra* L.—Common. Alluvial woods.

*Betula papyrifera* Marsh.—Rare. JACKSON: deep, rich woods at Bellevue St. Pk., 19-86-5E, 1449; base of bluff facing Mississippi R., NW¼ 11-85-5E, 3256.

*Carpinus caroliniana* Walt.—Common. JACKSON, JONES. Upper parts of wooded, rocky, usually north-facing, calcareous hillsides.

*Corylus americana* Walt.—Common. Thickets and open woods.

*Ostrya virginiana* (Mill.) K. Koch.—Common. Wooded slopes.

## BIGNONIACEAE

\**Campsis radicans* (L.) Seem.—Rare. JONES: at base of wooded slope along Wapsipinicon R., Wapsipinicon St. Pk., Cooperrider, Sept. 14, 1959, IA. Perhaps planted.

\**Catalpa bignonioides* Walt.—Infrequent. CLINTON, JONES. Thickets.

\**Catalpa speciosa* Warder.—Infrequent. JACKSON, JONES. Roadside thickets and gulleys.

## BORAGINACEAE

\**Cynoglossum officinale* L.—Infrequent. Open ground in pastures and calcareous woods.

- Hackelia virginiana* (L.) I. M. Johnston.—Common. Open, rocky woods; creek banks.
- Lithospermum canescens* (Michx.) Lehm.—Common. Prairie remnants and openings.
- Lithospermum croceum* Fern. (*L. caroliniense* (Walt.) MacMill. in part).—Frequent. Open, dry, sandy soil.
- Lithospermum incisum* Lehm.—Infrequent. Open, dry sand or gravel.
- Lithospermum latifolium* Michx.—Rare. JACKSON: deep, rich woods at Maquoketa Caves St. Pk., 6-84-2E, 2469, 3933.
- Myosotis verna* Nutt.—Infrequent. CLINTON, JONES. Open, dry sand.
- Onosmodium occidentale* Mackenzie.—Rare. CLINTON: opening on limestone bluff above Sugar Creek, sandy soil, NW¼ 6-83-4E, 3048.

## CAMPANULACEAE

- Campanula americana* L.—Common. Margins of moist woods; stream banks; moist, roadside ditches.
- Campanula aparinoides* Pursh.—Infrequent. CLINTON, JONES. Marshes.
- Campanula rotundifolia* L.—Common. Crevices of limestone rocks.
- Lobelia cardinalis* L.—Infrequent. Moist, alluvial woods; marshy ground.
- Lobelia inflata* L.—Common. Openings in woods and other grassy places.
- Lobelia siphilitica* L.—Common. Along streams in woods; wet places in pastures.
- Lobelia spicata* Lam.—Common. Prairie remnants and other open, grassy places.
- Triodanis perfoliata* (L.) Nieuwl. (*Specularia perfoliata* (L.) A. DC.) Following Jones (1955) and Thorne (1955) in using this generic name.—Common. Dry, sandy soil; openings in woods; along railroad tracks.

## CAPPARIDACEAE

- Polanisia graveolens* Raf. (incl. *P. trachysperma* T. & G.). The writer follows Thorne (1955) in considering these as one species.—Infrequent. Open, sandy places.
- Polanisia jamesii* (T. & G.) Iltis (*Cristatella jamesii* T. & G.). This treatment follows that of Iltis (1958).—Rare. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 1980, 4263.

## CAPRIFOLIACEAE

- Lonicera prolifera* (Kirchn.) Rehd.—Common. Open, wooded slopes; limestone ledges; rocky bluffs.
- \**Lonicera tatarica* L.—Rare. JONES: NE¼ Sec. 12, Clay Twp., Brown, 1948, IA; rocky, north-facing, wooded slope in Wapsipinicon St. Pk. where it has presumably escaped from plantings (no specimen kept).
- Sambucus canadensis* L.—Common. Thickets in roadside ditches; moist ground along streams.
- Sambucus pubens* Michx.—Infrequent. CLINTON, JACKSON. Rather open, steep, rocky slopes.
- \**Symphoricarpos occidentalis* Hook.—Infrequent. Ditches along railroad tracks.
- Symphoricarpos orbiculatus* Moench.—Infrequent. Open, usually sandy places.
- Triosteum aurantiacum* Bickn. (*T. perfoliatum* var. *aurantiacum* (Bickn.) Wieg.).—Infrequent. JACKSON, JONES. Woods.
- Triosteum perfoliatum* L.—Frequent. Woods and pastures.
- Viburnum lentago* L.—Common. Rich, wooded slopes; margins of woods.
- Viburnum rafinesquianum* Schultes.—Frequent. JACKSON, JONES. Rocky, wooded bluffs and slopes.

## CARYOPHYLLACEAE

- Arenaria lateriflora* L.—Infrequent. CLINTON, JONES. Rich woods.
- Arenaria stricta* Michx.—Frequent. Rock crevices on dry prairie remnants; openings on limestone bluffs.
- Cerastium nutans* Raf.—Infrequent. Thickets; opening in woods; wooded slopes.
- \**Cerastium viscosum* L.—Rare. JONES: open, sandy field near Wapsipinicon R., NW¼ 18-83-1W, 1023, and Brown, May 11, 1949, IA.
- \**Cerastium vulgatum* L.—Frequent. Woods; creek banks; pastures.
- \**Dianthus armeria* L.—Rare. JACKSON: prairie opening on limestone bluff above Bear Creek, NW¼ 33-84-1E, 1891.
- \**Lychnis alba* Mill.—Common. Roadsides and other disturbed ground.
- \**Saponaria officinalis* L.—Common. Roadsides; waste places.
- Silene antirrhina* L.—Frequent. Sandy roadsides; along railroad tracks; waste places.
- \**Silene cserei* Baumg.—Rare. CLINTON: cinder bank along railroad tracks in Wheatland, 4026.

*Silene stellata* (L.) Ait. f.—Infrequent. CLINTON, JONES. Sandy woods.

\**Stellaria aquatica* (L.) Scop. (*Myosoton aquaticum* (L.) Moench).—Infrequent. Moist wooded ground, usually near streams.

*Stellaria longifolia* Muhl.—Infrequent. Wooded slopes; wooded alluvial ground.

*Stellaria media* (L.) Cyrillo.—Collected only twice, but probably more common. CLINTON: alley weed in Wheatland, 4027. JACKSON: wooded, rocky, north-facing hillside below limestone bluffs at Maquoketa Caves St. Pk., 6-84-2E, 1794.

#### CELASTRACEAE

*Celastrus scandens* L.—Common. Roadside thickets; open woods; fence rows.

*Euonymus atropurpureus* Jacq.—Common. Rocky ground along streams; rocky bluffs.

#### CERATOPHYLLACEAE

*Ceratophyllum demersum* L.—Infrequent. Shallow water of lakes, ponds, and marshes.

#### CHENOPODIACEAE

*Atriplex patula* L.—Rare. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 4251.

\**Chenopodium album* L.—Common. Roadsides; along railroad tracks; cultivated ground; waste ground.

\**Chenopodium bushianum* Aellen (*C. paganum* of authors). The writer is following Wahl (1954) in this treatment.—Rare. JACKSON: along bank of dike through Green Island Slough, 20-85-6E, 3099.

*Chenopodium gigantospermum* Aellen (*C. hybridum* of American authors). The writer is following Wahl (1954) in considering this taxon specifically distinct from *C. hybridum* L.—Infrequent. Rather open, rocky, wooded slopes.

*Chenopodium pratericola* Rybd. (*C. leptophyllum* of authors). The writer is following Wahl (1954) in considering this taxon specifically distinct from *C. leptophyllum* Nutt.—Frequent. Open, dry sandy soil.

*Chenopodium standleyanum* Aellen (*C. boscianum* of authors).—Infrequent. Low woods; marshy ground.

*Cycloloma atriplicifolium* (Spreng.) Coult.—Infrequent. Open, sandy places.

\**Kochia scoparia* (L.) Roth.—Rare. JONES: along railroad tracks at Wyoming, 2383.

\**Salsola kali* L.—Infrequent. Open, dry sand.

#### CISTACEAE

*Helianthemum bicknellii* Fern.—Frequent. CLINTON, JONES. Open, dry, sandy ground; prairie remnants.

*Hudsonia tomentosa* Nutt.—Rare. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 1983. This is apparently the only station known for Iowa.

*Lechea stricta* Leggett.—Rare. JACKSON: Bellevue, Pammel, July 20, 1919, ISC. JONES: thin, sandy soil on limestone outcrops, NE¼ 18-85-1W, 2580, 3609.

*Lechea tenuifolia* Michx.—Rare. CLINTON: lightly wooded, sandy ground along Wapsipinicon R., NE¼ 18-82-1E, 3578. JONES: SE¼ Sec. 10, Hale Twp., Brown, 1948, IA.

*Lechea villosa* Ell.—Rare. JONES: prairie opening in upland woods, NW¼ 5-85-2W, 256; rather open, sparingly wooded, sandy ground, NE¼ 31-85-4W, 3170.

#### COMPOSITAE

*Achillea millefolium* L. (incl. *A. lanulosa* Nutt.).—Common. Open, dry places.

*Ambrosia artemisiifolia* L.—Common. River banks; roadsides; waste places.

*Ambrosia psilostachya* DC. (incl. *A. coronopilifolia* T. & G.)—Frequent. Open, sandy ground.

*Ambrosia trifida* L.—Common. Sandy ground along streams; roadsides; waste places.

*Antennaria neglecta* Greene.—Common. Prairie remnants, openings; dry pastured hillsides.

*Antennaria plantaginifolia* (L.) Hook.—Common. Prairie openings and other open, dry places.

\**Anthemis cotula* L.—Frequent. Barnyards; pastures; along railroad tracks; other waste places.

\**Arctium minus* (Hill) Bernh.—Infrequent. Low, sandy ground; weedy places.

\**Artemisia annua* L.—Rare. JACKSON: low, sandy, sparingly wooded ground along Mississippi R., 20-85-6E, 3534.

\**Artemisia biennis* Willd.—Rare. JONES: sandy creek bank, NE¼ 33-86-2W, 4228; NE¼ Sec. 12, Clay Twp., Brown, 1948, IA.

- Artemisia caudata* Michx.—Common. Openings on limestone bluffs; dry, sandy places.
- Artemisia ludoviciana* Nutt.—Common. Open, dry, sandy ground.
- Artemisia serrata* Nutt.—Rare. JACKSON: Shimek, Aug., 1894, IA.
- Aster azureus* Lindl.—Common. Dry prairie remnants on limestone outcrops.
- Aster cordifolius* L.—Common. Woods.
- Aster ericoides* L.—Frequent. Dry, prairie remnants; open, dry, sandy places.
- Aster laevis* L.—Infrequent. JACKSON, JONES. Roadside banks; prairie remnants.
- Aster lateriflorus* (L.) Britt.—Common. Woods.
- Aster linariifolius* L.—Rare. CLINTON: in dry soil, Fred Weiss, Sept., 1932, ISC.
- Aster novae-angliae* L.—Common. Roadsides; creekbanks; thickets; pastures.
- Aster oblongifolius* Nutt.—Infrequent. Prairie openings on limestone bluffs.
- Aster ontarionis* Wieg.—Frequent. Alluvial woods.
- Aster parviceps* (Burgess) Mack. & Bush.—Rare. JONES: SE¼ Sec. 14, Hale Twp., Brown, 1948, IA.
- Aster pilosus* Willd.—Common. Prairie remnants; thickets; roadsides; stream banks.
- Aster praealtus* Poir.—Rare. CLINTON: Clinton, Pammel, 1927, ISC; Fred Weiss, Sept., 1932, ISC. JONES: thin, sandy soil on dry, rocky prairie at limestone quarry, NE¼ 18-85-1W, 3622.
- Aster prenanthoides* Muhl.—Infrequent. Banks of streams; low, moist woods.
- Aster ptarmicoides* (Nees) T. & G.—Infrequent. Prairie remnants on limestone outcrops and openings on bluffs.
- Aster puniceus* L. (incl. *A. lucidulus* (Gray) Wieg.).—Rare. JONES: sandy marsh. SW¼ 6-83-2W, 3699.
- Aster sagittifolius* Wed. (incl. *A. drummondii* Lindl.). These taxa might, perhaps, be better treated as distinct species.—Common. JACKSON, JONES. Woods.
- Aster sericeus* Vent.—Frequent. Prairie remnants on limestone outcrops; openings on bluffs; dry, sandy places.
- Aster shortii* Lindl.—Common. Wooded slopes.
- Aster simplex* Willd.—Frequent. CLINTON, JONES. Open, sandy places.
- Aster umbellatus* Mill.—Infrequent. CLINTON, JONES. Marshy places.

- Bidens cernua* L.—Common. Low, moist woods; marshes; stream banks.
- Bidens coronata* (L.) Britt.—Infrequent. CLINTON, JONES. Marshes and other wet places.
- Bidens discoidea* (T. & G.) Britt.—Rare. JACKSON: along bank of dike through Green Island Slough, 20-85-6E, 3105.
- Bidens frondosa* L.—Infrequent. CLINTON, JACKSON. Marshy ground; wooded banks.
- Bidens tripartita* L. (incl. *B. connata* Muhl. and *B. comosa* (Gray) Wieg.).—Infrequent. Stream banks; marshes.
- Bidens vulgata* Greene.—Infrequent. JACKSON, JONES. Roadside ditches and thickets.
- Boltonia asteroides* (L.) L'Her.—Infrequent. Low, moist woods; marshes.
- Cacalia muhlenbergii* (Sch. Bip.) Fern.—Rare. JACKSON: rich woods along Bear Creek, NW¼ 33-84-1E, 1919; alluvial woods west of Maquoketa, Shimek, Sept. 7, 1927, ISC.
- Cacalia suaveolens* L.—Infrequent. JACKSON, JONES. Roadsides.
- \**Carduus nutans* L.—Rare. CLINTON: Camanche, E. L. Dunn, July 1, 1927, ISC.
- \**Chrysanthemum leucanthemum* L.—Infrequent. Dry roadsides and other dry, disturbed ground.
- Chrysopsis villosa* (Pursh) Nutt. (incl. *C. camporum* Greene).—Infrequent. CLINTON. Several stations in SE Clinton Co., all on open sand, abundant on disturbed sand hills, SE¼ 29-81-6E. These are apparently the only stations known for Iowa.
- \**Cichorium intybus* L.—Infrequent. Roadsides.
- Cirsium altissimum* (L.) Spreng. (incl. *C. iowense* (Pammel) Fern.). Perhaps not specifically distinct from *C. discolor* (Muhl.) Spreng. Common. Pastures; open woods; thickets.
- \**Cirsium arvense* (L.) Scop.—Infrequent. Pastures and open, waste ground.
- Cirsium discolor* (Muhl.) Spreng. See note under *C. altissimum*.—Frequent. Thickets; fencerows; open, waste places.
- Cirsium hillii* (Canby) Fern.—Infrequent. Dry prairie remnants.
- Cirsium muticum* Michx.—Rare. CLINTON: rich, seeping, marshy ground surrounded by woods, SE¼ 2-82-6E, 3507.
- \**Cirsium vulgare* (Savi) Airy-Shaw (*C. lanceolatum* of authors).—Common. Thickets; roadsides; creek banks; pastures.
- \**Coreopsis grandiflora* Hogg.—Rare. JACKSON: open, sandy roadside, two miles north of Sabula, 1556. This is apparently the only station known for Iowa.

- Coreopsis palmata* Nutt.—Frequent. JACKSON, JONES. Prairie openings; open, sandy places.
- Echinacea pallida* Nutt.—Common. Prairie remnants; open, dry, sandy places.
- Eclipta alba* (L.) Hassk.—Infrequent. CLINTON, JACKSON. Low ground at margins of streams and rivers.
- Erechtites hieracifolia* (L.) Raf.—Frequent. Marshy ground and low, moist woods.
- Erigeron annuus* (L.) Pers.—Common. Pastures; stream banks; roadsides.
- Erigeron canadensis* L. (*Conyza canadensis* (L.) Cron.).—Common. River banks; roadsides; pastures; disturbed ground.
- Erigeron divaricatus* Michx. (*Conyza ramosissima* Cron.).—Infrequent CLINTON. Sandy pastures and other open sandy places.
- Erigeron philadelphicus* L.—Infrequent. Open creek banks; thickets; open sandy places.
- Erigeron pulchellus* Michx.—Infrequent. JACKSON, JONES. Open woods and bluffs.
- Erigeron strigosus* Muhl. (*E. ramosus* of authors).—Common. Roadsides; pastures; prairie remnants; along railroad tracks.
- Eupatorium altissimum* L.—Rare. JACKSON: moist, wooded ravines and slopes, Bellevue St. Pk., 19-86-5E, 574. JONES: openings among cedar trees on crest of limestone bluff, E½ 33-86-1W, 2777.
- Eupatorium maculatum* L.—Infrequent. JONES. Sandy marshes.
- Eupatorium perfoliatum* L.—Frequent. Marshy ground and wet, creek banks.
- Eupatorium purpureum* L.—Common. Wooded hillsides and banks.
- Eupatorium rugosum* Houtt.—Common. Wooded, rocky hillsides.
- Eupatorium serotinum* Michx.—Frequent. Low, moist woods; marshes.
- Eupatorium sessilifolium* L.—Rare. JONES: NE¼ Sec. 10, Clay Twp., Brown, 1948, IA.
- \**Galinsoga ciliata* (Raf.) Blake.—Infrequent. Weed of waste places and cultivated ground.
- Gnaphalium obtusifolium* L.—Common. Prairie remnants; thickets; grassy roadsides; pastures.
- \**Grindelia squarrosa* (Pursh) Dunal.—Infrequent. Open, sandy ground along rivers; sandy roadsides.
- \**Helenium amarum* (Raf.) H. Rock (*H. tenuifolium* Nutt.) The writer follows Rock (1957) in using this epithet.—Rare. JONES: wide, sandy roadside bank which had been mowed in summer, NE¼ 30-85-3W, 680, Oct. 23, 1955. This is apparently the only station known for Iowa.

- Helenium autumnale* L.—Common. Low, moist ground along streams; marsh borders.
- \**Helianthus annuus* L.—Infrequent. Roadsides; along railroads; disturbed, sandy ground.
- Helianthus giganteus* L.—Rare. JONES: wet, sandy ground near margin of pond, NW¼ 18-83-1W, 3323.
- Helianthus grosseserratus* Martens.—Frequent. Moist, roadside ditches; low, moist pastures.
- Helianthus laetiflorus* Pers.—Infrequent. CLINTON, JONES. Dry, sandy prairie.
- Helianthus occidentalis* Riddell.—Infrequent. Dry prairie; open, dry, sandy places.
- \**Helianthus petiolaris* Nutt.—Rare. JACKSON: railroad ballast, SE¼ 1-86-4E, 2356. JONES: open, sandy field along R.R. near Wapsipinicon R., NW¼ 18-83-1W, 1767.
- Helianthus strumosus* L.—Frequent. JACKSON, JONES. Open woods; thickets; roadsides.
- Helianthus tuberosus* L.—Frequent. Stream banks; roadsides; sandy places.
- Heliopsis helianthoides* (L.) Sweet.—Common. Woods; thickets; roadsides.
- Hieracium canadense* Michx.—Rare. JONES: rather open, sparingly wooded, sandy ground, NE¼ 31-85-4W, 3165.
- Hieracium longipilum* Torr.—Rare. JONES: thin, sandy soil on dry, rocky prairie at limestone quarry, NE¼ 18-85-1W, 2576; NW¼ Sec. 13, Clay Twp., Brown, 1948, IA.
- Hieracium scabrum* Michx.—Infrequent. CLINTON, JONES. Open sandy woods; openings on bluffs.
- Krigia biflora* (Walt.) Blake.—Frequent. Prairie openings in upland woods; open, sandy places.
- Krigia virginica* (L.) Willd.—Rare. JACKSON: disturbed sand dunes next to Mississippi R., NE¼ 1-86-4E, 1529. This is apparently the only station known for Iowa.
- Kuhnia eupatorioides* L.—Common. Dry, prairie remnants; dry, sandy places.
- Lactuca biennis* (Moench) Fern.—Rare. JONES: wooded, calcareous hillside, E½ 33-86-1W, 2781.
- Lactuca canadensis* L.—Common. Roadsides; stream banks; open, sandy places.
- Lactuca floridana* (L.) Gaertn.—Common. Woods.
- \**Lactuca scariola* L.—Infrequent. Open, disturbed ground.

- Liatris aspera* Michx.—Common. Prairie remnants; open, sandy places; roadsides.
- Liatris cylindracea* Michx.—Frequent. Prairie remnants on limestone outcrops; openings on bluffs and ledges.
- Liatris pycnostachya* Michx.—Rare. JONES: moist, sandy prairie between railroad and Highway 151, NW¼ 4-85-3W, 2582, 2594; NE¼ Sec. 1, Rome Twp., Brown, 1948, IA.
- \**Matricaria matricarioides* (Less.) Porter.—Infrequent. Along streets; along railroad tracks; roadsides.
- Parthenium integrifolium* L.—Frequent. Prairie remnants.
- Polymnia canadensis* L.—Frequent. Rich, rocky, wooded hillsides, usually north-facing.
- Prenanthes alba* L.—Common. Wooded ravines and slopes.
- Prenanthes racemosa* Michx.—Rare. CLINTON: Charlotte, Pammel, Sept. 10, 1924, ISC. JONES: NW¼ Sec. 4, Wayne Twp., Brown, 1948, IA.
- \**Ratibida columnifera* (Nutt.) Wooten & Standl.—Rare. JONES: weed along railroad track in Olin, 4035.
- Ratibida pinnata* (Vent.) Barnh.—Common. Prairie remnants.
- Rudbeckia hirta* L. (incl. *R. serotina* Nutt.).—Common. Pastures; roadsides; prairie remnants.
- Rudbeckia laciniata* L.—Frequent. Low, wet woods; marshy places.
- Rudbeckia subtomentosa* Pursh.—Infrequent. CLINTON, JONES. Marshes.
- Rudbeckia triloba* L.—Common. Stream banks; rocky woods.
- Senecio aureus* L.—Rare. JONES: on limestone boulder at margin of Maquoketa R., and at base of cool, wooded, north-facing slope, NE¼ 8-85-2W, 3900.
- Senecio plattensis* Nutt.—Common. Open woods; open, sandy places; pastures.
- Silphium integrifolium* Michx.—Frequent. CLINTON, JONES. Prairie remnants; open, dry, sandy places.
- Silphium laciniatum* L.—Infrequent. Prairie remnants.
- Silphium perfoliatum* L.—Common. Moist woods; moist roadside ditches; creek margins.
- \**Silphium terebinthinaceum* Jacq.—Rare. JACKSON: along railroad at base of calcareous hillside next to Mississippi R., 29-84-7E, 2607, (probably adventive). This is apparently the only station known for Iowa.
- Solidago altissima* L. (incl. *S. canadensis* of authors). Jones (1955) is followed in this treatment.—Common. Roadsides; pastures; open woods and other open places.

- Solidago flexicaulis* L.—Common. Rocky, wooded hillsides.
- Solidago gigantea* Ait.—Common. Marshy ground; low, moist places along streams.
- Solidago graminifolia* (L.) Salisb.—Infrequent. CLINTON, JONES. Low, moist prairie; roadside ditches.
- Solidago hispida* Muhl.—Rare. JONES: on crest of limestone bluff partially covered with cedars, SE¼ 28-86-1W, 4281.
- Solidago missouriensis* Nutt.—Infrequent. CLINTON, JONES. Prairie remnants; roadsides.
- Solidago nemoralis* Ait.—Common. Prairie remnants; open woods; thickets; open places in general.
- Solidago rigida* L.—Frequent. Roadsides; prairie remnants; along railroads.
- Solidago sciaphila* Steele.—Rare. CLINTON: wooded, north-facing slope with limestone talus. NE¼ 12-83-6E, 3111b, 3397. JACKSON: crest of limestone bluff above Maquoketa R., NE¼ 16-84-2E, 3431.
- Solidago speciosa* Nutt.—Infrequent. JACKSON, JONES. Dry, sandy prairie.
- Solidago ulmifolia* Muhl.—Common. Woods.
- \**Sonchus arvensis* L.—Rare. JONES: NW¼ Sec. 6, Hale Twp., Brown, 1948, IA. The identification of this specimen is somewhat doubtful due to its immaturity.
- \**Sonchus asper* (L.) Hill.—Rare. CLINTON: moist, roadside ditch, NW¼ 16-83-3E, 2321. JACKSON: roadside ditch, 8-84-2E, 3420.
- \**Sonchus oleraceus* L.—Rare. JACKSON: weed in alley gravel, Bellevue, 3815. JONES: along railroad tracks at Wyoming, 2378, and in gravel parking lot at Wyoming, 3602.
- \**Tanacetum vulgare* L.—Infrequent. Roadsides near homes.
- \**Taraxacum erythrospermum* Andr. (*T. laevigatum* (Willd.) DC.).—Infrequent. Wooded ground.
- \**Taraxacum officinale* Weber.—Common. Lawns; roadsides; pastures.
- \**Tragopogon dubius* Scop. (*T. major* Jacq.).—Infrequent. Roadsides and other waste places.
- \**Tragopogon pratensis* L.—Rare. JONES: weed along street in Anamosa, 3931.
- Vernonia fasciculata* Michx.—Common. Low pastures; bottomlands; marshy places.
- Xanthium strumarium* L. (as defined by Cronquist in Gleason (1952) including *X. italicum* Moretti, *X. chinense* Mill., etc.).—Common. Pastures; waste places.



## CONVOLVULACEAE

- \**Convolvulus arvensis* L.—Infrequent. Along railroad tracks.
- Convolvulus sepium* L.—Common. Roadsides and fencerows.
- Convolvulus spithameus* L.—Rare. JONES: rather open woodland on crest of limestone bluff, NE¼ 33-86-2W, 3985, and in sandy upland woods at the same location, 3988; NW¼ Sec. 30, Cass Twp., Brown, 1948, IA. These are apparently the only stations known for Iowa.
- Cuscuta cephalanthi* Engelm.—Rare. JACKSON: on *Salix nigra* on Mississippi R. bank, one-half mile south of Bellevue, 2670; on *Salix interior*, Shimek, Aug., 1894, IA. JONES: on *Salix rigida*, NE¼ Sec. 28, Oxford Twp., Brown, 1948, IA.
- Cuscuta coryli* Engelm.—Rare. JONES: on *Solidago gigantea* in sandy marsh, NE¼ 17-85-1W, 3144.
- Cuscuta glomerata* Choisy.—Rare. JACKSON: along road; border of woods; west of Maquoketa, Shimek, Sept. 7, 1927, ISC. JONES: on *Helianthus grosseserratus*, NE¼ Sec. 10, Clay Twp., Brown, 1948, IA.
- Cuscuta indecora* Choisy.—Rare. CLINTON: growing over cultivated field of *Trifolium pratense*, NW¼ 6-80-6E, 3213.
- \**Ipomoea hederacea* Jacq. Rare. CLINTON: cornfield weed, 18-83-7E, 3386; weed along railroad, NW¼ 6-80-6E, 4206.
- \**Ipomoea purpurea* (L.) Roth.—Rare. CLINTON: in edge of cornfield, NE¼ 20-83-2E, 156. JACKSON: moist, roadside ditch, SW¼ 32-84-1E, 2823.

## CORNACEAE

- Cornus alternifolia* L. f.—Common. Rich, wooded slopes, usually north-facing.
- Cornus drummondii* Meyer.—Common. Thickets along streams and roadsides; moist woods. Two atypical specimens were examined. They are, perhaps, the result of hybridization for which this species is noted: The data for these specimens are listed below:  
CLINTON: wooded, north-facing slopes with limestone outcrops, NW¼ 7-83-7E, 3388. This specimen is reminiscent of *C. racemosa* Lam.  
JACKSON: low ground along inlet from Maquoketa R., SE¼ 21-84-2E, 3019.
- Cornus obliqua* Raf. (*C. amomum* of authors).—Infrequent. Thickets in moist ground near ponds and rivers.

- Cornus racemosa* Lam.—Frequent. Open, upland woods; dry, prairie remnants; open, sandy places.
- Cornus rugosa* Lam.—Infrequent. JACKSON, JONES. Rich, wooded slopes.

## CRUCIFERAE

- Arabis canadensis* L.—Rare. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 1978, 4249; rich, wooded hillside with limestone talus, above Tete des Morts Creek, NE¼ 4-87-4E, 1990.
- Arabis drummondii* Gray.—Rare. CLINTON: on limestone rock in rich woods along Wapsipinicon R., SE¼ 36-81-1E, 3854; Geo. D. Butler, April 26, 1878, ISC. JACKSON: deep, rich woods at Bellevue St. Pk., 19-86-5E, 1453.
- Arabis hirsuta* (L.) Scop.—Infrequent. Rocky, wooded hillsides.
- Arabis laevigata* (Muhl.) Poir.—Infrequent. JACKSON, JONES. Crevices of limestone rock on wooded hillsides.
- Arabis lyrata* L.—Infrequent. CLINTON, JACKSON. Crevices of limestone rocks in open or lightly wooded places.
- Arabis perstellata* E. L. Br. (incl. *A. dentata* (Torr.) T. & G. and *A. shortii* (Fern.) Gl.).—Infrequent. CLINTON, JONES. Low ground along streams.
- \**Armoracea rusticana* Gaertn. (*A. lapathifolia* Gilib.).—Rare. CLINTON: marshy, roadside ditch, one mile south of Grand Mound, 1070. JACKSON: weed in fencerow, SW¼ 11-86-2E, 3935.
- \**Barbarea vulgaris* R. Br.—Common. Pastures; roadsides; fields.
- \**Berteroa incana* (L.) DC.—Frequent. Roadsides; along railroad tracks; waste ground.
- \**Brassica juncea* (L.) Coss.—Rare. JACKSON: railroad ballast, SE¼ 1-86-4E, 2345.
- \**Brassica kaber* (DC.) L. C. Wheeler—Infrequent. Along railroad tracks.
- \**Brassica nigra* (L.) Koch.—Frequent. Low ground along streams; roadsides.
- \**Camelina microcarpa* Andrz.—Rare. Jackson: weed along railroad in Maquoketa, 4071.
- \**Capsella bursa-pastoris* (L.) Medic. Common. Roadsides; waste places.
- Cardamine bulbosa* (Schreb.) BSP.—Infrequent. CLINTON, JONES. Shallow water in marshy ground.
- Cardamine parviflora* L.—Infrequent. CLINTON, JONES. Moist sand; sandy marsh; wet roadside ditch.

- Cardamine pensylvanica* Muhl.—Infrequent. Wet ground in marshes and at stream margins. One specimen (see data below) was collected which appears to be intermediate between this species and *C. parviflora* L. and may lend support to the belief of Davidson (1959) that these two taxa would more appropriately be considered as extremes of one species. JONES: wooded margin of sandy marsh, NW¼ 18-83-1W, (Oxford Twp.), 1040.
- \**Conringia orientalis* (L.) Dumort.—Rare. JONES: dry gravel and sand along railroad tracks, NW¼ 18-83-1W, 1016.
- Dentaria laciniata* Muhl.—Frequent. Rich, wooded hillsides.
- Descurainia pinnata* (Walt.) Britt.—Infrequent. Dry sand or gravel; railroad ballast.
- Draba reptans* (Lam.) Fern.—Infrequent. Open, dry, sandy places.
- \**Erysimum cheiranthoides* L.—Infrequent. Open woods.
- \**Lepidium campestre* (L.) R. Br.—Frequent. Dry roadsides; along railroad tracks.
- \**Lepidium densiflorum* Schrad.—Frequent. Dry roadsides; railroad ballast; fields.
- Lepidium virginicum* L.—Frequent. Roadsides and waste places.
- \**Nasturtium officinale* R. Br.—Infrequent. In shallow water of cold, clear streams.
- \**Raphanus raphanistrum* L.—Rare. CLINTON: sandy ground along railroad tracks, NW¼ 6-80-6E, 3228.
- Rorippa islandica* (Oeder) Borbas.—Common. Moist ground in marshes and along streams.
- Rorippa sessiliflora* (Nutt.) Hitchc.—Rare. JACKSON: wet, marshy ground at Green Island Slough, 20-85-6E, 1580; wet, sandy ground along Mississippi R., NE¼ 1-86-4E, 4233.
- \**Rorippa sylvestris* (L.) Bess.—Rare. JACKSON: low ground along Tete des Morts Creek, NE¼ 4-87-4E, 2002; wet, sandy ground along Mississippi R., NE¼ 1-86-4E, 4234.
- \**Sisymbrium altissimum* L.—Frequent. Dry ground along railroad tracks and other waste places.
- \**Sisymbrium officinale* (L.) Scop.—Frequent. Weedy places; pastures; roadsides.
- \**Thlaspi arvense* L.—Frequent. Roadsides; along railroads; disturbed ground.

## CUCURBITACEAE

- Echinocystis lobata* (Michx.) T. & G.—Infrequent. Alluvial woods; waste places.
- Sicyos angulatus* L.—Frequent. CLINTON, JACKSON. Alluvial ground.

## ERICACEAE

- Chimaphila umbellata* (L.) Bart.—Rare. JACKSON: R. B. Wylie, 1896, ISC.
- Monotropa uniflora* L.—Infrequent. JACKSON, JONES. Open woods.
- Pyrola elliptica* Nutt.—Infrequent. JONES. Rich, moist, wooded slopes.
- Vaccinium angustifolium* Ait.—Rare. JONES: sandy ground on crest of limestone bluff near Jerden Creek, NE¼ 33-86-2W, 3944, and Albert E. Coe, July 15, 1926, ISC., and Shimek, July, 1926, ISC, and E. E. Reed, Sept. 6, 1928, ISC.

## EUPHORBIACEAE

- Acalypha rhomboidea* Raf.—Common. Roadsides; along railroads; thickets; stream banks.
- Acalypha virginica* L.—Infrequent. Pastures; cultivated ground; limestone rocks and bluffs.
- Croton glandulosus* L.—Infrequent. Open, dry, sandy places.
- Euphorbia corollata* L.—Common. Prairie remnants; roadsides; open, dry places in general.
- \**Euphorbia cyparissias* L.—Infrequent. Roadsides, especially near cemeteries.
- Euphorbia dentata* Michx.—Frequent. Roadsides; along railroad tracks; open, dry places.
- Euphorbia dictyosperma* Fisch. & Mey.—Rare. CLINTON: wet, alluvial and marshy ground along meander scar of Wapsipinicon R., NE¼ 36-81-1E, 3999.
- \**Euphorbia esula* L.—Rare. JACKSON: roadside ditch, SE¼ 8-84-4E, 3914.
- Euphorbia geyeri* Engelm.—Infrequent. Open, sandy places.
- Euphorbia glyptosperma* Engelm.—Infrequent. JACKSON, JONES. Open, dry, sandy places.
- Euphorbia heterophylla* L.—Infrequent. JONES. Open, sandy places.
- Euphorbia hexagona* Nutt.—Rare. CLINTON: sandy roadside near Wapsipinicon R., SW¼ 16-82-1E, 2083. JONES: open, sandy field near Wapsipinicon R., NW¼ 18-83-1W, 2390, and Brown, 1948, IA.
- Euphorbia maculata* L. (*E. preslii* Guss. according to Gleason (1952)). Common. Roadsides; along railroads; open, sandy places.
- Euphorbia supina* Raf. (*E. maculata* L. according to Gleason (1952)).—Common. Open, sandy waste places; roadsides; along railroads.

## FAGACEAE

- Quercus alba* L.—Common. Woods.

- Quercus bicolor* Willd.—Infrequent. CLINTON, JONES. Alluvial woods along Wapsipinicon River.
- Quercus ellipsoidalis* E. J. Hill.—Infrequent. JACKSON, JONES. Sandy upland woods on crest of limestone bluff.
- Quercus macrocarpa* Michx.—Common. Open woods. One specimen (see data below) was observed which has leaf, bark, and fruit morphology of *Q. macrocarpa*, but the cup is long peduncled as in *Q. bicolor* Willd. JONES: NW¼ Sec. 18, Oxford Twp., Brown, 1948, IA.
- Quercus muhlenbergii* Engelm. (*Q. prinoides* Willd. var. *acuminata* (Michx.) Gl.)—Common. Hillsides, particularly near crests of limestone bluffs.
- Quercus palustris* Muenchh.—Infrequent. Alluvial woods.
- Quercus rubra* L. (*Q. borealis* Michx. f.)—Common. Wooded slopes and hillsides.
- Quercus velutina* Lam.—Common. Open, sand fields; open, upland woods; sandy, alluvial woods.

## FUMARIACEAE

- Corydalis aurea* Willd.—Rare. CLINTON: Geo. D. Butler, May 4, 1878, ISC. JACKSON: open dry, rocky hillside below limestone bluff (disturbed by quarrying) overlooking Mississippi R., three miles south of Bellevue, 1512. This identification was verified by G. B. Ownbey.
- Dicentra canadensis* (Goldie) Walp.—Infrequent. Rich, wooded, rocky hillsides, usually north-facing.
- Dicentra cucullaria* (L.) Bernh.—Common. Rich woods.

## GENTIANACEAE

- Gentiana andrewsii* Griseb.—Infrequent. JONES. Sandy marshes.
- Gentiana crinita* Froel.—Infrequent. CLINTON, JONES. Marshes.
- Gentiana flavida* Gray.—Infrequent. JONES. Moist, rocky, wooded slopes; open, dry, rocky slopes.
- Gentiana puberula* Michx.—Rare. JONES: thin, sandy soil on dry, rocky prairie at limestone quarry, NE¼ 18-85-1W, 482, 3615; sandy prairie between railroad and Highway 151, NW¼ 4-85-3W, 667, and Brown, 1948, IA.
- Gentiana quinquefolia* L.—Infrequent. JACKSON, JONES. Openings on limestone bluffs; limestone boulders.
- Sabatia campestris* Nutt.—Rare. JACKSON: clay soil, Preston, L. H. Kahler, Oct., 1924, ISC.

## GERANIACEAE

- Geranium maculatum* L.—Common. Woods.

## GUTTIFERAE

- Hypericum gentianoides* (L.) BSP.—Rare. CLINTON: Fred Weiss, Sept., 1932, ISC.
- Hypericum majus* (Gray) Britt.—Infrequent. CLINTON, JACKSON. Moist sand; sandy marshes.
- \**Hypericum perforatum* L.—Infrequent. JACKSON, JONES. Sandy roadsides and fields.
- Hypericum punctatum* Lam.—Common. Open woods; thickets; fields.
- Hypericum pyramidatum* Ait.—Infrequent. JACKSON, JONES. Moist roadside ditches; creek banks.
- Hypericum spathulatum* (Spach) Steud. (*H. prolificum* of authors, not L.)—Rare. JONES: open hillside thicket at Wapsipinicon St. Pk., SE¼ 10-84-4W, 2294.
- Hypericum sphaerocarpum* Michx.—Infrequent. Moist roadsides and other moist places.
- Hypericum virginicum* L. (*Triadenum virginicum* (L.) Raf.)—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 3685.

## HALORAGIDACEAE

- Proserpinaca palustris* L.—Rare. CLINTON: marsh in pastured field, NE¼ 15-82-1E, 346.

## HAMAMELIDACEAE

- Hamamelis virginiana* L.—Infrequent. JACKSON, JONES. Steep, wooded, north-facing slopes.

## HIPPOCASTANACEAE

- Aesculus glabra* Willd.—Rare. CLINTON: woods along Mill Creek, Shimel, Sept. 27, 1925, IA.

## HYDROPHYLLACEAE

- Ellisia nyctelea* L.—Common. Alluvial woods; disturbed, sandy places.
- Hydrophyllum appendiculatum* Michx.—Infrequent. Rich, deep, moist, rocky woods.
- Hydrophyllum virginianum* L.—Common. Rich, moist woods.

## JUGLANDACEAE

- Carya cordiformis* (Wang.) K. Koch.—Common. Upper wooded slopes and bluffs.

*Carya illinoensis* (Wang.) K. Koch.—Rare. CLINTON: Follets, Pammel, Oct. 31, 1901, ISC. JACKSON: Green Island, Mr. Blake, Oct. 25, 1914, ISC.

*Carya ovata* (Mill.) K. Koch.—Common. Upland woods; open, alluvial woods.

*Juglans cinerea* L.—Common. Wooded slopes.

*Juglans nigra* L.—Common. Woods and thickets, especially along streams.

## LABIATAE

*Agastache nepetoides* (L.) Ktze.—Infrequent. Moist ground, at margins of woods.

*Agastache scrophulariaefolia* (Willd.) Ktze.—Infrequent. Moist, wooded ground.

*Blephilia hirsuta* (Pursh) Benth.—Frequent. JACKSON, JONES. Woods, especially along streams.

\**Glechoma hederacea* L.—Frequent. Low ground along streams; moist, waste places.

*Hedeoma hispida* Pursh.—Common. Prairie openings; open, dry, sandy places; along railroad tracks.

*Hedeoma pulegioides* (L.) Pers.—Infrequent. CLINTON, JONES. Wooded areas.

\**Leonurus cardiaca* L.—Frequent. Dry, waste places; dooryards.

*Lycopus americanus* Muhl.—Infrequent. CLINTON, JACKSON. Marshes and other open, wet places.

*Lycopus asper* Greene.—Rare. JACKSON: low ground along Maquoketa R., 16-84-2E, 2981.

*Lycopus uniflorus* Michx.—Infrequent. JONES. Marshes and other open, wet places.

*Lycopus virginicus* L.—Infrequent. River banks.

*Mentha arvensis* L.—Common. Marshes; moist, alluvial ground and other moist places.

*Monarda fistulosa* L.—Common. Dry, prairie remnants; roadsides and other open, dry places.

*Monarda punctata* L.—Common. Open, dry, sandy places.

\**Nepeta cataria* L.—Common. Roadsides; fields; disturbed, dry ground in general.

\**Perilla frutescens* (L.) Britt.—Rare. JONES: NW¼ Sec. 23, Lovell Twp., Brown, 1948 IA. & ISC.

*Physostegia parviflora* Nutt. (incl. *P. speciosa* Sweet). Thorne (1955) is followed in this treatment. Fernald (1950) treats *P. speciosa* as a variety of *P. virginiana* (L.) Benth. Furthermore, Gleason (1952)

considers *P. parviflora* to be a synonym of *Dracocephalum nuttallii* Benth., yet plants which are identified as *P. parviflora* using Fernald's key (1950) do not lead to *Dracocephalum nuttallii* when Gleason's key is employed.—Common. Marshes and low, moist ground along streams.

*Prunella vulgaris* L.—Common. Open ground along streams; fields; open, disturbed ground; open woods.

*Pycnanthemum tenuifolium* Schrad. (*P. flexuosum* (Walt.) BSP.).—Infrequent. CLINTON, JONES. Moist or dry sand.

*Pycnanthemum virginianum* (L.) Durand & Jackson.—Common. Moist, open ground around marshes; prairie remnants.

*Salvia reflexa* Hornem.—Rare. CLINTON: DeWitt, Pammel, Sept. 10, 1924, ISC. JONES: dry, sandy creek bed in pastured field, NE¼ 8-85-2W, 3289. Perhaps adventive.

*Scutellaria epilobiifolia* A. Hamilton (considered by Gleason (1952) as part of *S. galericulata* L.).—Infrequent. CLINTON, JONES. Marshes.

*Scutellaria lateriflora* L.—Common. Marshes; moist, alluvial ground.

*Scutellaria nervosa* Pursh.—Rare. JONES: wooded slopes, Wapsipinicon St. Pk., Anamosa, Shimek, June 13, 1928, ISC.

*Scutellaria ovata* Hill.—Rare. JACKSON: wooded slopes west of Maquoketa, Shimek, Sept. 7, 1927, IA.

*Scutellaria parvula* Michx. (incl. *S. leonardi* Epl.).—Infrequent. Prairie openings on limestone bluffs.

*Stachys hispida* Pursh (*S. tenuifolia* Willd. var. *hispida* (Pursh) Fern.).—Infrequent. Moist ground along streams; marshes; moist, roadside ditches.

*Stachys palustris* L.—Infrequent. CLINTON, JONES. Marshy ground; moist ground in ditches and along streams.

*Stachys tenuifolia* Willd.—Frequent. Low, moist ground along streams and rivers.

*Teucrium canadense* L. (incl. *T. occidentale* Gray.).—Common. Moist and dry, open ground.

*Trichostema brachiatum* L. (*Isanthus brachiatus* (L.) BSP.). The writer follows Lewis (1945) in returning this species to *Trichostema*.—Common. Prairie openings on limestone bluffs; open, dry, sandy places.

## LEGUMINOSAE

*Amorpha canescens* Pursh.—Common. Prairie remnants and openings.

*Amorpha fruticosa* L.—Frequent. Stream banks; wet margins; open slopes.

- Amphicarpa bracteata* (L.) Fern.—Common. Woods; thickets; prairie openings.
- Apios americana* Medic.—Infrequent. JACKSON, JONES. Bank along slough; thicket at edge of woods.
- Astragalus canadensis* L.—Infrequent. JACKSON, JONES. Roadside at edge of woods; openings on bluff.
- Baptisia leucantha* T. & G.—Infrequent. Open, sandy places; prairie remnants.
- Baptisia leucophaea* Nutt.—Rare. JACKSON: sandy prairie on limestone outcrops, NE¼ 23-84-3E, 3912. JONES: SE¼ Sec. 18, Clay Twp., Brown, 1948, IA.
- Cassia marilandica* L.—Rare. JACKSON: Tete des Morts, Pammel, July, 1919, ISC.
- Chamaecrista fasciculata* (Michx.) Greene (*Cassia fasciculata* Michx.). The writer follows Thorne (1955) in this treatment.—Common. Open, sandy places, particularly sandy roadsides.
- Crotalaria sagittalis* L.—Infrequent. CLINTON, JONES. Prairie openings; open, sandy roadsides.
- Dalea alopecuroides* Willd.—Rare. CLINTON: Clinton (Lyons), Pammel, Sept. 4, 1896, ISC.
- Desmodium canadense* (L.) DC.—Frequent. Open, sandy places; prairie remnants.
- Desmodium canescens* (L.) DC.—Rare. CLINTON: Clinton, Pammel, Sept. 10, 1924, ISC. JONES: moist, sandy prairie between railroad and Highway 151, NW¼ 4-85-3W, 9.
- Desmodium cuspidatum* (Muhl.) Loud.—Infrequent. JACKSON. Rich woods; opening on bluff.
- Desmodium glutinosum* (Muhl.) Wood—Common. Woods.
- Desmodium illinoense* Gray.—Frequent. Prairie remnants and dry fields.
- Desmodium nudiflorum* (L.) DC.—Rare. JONES: woods on calcareous slope around Eagle Rock, NW¼ 13-85-1W, 2499; SW¼ Sec. 28, Richland Twp., Brown, 1948, IA.
- Desmodium paniculatum* (L.) DC. (incl. *D. dillenii* Darl.). The writer follows Isely (1955) in this treatment. Both collections cited below are var. *dillenii* (Darl.) Isely.—Rare. JACKSON: openings on limestone bluffs at Maquoketa Caves St. Pk., 6-84-2E, 2458. JONES: woodland, Sec. 30, Cass Twp., Duane Isely 5922, Aug. 22, 1948, ISC.
- Gleditsia triacanthos* L.—Common. Alluvial places; thickets; old pastures.

- Gymnocladus dioica* (L.) K. Koch.—Infrequent. Wooded slopes along Mississippi and Wapsipinicon Rivers.
- Lathyrus palustris* L.—Rare. JONES: NE¼ Sec. 1, Rome Twp., Brown, 1948, IA.
- Lathyrus venosus* Muhl.—Rare. JONES: Anamosa, Pammel, Aug. 7, 1924, ISC.
- Lespedeza capitata* Michx.—Common. Prairie remnants; dry, sandy places.
- Lespedeza violacea* (L.) Pers.—Infrequent. Openings on limestone bluffs.
- \**Lotus corniculatus* L.—Infrequent. JACKSON, JONES. Roadsides.
- \**Medicago lupulina* L.—Common. Roadsides; along railroad tracks; waste places.
- \**Medicago sativa* L.—Frequent. Roadsides and waste places.
- \**Melilotus alba* Desr.—Common. Roadsides and waste places.
- \**Melilotus officinalis* (L.) Lam.—Frequent. Roadsides and waste places.
- Petalostemum candidum* (Willd.) Michx.—Frequent. CLINTON, JONES. Prairie remnants and openings.
- Petalostemum purpureum* (Vent.) Rydb.—Common. Prairie remnants and openings.
- \**Robinia pseudo-acacia* L.—Infrequent. Disturbed woods; roadsides.
- Strophostyles helvola* (L.) Ell.—Frequent. Open, sandy places; roadsides.
- Strophostyles leiosperma* (T. & G.) Piper. Infrequent. CLINTON, JONES. Dry, sandy soil.
- Tephrosia virginiana* (L.) Pers.—Infrequent. Open, dry sand.
- \**Trifolium agrarium* L.—Rare. JACKSON: Maquoketa, H. P. Hanson, Oct. 10, 1924, ISC.
- \**Trifolium hybridum* L.—Frequent. Roadsides; farmyards; weedy places.
- \**Trifolium pratense* L.—Common. Roadsides; along railroad tracks; other waste places.
- \**Trifolium procumbens* L.—Infrequent. Pastures; dooryards; waste places.
- \**Trifolium repens* L.—Common. Roadsides; pastures; lawns.
- Vicia americana* Muhl.—Rare. JACKSON: sandy bank along Maquoketa R., 16-84-2E, 3917. JONES: sandy thicket at margin of tilled field, NE¼ 33-86-2W, 3946.
- \**Vicia villosa* Roth.—Infrequent. Roadside banks and ditches.

## LINACEAE

*Linum sulcatum* Riddell.—Infrequent. Dry prairie remnants on limestone outcrops.

\**Linum usitatissimum* L.—Infrequent. JACKSON. Along railroad tracks.

## LYTHRACEAE

*Ammannia coccinea* Rottb.—Rare. CLINTON: wet, sandy ground along railroad tracks, 20-83-7E, 2714. JACKSON: wet, marshy ground at Green Island Slough, 20-85-6E, 2249.

*Lythrum dacotanum* Nieuwl. (*L. alatum* of authors, not Pursh). The author follows Shinners (1953) in considering this species different from *L. alatum* Pursh.—Infrequent. Marshy ground and wet roadside ditches.

*Peplis diandra* Nutt. (*Didiplis diandra* (Nutt.) Wood).—Rare. CLINTON: sandy marsh in pastured field, NE¼ 23-82-1E, 2866.

*Rotala ramosior* (L.) Koehne.—Rare. JONES: sandy marsh, NW¼ 25-83-1W, 2761.

## MALVACEAE

\**Abutilon theophrasti* Medic.—Common. Cultivated and other disturbed ground.

\**Althaea rosea* (L.) Cav.—Rare. CLINTON: roadside ditch, 22-81-2E, 2422. JACKSON: dry roadside, one-half mile south of Bellevue, 2676.

*Hibiscus militaris* Cav.—Infrequent. CLINTON, JACKSON. Marshy and moist, alluvial ground along the Mississippi River.

\**Hibiscus trionum* L.—Frequent. Roadsides; cultivated ground and other disturbed places.

\**Malva neglecta* Wallr. This taxon is perhaps not specifically distinct from *M. rotundifolia* L.—Infrequent. Barnyards; pastures and other waste places.

## MENISPERMACEAE

*Menispermum canadense* L.—Common. Woods and thickets.

## MORACEAE

\**Cannabis sativa* L.—Common. Roadsides; pastures; disturbed ground.

\**Humulus japonicus* Sieb. & Zucc.—Rare. CLINTON: wet, street-side ditch in Charlotte, 3785. JONES: along railroad tracks at Wyoming, 2376.

*Humulus lupulus* L.—Rare. JONES: NW¼ Sec. 16, Jackson Twp., Brown, 1948, IA.

\**Maclura pomifera* (Raf.) Schneid.—Infrequent. CLINTON, JONES. Waste places; pastures.

\**Morus alba* L.—Common. Woods and waste places.

*Morus rubra* L.—Infrequent. Rich, wooded hillsides.

## NYCTAGINACEAE

*Mirabilis nyctaginea* (Michx.) MacM. (*Oxybaphus nyctagineus* (Michx.) Sweet).—Common. Roadsides and other waste places.

## NYMPHAEACEAE

*Nelumbo lutea* (Willd.) Pers.—Rare. CLINTON: Upper Lake on Beaver Island in Mississippi R., south of Clinton, 2274. JACKSON: small lake in Green Island Slough, 20-85-6E, 2233.

*Nuphar luteum* (L.) Sibth & Sm. The author follows Beal (1956) in this treatment.—Rare. CLINTON: pool (two feet deep) in pasture field marsh, NE¼ 15-82-1E, 1329.

*Nymphaea tuberosa* Paine—Infrequent. CLINTON, JACKSON. In marsh; at margin of lake.

## OLEACEAE

*Fraxinus americana* L.—Common. Wooded slopes and bluffs.

*Fraxinus nigra* Marsh.—Common. Wooded hillsides and woods along streams.

*Fraxinus pennsylvanica* Marsh.—Common. Alluvial woods and thickets, and other wet places.

## ONAGRACEAE

*Circaea quadrisulcata* (Maxim.) Franch. & Sav.—Common. Woods.

*Epilobium coloratum* Biehler.—Common. Marshes and wet margins.

*Epilobium leptophyllum* Raf.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 2743; NE¼ Sec. 1, Rome Twp., Brown, 1948, IA.

*Gaura biennis* L.—Frequent. Along railroad tracks; sandy places.

*Ludwigia alternifolia* L.—Rare. CLINTON: moist, sandy roadside ditch near Toronto, NE¼ 20-82-1E, 2111. JONES: sandy marsh, NW¼ 7-83-2W, 1960.

*Ludwigia palustris* (L.) Ell.—Rare. JONES: in shallow water in marshy area, SW¼ 6-83-2W, 2747; sandy marsh, NE¼ 17-85-IW, 3180.

*Ludwigia polycarpa* Short & Peter.—Infrequent. CLINTON, JONES. Marshes.

*Oenothera biennis* L. (incl. *O. parviflora* L.).—Common. Roadsides; along railroad tracks; other open places.

*Oenothera laciniata* Hill.—Infrequent. CLINTON, JACKSON. Open, dry, sandy places (perhaps naturalized).

*Oenothera rhombipetala* Nutt.—Infrequent. Open, sandy places.

## OROBANCHACEAE

*Orobanche uniflora* L.—Rare. JONES: rich wooded hillside at Wapsipinicon St. Pk., 10-84-4W, 1046.

## OXALIDACEAE

*Oxalis dillenii* Jacq. (*O. stricta* of American authors, not L.). The author follows Eiten (1955) in this treatment. Collected only once. JACKSON: crevices of sandstone outcrop, SW¼ 32-84-1E, 2820.

*Oxalis stricta* L. (*O. europea* Jord.). The author follows Eiten (1955) in this treatment.—Infrequent. Roadsides.

*Oxalis violacea* L.—Common. Prairie remnants and dry, grassy roadsides.

## PAPAVERACEAE

*Sanguinaria canadensis* L.—Common. Rich, rocky, wooded hillsides.

## PENTHORACEAE

*Penthorum sedoides* L.—Common. Marshy ground and wet margins.

## PHRYMACEAE

*Phryma leptostachya* L.—Common. Rich woods.

## PLANTAGINACEAE

*Plantago aristata* Michx.—Infrequent. Dry, sandy pastures; openings on bluffs.

\**Plantago lanceolata* L.—Infrequent CLINTON, JACKSON. Along railroad tracks; dooryards; waste places.

*Plantago purshii* R. & S.—Infrequent. Dry soil in waste places.

*Plantago rugelii* Dcne.—Common. Roadsides; paths; dooryards and waste places.

## PLATANACEAE

*Platanus occidentalis* L.—Frequent. Alluvial woods.

## POLEMONIACEAE

*Phlox bifida* Beck.—Rare. CLINTON: open, sandy roadside, 7-82-1E, 844.

*Phlox divaricata* L.—Common. Rich woods, especially low, moist, alluvial woods.

*Phlox maculata* L.—Rare. JONES: sandy, roadside prairie, NW¼ 4-85-3W, 1617; Onslow, Cameron, June 15, 1895, IA.

\**Phlox paniculata* L.—Infrequent. Roadsides near homes.

*Phlox pilosa* L.—Frequent. JACKSON, JONES. Prairie remnants and openings.

*Polemonium reptans* L.—Common. Woods.

## POLYGALACEAE

*Polygala sanguinea* L.—Common. Prairie openings; moist, sandy places.

*Polygala senega* L.—Infrequent. JACKSON, JONES. Open woods.

*Polygala verticillata* L.—Infrequent. JACKSON, JONES. Crests of limestone bluffs.

## POLYGONACEAE

\**Fagopyrum esculentum* Moench (*F. sagittatum* Gilib.).—Rare. JACKSON: railroad ballast, SE¼ 1-86-4E, 2347.

*Polygonella articulata* (L.) Meisn.—Rare. CLINTON: sandy blow-out, SE¼ 13-81-1E, 4183; Fred Weiss, Sept., 1932, ISC. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 3363, 3756.

\**Polygonum aviculare* L.—Frequent. Weed in parking lots, dooryards, and other dry, waste places.

*Polygonum coccineum* Muhl.—Infrequent. Marshes and wet margins.

\**Polygonum convolvulus* L.—Common. Weed of roadsides, railroad ballast, stream margins, and thickets.

\**Polygonum cuspidatum* Sieb. & Zucc.—Rare. JONES: dry, sandy ground near Maquoketa R., NE¼ 22-86-3W, 51.

*Polygonum erectum* L.—Infrequent. Woods and pastured fields.

*Polygonum hydropiper* L.—Frequent. Margins of streams and rivers; marshes.

*Polygonum hydropiperoides* Michx.—Rare. CLINTON: marsh in pastured field, NE¼ 15-82-1E, 361, 2070, 2870.

*Polygonum lapathifolium* L.—Frequent. Margins of streams and rivers; marshes.

\**Polygonum orientale* L.—Rare. JACKSON: weed around small trash dump, SW¼ 16-84-2E, 4168.

*Polygonum pensylvanicum* L.—Common. Moist ground along streams and marshes; cultivated ground; roadsides; waste places.

\**Polygonum persicaria* L.—Frequent. Weed of railroad ballast, paths, alleys, and other waste places.

*Polygonum punctatum* Ell.—Common. Marshes and wet margins.

*Polygonum ramosissimum* Michx.—Infrequent. CLINTON, JONES. Open sand.

*Polygonum sagittatum* L.—Frequent. CLINTON, JONES. Marshes.

*Polygonum scandens* L.—Frequent. Thickets.

*Polygonum tenue* Michx.—Infrequent. JACKSON, JONES, Open sand.  
*Polygonum virginianum* L. (*Tovara virginiana* (L.) Raf.).—Common.  
 Moist woods.

\**Rumex acetosella* L.—Common. Dry, sandy fields.

*Rumex altissimus* Wood.—Common. Open, sandy places; roadsides.

\**Rumex crispus* L.—Common. Roadsides; margin of pond.

*Rumex mexicanus* Meisn.—Rare. JACKSON: Green Island, Pammel, 1905, ISC.

*Rumex orbiculatus* Gray.—Infrequent. JONES. Sandy marshes.

*Rumex verticillatus* L.—Frequent. Margins of lakes, pools, sloughs, and rivers, marshes.

## PORTULACACEAE

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

\**Portulaca oleracea* L.—Infrequent. Weed of cultivated ground and other waste places.

## PRIMULACEAE

*Androsace occidentalis* Pursh.—Frequent. Open, dry, sandy places.

*Dodecatheon meadia* L.—Common. Prairie openings and remnants.

*Lysimachia ciliata* L.—(*Steironema ciliatum* (L.) Raf.).—Common.  
 Moist roadsides; alluvial woods.

*Lysimachia hybrida* Michx. (*Steironema hybridum* (Michx.) Raf.).—  
 Frequent. Marshes.

\**Lysimachia nummularia* L.—Frequent. Low, moist ground along streams and rivers.

\**Lysimachia punctata* L.—Rare. JONES: in Anamosa, John Nolte, June 27, 1954, IA. Although there is no indication as to whether this specimen was cultivated or an escape, it is included here because it has been known to escape in nearby Johnson and Scott counties.

*Lysimachia quadriflora* Sims (*Steironema quadriflorum* (Sims) Hitch.).—Rare. CLINTON: marsh in pastured field, NE¼ 15-82-1E, 2073. JONES: marshy ground at Muskrat Slough, NW¼ 21-83-3W, 2522.

*Lysimachia terrestris* (L.) BSP.—Rare. JACKSON: wet, sandy ground along Mississippi R., NE¼ 1-86-4E, 4236. JONES: marshy ground at Muskrat Slough, SW¼ 21-83-3W, 1720.

*Lysimachia thysiflora* L. (*Naumburgia thysiflora* (L.) Duby.).—Rare. JONES: in sandy marsh, SW¼ 6-83-2W, 1163.

## RANUNCULACEAE

*Aconitum noveboracense* Gray.—Rare. JACKSON: on north-facing, *Taxus*-covered slope with limestone outcrops, SE¼ 21-84-2E, 4159,

and on a limestone boulder hanging over a cold, spring-fed stream at same location, 3001, 3002. No. 3002 is a white-flowered form.

*Actaea pachypoda* Ell. (*A. alba* of authors).—Common. Rich, wooded hillsides.

*Actaea rubra* (Ait.) Willd.—Common. Rich, rocky, wooded hillsides.

*Anemone canadensis* L.—Frequent. Moist, roadside ditches; stream margins.

*Anemone caroliniana* Walt.—Rare. CLINTON: Clinton, Mildred Yule, May 5, 1911, IA.

*Anemone cylindrica* Gray.—Infrequent. Prairie remnants and openings.

*Anemone patens* L.—Rare. JONES: dry, rocky prairie at limestone quarry; thin, sandy soil, NE¼ 18-85-1W, 872, and Brown, May 11, 1949, IA.

*Anemone quinquefolia* L.—Infrequent. Open, upland woods.

*Anemone virginiana* L.—Common. Woods; prairie remnants.

*Anemonella thalictroides* (L.) Spach.—Frequent. Open, upland woods.

*Aquilegia canadensis* L.—Common. Limestone ledges; bluffs; wooded slopes.

*Caltha palustris* L.—Rare. CLINTON: along stream through rich, seeping, marshy area surrounded by woods, SW¼ 2-82-6E, 3879. JONES: sandy marsh, SW¼ 6-83-2W, 849, and Brown, May 11, 1949, IA.

*Clematis pitcheri* T. & G.—Infrequent. CLINTON, JONES. Open, dry, sandy places.

*Clematis virginiana* L.—Common. Woods and thickets.

*Hepatica acutiloba* DC. Common. Wooded, rocky hillsides.

*Hydrastis canadensis* L.—Rare. JACKSON: deep, rich, calcareous woods at Maquoketa Caves St. Pk., 6-84-2E, 2470. JONES: SW¼ 28-86-2W, 3956 (this plant had been transplanted from a nearby woods to vicinity of an old man's shack), and from same location, "Jurden gully" near Monticello, Albert E. Coe, Sept. 2, 1927, ISC.

*Isopyrum biternatum* (Raf.) T. & G.—Frequent. Wooded banks along streams and rivers.

*Myosurus minimus* L.—Rare. CLINTON: open, sandy ground near Wapsipinicon R., N½ 36-81-1E, 3841. JONES: NW¼ Sec. 18, Oxford Twp., Brown, May 11, 1949 IA.

*Ranunculus abortivus* L.—Common. Rich, wooded hillsides; low woods.

\**Ranunculus acris* L.—Rare. JONES: Onslow, Cameron, July 1, 1895, IA.

*Ranunculus fascicularis* Muhl.—Common. Prairie openings and open, sandy places.



- Ranunculus flabellaris* Raf.—Infrequent. CLINTON, JONES. Shallow water of ponds and marshes.
- Ranunculus pensylvanicus* L. f.—Infrequent. Marshy or other moist ground.
- Ranunculus recurvatus* Poir.—Infrequent. JACKSON, JONES. Moist woods.
- Ranunculus sceleratus* L.—Rare. JACKSON: low, muddy margin of Maquoketa R., 16-84-2E, 2984. JONES: sandy ground along bank of Maquoketa R., S½ 33-86-2W, 4221.
- Ranunculus septentrionalis* Poir.—Frequent. Moist, alluvial woods.
- Thalictrum dasycarpum* Fisch. & Lall.—Common. Roadside ditches; prairie remnants.
- Thalictrum dioicum* L.—Rare. CLINTON: cool, moist, wooded hillside beside Mississippi R. and below limestone bluffs of Eagle Point Park, 20-82-7E, 3884.

## RHAMNACEAE

- Ceanothus americanus* L.—Common. Prairie openings and open, sandy fields.
- \**Rhamnus cathartica* L.—Infrequent. JACKSON, JONES. Crests of bluffs.
- Rhamnus lanceolata* Pursh.—Frequent. Open, upland woods and thickets.

## ROSACEAE

- Agrimonia gryposepala* Wallr.—Frequent. Woods.
- Agrimonia pubescens* Wallr.—Common. Woods.
- Amelanchier arborea* (Michx. f.) Fern.—Infrequent. JACKSON, JONES. Crests of bluffs; open, sandy woods.
- Amelanchier interior* Nielsen.—Rare. JACKSON: on top of sandstone outcrop, SW¼ 32-84-1E, 4052.
- Amelanchier laevis* Wieg.—Rare. CLINTON: on limestone outcrop in rich woods at margin of Wapsipinicon R., SE¼ 36-81-1E, 3855. JACKSON: bluff overlooking Mississippi R. in Bellevue St. Pk., 19-86-5E, 735.
- Amelanchier sanguinea* (Pursh) DC.—Infrequent. CLINTON, JONES. Openings on bluffs.
- Aruncus dioicus* (Walt.) Fern.—Infrequent. CLINTON, JACKSON. Wooded banks and hillsides near Mississippi R.
- Crataegus calpodendron* (Ehrh.) Medic.—Infrequent. CLINTON, JONES. Low ground along streams.
- Crataegus crus-galli* L.—Infrequent. CLINTON. Open, sandy soil; edge of marsh.

- Crataegus margaretta* Ashe.—Infrequent. CLINTON, JONES. Dry, upland thickets; sandy fields.
- Crataegus mollis* (T. & G.) Scheele.—Frequent. CLINTON, JONES. Thickets along streams and rivers; old pastures.
- Crataegus punctata* Jacq.—Infrequent. JACKSON, JONES. Thickets.
- Crataegus succulenta* Schrad.—Rare. CLINTON: low ground along Prairie Creek, 7-83-2E, 1716. JACKSON: edge of woods at roadside, SE¼ 12-84-1E, 2435.
- Fragaria vesca* L.—Common. Wooded, rocky bluffs and slopes.
- Fragaria virginiana* Duchesne.—Common. Roadsides; along railroad tracks; open woods.
- Geum aleppicum* Jacq.—Rare. CLINTON: rich, seeping, marshy ground surrounded by woods, SE¼ 2-82-6E, 4125.
- Geum canadense* Jacq.—Common. Woods.
- Geum laciniatum* Murr.—Infrequent. Marshy ground; moist, roadside ditches.
- Physocarpus opulifolius* (L.) Maxim.—Common. Wooded, rocky hillsides; limestone ledges.
- \**Potentilla argentea* L.—Infrequent. CLINTON: Open, dry, sandy fields.
- Potentilla arguta* Pursh.—Common. Dry prairie remnants; dry, rocky roadsides.
- Potentilla fruticosa* L.—Rare. JACKSON: opening on limestone bluff, NW¼ 14-85-3E, 3071. JONES: opening on crest of limestone bluff, and growing at edge of cliff, NE¼ 33-86-1W, 1388.
- Potentilla norvegica* L.—Common. Roadsides; pastures; waste places.
- Potentilla palustris* (L.) Scop.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 4036.
- \**Potentilla recta* L.—Frequent. Roadsides; pastures; open woods.
- Potentilla simplex* Michx.—Common. Pastures; roadsides; open woods.
- Prunus americana* Marsh.—Common. Thickets, often along roadsides; open woods.
- \**Prunus persica* (L.) Batsch.—Rare. CLINTON: roadside ditch, NW¼ 11-82-6E, 3522, apparently escaped.
- Prunus serotina* Ehrh.—Common. Woods; thickets; fencerows.
- Prunus virginiana* L.—Common. Rocky bluffs; open woods; woodland borders.
- Pyrus ioensis* (Wood) Bailey.—Frequent. CLINTON, JONES. Thickets and old pastures.
- \**Pyrus malus* L.—Infrequent. Woods and thickets.
- Rosa arkansana* Porter (incl. *R. suffulta* Greene).—Infrequent. Dry, prairie remnants and dry roadsides.

- Rosa blanda* Ait.—Common. Open, sandy places; lower, wooded slopes.  
*Rosa carolina* L.—Common. Prairie openings; open, dry, sandy places.  
 Three specimens (see data below) were examined which appeared to be intermediate between this species and *R. arkansana*:  
 CLINTON: prairie in rocky corner of tilled field, SE¼ 1-82-2E, 505.  
 JACKSON: crevices in sandstone, SW¼ 32-84-1E, 2818.  
 JONES: SE¼ Sec. 36, Washington Twp., Brown, 1948, IA.  
*Rubus allegheniensis* Porter (incl. *R. ostryifolius* Rydb.). Thorne (1955) is followed in considering these as one species.—Common. Thickets; open woods; woodland borders; old pastures.  
*Rubus flagellaris* Willd.—Infrequent. Open, sandy places.  
*Rubus idaeus* L. (incl. *R. strigosus* Michx.).—Rare. JONES: sandy soil along dry, creek bed, W½ 9-85-2W, 2158.  
*Rubus occidentalis* L.—Common. Open woods; thickets; woodland borders.  
*Spiraea alba* Du Roi.—Frequent. CLINTON, JONES. Marshy places.

## RUBIACEAE

- Cephalanthus occidentalis* L.—Common. Margins of marshes, streams, and lakes.  
*Diodia teres* Walt.—Rare. CLINTON: sandy blow-out, SE¼ 13-81-1E, 4185. JACKSON: disturbed sand dunes along Mississippi R., NE¼ 1-86-4E, 4252.  
*Galium aparine* L.—Common. Woods and waste places.  
*Galium boreale* L.—Frequent. Openings on crests of limestone bluffs; wooded, limestone ledges.  
*Galium circaezans* Michx.—Infrequent. JACKSON, JONES. Rich woods.  
*Galium concinnum* T. & G.—Common. Woods.  
*Galium obtusum* Bigel.—Rare. CLINTON: wet, alluvial and marshy ground along meander scar of Wapsipinicon R., NE¼ 36-81-1E, 4002; rather low woods below Camanche, Shimek, Sept. 17, 1930, IA.  
*Galium tinctorium* L.—Infrequent. Marshes.  
*Galium triflorum* Michx.—Common. Rich woods.  
*Houstonia minima* Beck.—Infrequent. CLINTON, JONES. Open areas.

## RUTACEAE

- Ptelea trifoliata* L.—Frequent. CLINTON, JACKSON. Open sand.  
*Xanthoxylum americanum* Mill.—Common. Woods and thickets.

## SALICACEAE

- \**Populus alba* L.—Infrequent. Roadsides near homes.  
*Populus deltoides* Marsh.—Common. Low woods along streams and rivers.  
*Populus grandidentata* Michx.—Common. Open, upland woods.  
*Populus tremuloides* Michx.—Common. Open, upland woods.  
*Salix amygdaloides* Anderss.—Frequent. Low ground along streams and marshes.  
*Salix bebbiana* Sarg.—Rare. JONES: sandy marsh, NE¼ 17-85-1W, 3135, 3627.  
*Salix discolor* Muhl.—Infrequent. Marshes; low ground along streams.  
 \**Salix fragilis* L.—Frequent. Moist ground along streams; wet ditches.  
*Salix humilis* Marsh.—Frequent. Prairie remnants; open, dry, sandy places.  
*Salix interior* Rowlee.—Common. Margins of streams.  
*Salix nigra* Marsh.—Common. Low, moist ground along streams and marshes.  
*Salix petiolaris* Sm. (incl. *S. gracilis* Anderss.).—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 1179, 3682; NE¼ Sec. 1, Rome Twp., Brown, 1948, IA.  
*Salix rigida* Muhl.—Common. Moist ground at margins of streams and marshes.  
*Salix tristis* Ait.—Rare. JONES: SE¼ Sec. 18, Clay Twp., Brown, 1948, IA.

## SANTALACEAE

- Comandra umbellata* (L.) Nutt. (incl. *C. richardsiana* Fern.). The writer follows Jones (1955) and Thorne (1955) in considering these one species.—Common. Prairie remnants and openings.

## SAXIFRAGACEAE

- Heuchera richardsonii* R. Br.—Frequent. Prairie remnants and openings.  
*Mitella diphylla* L.—Common. Rich, rocky, wooded slopes, usually north-facing.  
*Ribes americanum* Mill.—Infrequent. CLINTON, JONES. Sandy marsh; sandy river bank.  
*Ribes cynosbati* L.—Common. Rich, wooded, rocky slopes, usually north-facing, often on limestone ledges.  
*Ribes missouriense* Nutt.—Common. Woods.  
*Saxifraga pennsylvanica* L.—Frequent. Moist, seeping, wooded banks; marshes.

*Sullivantia renifolia* Rosend.—Infrequent. JACKSON, JONES. Moist, mossy, limestone ledges.

## SCROPHULARIACEAE

*Castilleja coccinea* (L.) Spreng.—Infrequent. JONES. Sandy slopes, open or lightly wooded.

*Castilleja sessiliflora* Pursh.—Infrequent. JACKSON, JONES. Prairie remnants.

\**Chaenorrhinum minus* (L.) Lange.—Infrequent. CLINTON, JACKSON. Railroad ballast.

*Chelone glabra* L.—Rare. CLINTON: rich, seeping marsh surrounded by woods, SE $\frac{1}{4}$  2-82-6E, 3503. JONES: sandy marsh, SW $\frac{1}{4}$  6-83-2W, 3678.

*Chelone obliqua* L.—Rare. CLINTON: swamp in woods below Camanche, Shimek, Sept. 17, 1930, ISC. A sterile specimen, but probably as identified.

*Dasistoma macrophylla* (Nutt.) Raf. (*Seymeria macrophylla* Nutt.)—Rare. CLINTON: Geo. D. Butler, 1878, ISC.

*Gerardia aspera* Dougl.—Infrequent. Dry, prairie openings on limestone bluffs.

*Gerardia auriculata* Michx. (*Tomanthera auriculata* (Michx.) Raf.)—Infrequent. CLINTON, JONES. Marshes.

*Gerardia gattingeri* Small.—Rare. JONES: openings among cedar trees on crest of limestone bluff, E $\frac{1}{2}$  33-86-1W, 2770, 4283.

*Gerardia grandiflora* Benth. (*Aureolaria grandiflora* (Benth.) Pennell).—Frequent. Openings at crests of dry, limestone bluffs.

*Gerardia purpurea* L. (incl. *G. paupercula* (Gray) Britt.)—Infrequent. CLINTON, JACKSON. Marshes.

*Gerardia tenuifolia* Vahl.—Common. Marshes and wet ditches.

*Gratiola neglecta* Torr.—Rare. JONES: along road at perimeter of marsh in Muskrat Slough, SW $\frac{1}{4}$  21-83-3W, 1737.

*Linaria canadensis* (L.) Dumont.—Infrequent. Open, dry sand.

\**Linaria vulgaris* Hill.—Infrequent. Roadsides.

*Lindernia dubia* (L.) Pennell (incl. *L. anagallidea* (Michx.) Pennell). The author follows Jones (1955) and Davidson (1959) in treating these as one species.—Common. Wet ground at margins of streams and pools.

*Mimulus ringens* L.—Common. Marshes and margins of streams.

*Pedicularis canadensis* L.—Common. Prairie openings and remnants.

*Pedicularis lanceolata* Michx.—Infrequent. CLINTON, JONES. Marshes.

*Penstemon digitalis* Nutt.—Rare. JACKSON: dry ground at sand and

gravel pit, two miles east of Preston, 1481; along path on top of dike in Green Island Slough, 20-85-6E, 1562.

*Penstemon grandiflorus* Nutt.—Infrequent. CLINTON, JONES. Open, dry sand.

*Penstemon pallidus* Small.—Rare. CLINTON: open, sandy field near Wapsipinicon R., NE $\frac{1}{4}$  36-81-1E, 3994.

*Scrophularia lanceolata* Pursh. Frequent. Open, sandy ground.

*Scrophularia marilandica* L.—Common. Open woods; stream margins; sandy roadsides.

\**Verbascum thapsus* L.—Common. Dry pastures, fields, and roadsides; waste places.

*Veronica anagallis-aquatica* L.—Rare. CLINTON: near edge of small pool, rooted in sand, SE $\frac{1}{4}$  29-81-6E, 2177.

\**Veronica arvensis* L.—Infrequent. JACKSON, JONES. Open pastures and slopes.

\**Veronica officinalis* L.—Rare. CLINTON: vine forming a mat along creek bank in pastured field, NW $\frac{1}{4}$  6-83-4E, 3833. This is apparently the only station known for Iowa.

*Veronica peregrina* L.—Frequent. In sand along streams and waste places.

*Veronica scutellata* L.—Rare. CLINTON: marsh in pastured field, NE $\frac{1}{4}$  15-82-1E, 2075.

\**Veronica serpyllifolia* L.—Rare. CLINTON: open, dry, sandy field near Crystal Lake, 14-81-3E, 1052.

*Veronicastrum virginicum* (L.) Farw.—Common. Woods; openings; stream margins.

## SOLANACEAE

\**Datura stramonium* L.—Frequent. Cultivated ground; barnyards; roadsides; waste places.

\**Lycium halimifolium* Mill.—Infrequent. Roadsides near old houses.

*Physalis heterophylla* Nees.—Common. Prairie remnants and open, dry, sandy places.

*Physalis longifolia* Nutt. (incl. *P. subglabrata* M. & B.)—Common. Dry roadsides, fields, and cultivated ground.

*Physalis virginiana* Mill.—Infrequent. Open, dry, sandy fields.

\**Solanum carolinense* L.—Common. Sandy roadsides and fields; waste places.

\**Solanum dulcamara* L.—Rare. CLINTON: low ground on bank of Mississippi R., at base of calcareous hillside, 20-82-7E, 3197, 4118; Charlotte, Pammel, Sept. 10, 1924, ISC.

- \**Solanum nigrum* L. (incl. *S. americanum* Mill.). Perhaps, both native and naturalized.—Common. River banks; open woods; waste places.  
 \**Solanum rostratum* Dunal.—Infrequent. Sandy roadsides and fields.

## STAPHYLEACEAE

*Staphylea trifolia* L.—Common. Rich, wooded, rocky hillsides.

## THYMELAEACEAE

*Dirca palustris* L.—Frequent. JACKSON, JONES. Rich, wooded, rocky, usually north-facing, slopes along Maquoketa R. and tributaries.

## TILIACEAE

*Tilia americana* L.—Common. Rich, wooded slopes and bluffs.

## ULMACEAE

- Celtis occidentalis* L.—Common. Woods, especially along streams.  
*Ulmus americana* L.—Common. Woods, especially alluvial woods.  
 \**Ulmus pumila* L.—Rare. JONES: NW¼ Sec. 12, Clay Twp., Brown, 1948, IA. There is no information on the label to indicate whether this plant was in cultivation or was an escape. It is included here because the species is known to escape in Iowa and because this writer knows of no instance in which Brown collected a cultivated plant.  
*Ulmus rubra* Muhl.—Common. Wooded hillsides and bluffs.  
*Ulmus thomasi* Sarg.—Rare. JACKSON: base of wooded, calcareous, north-facing slope along Maquoketa R., 16-84-2E, 3926; Bellevue, Pammel, July 25, 1919, ISC.

## UMBELLIFERAE

- Chaerophyllum procumbens* (L.) Crantz.—Rare. JONES: along sandy path beside Maquoketa R., NE¼ 13-85-1W, 922.  
*Cicuta maculata* L.—Frequent. Marshes.  
 \**Conium maculatum* L.—Rare. JACKSON: weeds around small trash dump, SW¼ 16-84-2E, 4176. JONES: moist, weedy ground along creek in Wyoming, 3596.  
*Cryptotaenia canadensis* (L.) DC.—Common. Rich woods.  
 \**Daucus carota* L.—Frequent. Roadsides; weedy dooryards; waste places.  
*Eryngium yuccifolium* Michx.—Rare. CLINTON: roadside prairie and thickets on limestone outcrops, E½ 5-83-1E, 1865. JONES: moist, sandy prairie between railroad and Highway 151, NW¼ 4-85-3W, 2148, and Brown, 1948, IA.

- Heracleum maximum* Bartr. (*H. lanatum* Michx.).—Rare. CLINTON: wet ditch, SW¼ 33-81-1E, 3940; moist embankment, lower end of Clinton, L. F. Guldner, June 5, 1954, Davenport Museum.  
*Osmorhiza claytonii* (Michx.) C. B. Clarke.—Common. Rich woods.  
*Osmorhiza longistylis* (Torr.) DC.—Frequent. Rich woods.  
*Oxypolis rigidior* (L.) Raf.—Infrequent. CLINTON, JONES. Marshes.  
 \**Pastinaca sativa* L.—Common. Roadsides and waste places in general.  
*Sanicula canadensis* L.—Common. Open woods.  
*Sanicula gregaria* Bickn.—Common. Woods and thickets.  
*Sanicula trifoliata* Bickn.—Common. JACKSON, JONES. Rich, wooded, usually north-facing, slopes.  
*Sium suave* Walt.—Infrequent. CLINTON, JACKSON. Wet, marshy ground.  
*Taenidia integerrima* (L.) Drude.—Rare. JACKSON: at roadside on limestone outcrops, SE¼ 35-85-5E, 2032; rather open thicket on crest of limestone bluff above Maquoketa R., SE¼ 4-85-1E, 2977.  
*Thaspium barbinode* (Michx.) Nutt.—Infrequent. JACKSON, JONES. Wooded slopes and bluffs.  
*Zizia aurea* (L.) W. D. J. Koch.—Common. Open woods and prairie openings.

## URTICACEAE

- Boehmeria cylindrica* (L.) Sw.—Common. Marshes.  
*Laportea canadensis* (L.) Gaud.—Common. Woods, especially in bottomlands.  
*Parietaria pensylvanica* Muhl.—Frequent. Limestone ledges in open woods; sandy woods; weedy alley.  
*Pilea fontana* (Lunell) Rydb.—Rare. JONES: sandy marsh, NE¼ 17-85-1W, 3139.  
*Pilea pumila* (L.) Gray.—Common. Moist woods.  
*Urtica dioica* L. (incl. *U. procera* Muhl.).—Common. Roadsides; bottomlands; waste places.

## VALERIANACEAE

- Valeriana ciliata* T. & G.—Rare. CLINTON: Geo. D. Butler, May 4, 1878, ISC. JONES: dry, rocky prairie at limestone quarry; thin, sandy soil, NE¼ 18-85-1W, 877, and Brown, May 11, 1949, IA.

## VERBENACEAE

- Lippia lanceolata* Michx. (*Phyla lanceolata* (Michx.) Greene).—Common. Moist stream margins and marshes.

*Verbena bracteata* Lag. & Rodr.—Frequent. Roadsides; along railroads; open, waste places.

*Verbena hastata* L.—Frequent. CLINTON, JONES. Marshy places; stream banks; wet ditches.

*Verbena simplex* Lehm.—Frequent. CLINTON, JONES. Low, sandy ground along rivers.

*Verbena stricta* Vent.—Common. Sandy roadsides and other, open, sandy places. Three specimens were examined which appeared intermediate between *V. stricta* and *V. simplex*. The presumed hybrid between these two species has been named *Verbena X moenchina* Moldenke.

CLINTON: prairie opening on limestone bluff, N½ 7-83-2E, 1677; Camanche, Pammel, Sept. 13, 1918, ISC.

JONES: rocky prairie at limestone quarry; thin, sandy soil, NE¼ 18-85-1W, 1640.

*Verbena urticifolia* L.—Common. Alluvial thickets and woods; roadside thickets.

#### VIOLACEAE<sup>3</sup>

*Viola lanceolata* L. subsp. *lanceolata*—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 1165, and Brown, May 11, 1949, IA.

*Viola macloskeyi* F. E. Lloyd subsp. *pallens* (Banks) M. S. Baker (*V. pallens* (Banks) Brainerd).—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 3693, and Brown, May 11, 1949, IA. One specimen was determined by Russell to be *V. lanceolata* subsp. *lanceolata* X *V. macloskeyi* subsp. *pallens*. This came from the same location as the two presumed parent species:

JONES: sandy marsh, SW¼ 6-83-2W, 848.

*Viola missouriensis* Greene.—Frequent. CLINTON, JONES. Moist woods and bottomlands along rivers; wet, roadside ditches.

*Viola nephrophylla* Greene.—Infrequent. CLINTON, JONES, Marshes.

*Viola papilionacea* Pursh.—Infrequent. JACKSON, JONES. Low prairie.

*Viola pedata* L.—Infrequent. Prairie remnants; open, sandy ground.

*Viola pedatifida* G. Don.—Infrequent. Prairie remnants; open, sandy fields. The specimen cited below was determined to be *V. pedatifida* X *V. papilionacea*

JONES: open, sandy field near Wapsipinicon R., NW¼ 18-83-1W, 1020.

*Viola pennsylvanica* Michx.—Infrequent. Rich woods.

<sup>3</sup> Specimens of this family were identified by Dr. N. H. Russell.

*Viola pubescens* Ait.—Rare. JONES: rich, wooded ravines and slopes at Wapsipinicon St. Pk., 10-84-4W, 1352.

*Viola sagittata* Ait.—Rare. JONES: sandy marsh, SW¼ 6-83-2W, 1164; open, sandy field, NW¼ 7-83-2W, 1934. The specimen cited below was determined to be *V. pedatifida* X *V. sagittata* JONES: dry, rocky prairie at limestone quarry; thin, sandy soil, NE¼ 18-85-1W, 878.

*Viola sororia* Willd.—Common. Woods and thickets. The specimen cited below was determined to be *V. nephrophylla* X *V. sororia*. CLINTON: rich, seeping, marshy ground surrounded by woods, SW¼ 2-82-6E, 3878. *V. nephrophylla* was collected from this same station.

Another presumed hybrid with this species is the specimen cited below which was determined to be *V. missouriensis* X *V. sororia*. CLINTON: low ground along Wapsipinicon R., SE¼ 15-80-5E, 3893 b. *V. missouriensis* was collected from this same station.

#### VITACEAE

*Parthenocissus quinquefolia* (L.) Planch.—Common. Open woods and thickets.

*Parthenocissus vitacea* (Knerr) Hitchc. (*P. inserta* (Kerner) K. Fritsch).—Infrequent. JACKSON, JONES. Open, sandy places; thickets; fencerows.

*Vitis aestivalis* Michx.—Infrequent. JACKSON, JONES. Rich woods.

*Vitis riparia* Michx.—Common. Thickets along river banks; roadsides; other waste places.

#### ZYGOPHYLLACEAE

\**Tribulus terrestris* L.—Rare. CLINTON: sandy, weedy, baseball lot in Camanche, 4189.

## STATISTICAL SUMMARY

## A. Components of the flora of Clinton, Jackson, and Jones Counties, Iowa.

	Species		Genera
	Native	Naturalized	
Pteridophytes	34	0	22
Conifers	3	0	3
Monocotyledons	218	33	96
Dicotyledons	576	136	325
Total	831	169	446

## B. Total number of families represented: 118.

## C. Largest families, with number of species in each:

Compositae	135	Cruciferae	33
Gramineae	107	Scrophulariaceae	32
Cyperaceae	76	Labiatae	31
Leguminosae	42	Ranunculaceae	28
Rosaceae	40	Polygonaceae	25
		Umbelliferae	18

## D. Largest genera, with number of species in each:

Carex	52	Asclepias	9
Aster	20	Cyperus	9
Polygonum	17	Panicum	9
Euphorbia	11	Helianthus	8
Solidago	11	Hypericum	8
Viola	11	Muhlenbergia	8
Salix	10	Quercus	8
		Ranunculus	8

## LIST OF EXCLUDED SPECIES

No specimens were seen of the four species listed below which have been reported from this area.

1. *Lycopodium obscurum* L.

This was reported from Jones County by Cratty (1933). His report was based on an erroneously labeled specimen in the Herbarium of Iowa State University. This error was corrected later by the collector, E. E. Reed, who had found this specimen in White Pine Hollow, Dubuque County, Iowa.

2. *Polygala polygama* Walt.

This species was reported by Goodman (1940) who gave this infor-

mation: "Grand Mound, Clinton Co., June 13, 1938, Fred Weiss". A specimen of *Polygala sanguinea* L. with exactly this same wording was found in the Iowa State University Herbarium. It had never been annotated as *P. polygama*, but may be the specimen upon which this report was based.

3. *Quercus coccinea* Wang.

This species was reported by Fitzpatrick (1899) and may have been based upon a specimen of *Q. ellipsoidalis* E. J. Hill.

4. *Rubus villosus* Ait.

This species was reported by Fitzpatrick (1899). This was the name given in the seventh edition of *Gray's Manual of Botany* to what is now called *R. flagellaris* L.

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Principal references in roman; secondary references in italic; synonyms in parentheses.

Abutilon . . . . .	56	Asplenium . . . . .	18	Chaerophyllum . . . . .	68	Dicentra . . . . .	50	Hamamelis . . . . .	51	Lolium . . . . .	27
Acalypha . . . . .	49	Aster . . . . .	40	Chamaecrista . . . . .	54	Didiplis . . . . .	(56)	Hedeoma . . . . .	52	Lonicera . . . . .	37
Acer . . . . .	33	Astragalus . . . . .	54	Cheilanthes . . . . .	18	Digitaria . . . . .	26	Helenium . . . . .	42	Lotus . . . . .	55
Acerates . . . . .	(34)	Athyrium . . . . .	17	Chelone . . . . .	66	Diodia . . . . .	64	Helianthemum . . . . .	39	Ludwigia . . . . .	57
Achillea . . . . .	39	Atriplex . . . . .	38	Chenopodium . . . . .	38	Dioscorea . . . . .	24	Helianthus . . . . .	43	Luzula . . . . .	30
Acnida . . . . .	(33)	Aureolaria . . . . .	(66)	Chimaphila . . . . .	49	Dirca . . . . .	68	Heliopsis . . . . .	43	Lychnis . . . . .	37
Aconitum . . . . .	60	Avena . . . . .	25	Chrysanthemum . . . . .	41	Dodecatheon . . . . .	60	Hemerocallis . . . . .	31	Lycium . . . . .	67
Acorus . . . . .	20	Azolla . . . . .	17	Chrysopsis . . . . .	41	Draba . . . . .	48	Hepatica . . . . .	61	Lycopodium . . . . .	72
Actaea . . . . .	61	Baptisia . . . . .	54	Cichorium . . . . .	41	Dracocephalum . . . . .	(53)	Heracleum . . . . .	69	Lycopus . . . . .	52
Adiantum . . . . .	18	Barbarea . . . . .	47	Cicuta . . . . .	68	Dryopteris . . . . .	18	Heteranthera . . . . .	31	Lysimachia . . . . .	60
Adoxa . . . . .	33	Berberis . . . . .	35	Cinna . . . . .	26	Echinacea . . . . .	42	Heuchera . . . . .	65	Lythrum . . . . .	56
Aesculus . . . . .	51	Berteroa . . . . .	47	Circaea . . . . .	57	Echinocystis . . . . .	48	Hibiscus . . . . .	56	Maclura . . . . .	57
Agastache . . . . .	52	Betula . . . . .	35	Cirsium . . . . .	41	Eclipta . . . . .	42	Hieracium . . . . .	43	Malva . . . . .	56
Agromonia . . . . .	62	Bidens . . . . .	41	Claytonia . . . . .	60	Eleocharis . . . . .	23	Hordeum . . . . .	27	Matricaria . . . . .	44
Agropyron . . . . .	24	Blephilia . . . . .	52	Clematis . . . . .	61	Eleusine . . . . .	26	Houstonia . . . . .	64	Matteuccia . . . . .	18
Agrostis . . . . .	24	Boehmeria . . . . .	69	Comandra . . . . .	65	Ellisia . . . . .	51	Hudsonia . . . . .	39	Medicago . . . . .	55
Alisma . . . . .	19	Boltonia . . . . .	41	Commelina . . . . .	20	Elodea . . . . .	30	Humulus . . . . .	56	Melica . . . . .	27
Allium . . . . .	20	Botrychium . . . . .	17	Conium . . . . .	68	Elymus . . . . .	26	Hydrastis . . . . .	61	Melilotus . . . . .	55
Alopecurus . . . . .	24	Bouteloua . . . . .	25	Conringia . . . . .	48	Epilobium . . . . .	57	Hydrophyllum . . . . .	51	Menispermum . . . . .	56
Althaea . . . . .	56	Brachyelytrum . . . . .	25	Convolvulus . . . . .	46	Equisetum . . . . .	17	Hypericum . . . . .	51	Mentha . . . . .	52
Amaranthus . . . . .	33	Brassica . . . . .	47	Conyza . . . . .	(42)	Eragrostis . . . . .	26	Hypoxis . . . . .	30	Mimulus . . . . .	66
Ambrosia . . . . .	39	Bromus . . . . .	25	Corallorhiza . . . . .	31	Erechtites . . . . .	42	Hystrix . . . . .	27	Mirabilis . . . . .	57
Amelanchier . . . . .	62	Bulbostylis . . . . .	20	Coreopsis . . . . .	41	Eriogonum . . . . .	42	Impatiens . . . . .	35	Miscanthus . . . . .	27
Ammannia . . . . .	56	Cacalia . . . . .	41	Cornus . . . . .	46	Eriophorum . . . . .	24	Ipomoea . . . . .	46	Mitella . . . . .	65
Amorpha . . . . .	53	Calamagrostis . . . . .	25	Corydalis . . . . .	50	Eryngium . . . . .	68	Iris . . . . .	30	Mollugo . . . . .	33
Amphicarpa . . . . .	54	Caltha . . . . .	61	Corylus . . . . .	35	Erysimum . . . . .	48	Isanthus . . . . .	(53)	Monarda . . . . .	52
Anacharis . . . . .	(30)	Camelina . . . . .	47	Crataegus . . . . .	62	Erythronium . . . . .	31	Isoetes . . . . .	16	Monotropa . . . . .	49
Andropogon . . . . .	25	Campanula . . . . .	36	Cristatella . . . . .	(36)	Euonymus . . . . .	38	Isopyrum . . . . .	61	Morus . . . . .	57
Androsace . . . . .	60	Campsis . . . . .	35	Crotalaria . . . . .	54	Eupatorium . . . . .	42	Juglans . . . . .	52	Muhlenbergia . . . . .	27
Anemone . . . . .	61	Camptosorus . . . . .	(18)	Croton . . . . .	49	Euphorbia . . . . .	49	Juncus . . . . .	30	Myosotis . . . . .	36
Anemonella . . . . .	61	Cannabis . . . . .	56	Cryptogramma . . . . .	18	Fagopyrum . . . . .	59	Juniperus . . . . .	19	Myosurus . . . . .	61
Antennaria . . . . .	39	Capsella . . . . .	47	Cryptotaenia . . . . .	68	Festuca . . . . .	26	Kochia . . . . .	39	Nasturtium . . . . .	48
Anthemis . . . . .	39	Cardamine . . . . .	47	Cuscuta . . . . .	46	Fimbristylis . . . . .	24	Koeleria . . . . .	27	Naumburgia . . . . .	(60)
Apios . . . . .	54	Carduus . . . . .	41	Cycloloma . . . . .	38	Fragaria . . . . .	63	Kuhnia . . . . .	43	Nelumbo . . . . .	57
Apocynum . . . . .	34	Carex . . . . .	20	Cynoglossum . . . . .	35	Fraxinus . . . . .	57	Lactuca . . . . .	43	Nepeta . . . . .	52
Aquilegia . . . . .	61	Carpinus . . . . .	35	Cyperus . . . . .	23	Froelichia . . . . .	33	Laportea . . . . .	69	Nuphar . . . . .	57
Arabis . . . . .	47	Carya . . . . .	51	Cypripedium . . . . .	31	Galinsoga . . . . .	42	Lathyrus . . . . .	55	Nymphaea . . . . .	57
Aralia . . . . .	34	Cassia . . . . .	54	Cystopteris . . . . .	17	Galium . . . . .	64	Lechea . . . . .	39	Oenothera . . . . .	57
Arctium . . . . .	39	Castilleja . . . . .	66	Dactylis . . . . .	26	Gaura . . . . .	57	Leersia . . . . .	27	Onoclea . . . . .	18
Arenaria . . . . .	37	Catalpa . . . . .	35	Dalea . . . . .	54	Gentiana . . . . .	50	Lemna . . . . .	30	Onosmodium . . . . .	36
Arisaema . . . . .	20	Caulophyllum . . . . .	35	Danthonia . . . . .	26	Geranium . . . . .	51	Leonurus . . . . .	52	Orchis . . . . .	31
Aristida . . . . .	25	Ceanothus . . . . .	62	Dasistoma . . . . .	66	Gerardia . . . . .	66	Lepidium . . . . .	48	Orobanche . . . . .	58
Armoracea . . . . .	47	Celastrus . . . . .	38	Datura . . . . .	67	Geum . . . . .	63	Leptoloma . . . . .	27	Oryzopsis . . . . .	28
Artemisia . . . . .	39	Celtis . . . . .	68	Daucus . . . . .	68	Glechoma . . . . .	52	Lespedeza . . . . .	55	Osmorhiza . . . . .	69
Aruncus . . . . .	62	Cenchrus . . . . .	25	Dentaria . . . . .	48	Gleditsia . . . . .	54	Liatris . . . . .	44	Osmunda . . . . .	17
Asarum . . . . .	34	Cephalanthus . . . . .	64	Descurainia . . . . .	48	Glyceria . . . . .	27	Lilium . . . . .	31	Ostrya . . . . .	35
Asclepias . . . . .	34	Cerastium . . . . .	37	Desmodium . . . . .	54	Gnaphalium . . . . .	42	Linaria . . . . .	66	Oxalis . . . . .	58
Asimina . . . . .	34	Ceratophyllum . . . . .	38	Dianthus . . . . .	37	Goodyera . . . . .	31	Lindernia . . . . .	66	Oxybaphus . . . . .	(57)
Asparagus . . . . .	31	Chaenorrhinum . . . . .	66	Diarrhena . . . . .	26	Gratiola . . . . .	66	Linum . . . . .	56	Oxypolis . . . . .	69
						Grindelia . . . . .	42	Liparis . . . . .	31	Panax . . . . .	34
						Gymnocladus . . . . .	55	Lippia . . . . .	69	Panicum . . . . .	28
						Habenaria . . . . .	31	Lithospermum . . . . .	36	Parietaria . . . . .	69
						Hackelia . . . . .	36	Lobelia . . . . .	36	Parthenium . . . . .	44

Parthenocissus	71	Ribes	65	Strophostyles	55
Paspalum	28	Robinia	55	Sullivantia	66
Pastinaca	69	Rorippa	48	Symphoricarpos	37
Pedicularis	66	Rosa	63	Taenidia	69
Pellaea	18	Rotala	56	Tanacetum	45
Penstemon	66	Rubus	64, 72	Taraxacum	45
Penthorum	58	Rudbeckia	44	Taxus	19
Peplis	56	Ruellia	33	Tephrosia	55
Perilla	52	Rumex	60	Teucrium	53
Petalostemum	55	Sabatia	50	Thalietrum	62
Phalaris	28	Sagittaria	19	Thaspium	69
Phleum	28	Salix	65	Thelypteris	18
Phlox	58	Salsola	39	Thlaspi	48
Phryma	58	Salvia	53	Tilia	68
Phyla	(69)	Sambucus	37	Tomanthera	(66)
Physalis	67	Sanguinaria	58	Tovara	(60)
Physocarpus	63	Sanicula	69	Tradescantia	20
Physostegia	52	Saponaria	37	Tragopogon	45
Pilea	69	Saxifraga	65	Triadenum	(51)
Pinus	19	Schizachne	29	Tribulus	71
Plantago	58	Scirpus	24	Trichostema	53
Platanus	58	Scleria	24	Tridens	29
Poa	28	Scrophularia	67	Trifolium	55
Podophyllum	35	Scutellaria	53	Trillium	32
Polanisia	36	Secale	29	Triodanis	36
Polemonium	59	Selaginella	16	Triodia	(29)
Polygala	59, 72	Senecio	44	Triosteum	37
Polygonatum	31	Setaria	29	Triplasis	29
Polygonella	59	Seymeria	(66)	Triticum	29
Polygonum	59	Sicyos	48	Typha	32
Polymnia	44	Silene	37	Ulmus	68
Polypodium	8, 18	Silphium	44	Urtica	69
Polystichum	18	Sisymbrium	48	Uvularia	31
Pontederia	32	Sisyrinchium	30	Vaccinium	6, 49
Populus	65	Sium	69	Valeriana	69
Portulaca	60	Smilacina	31	Verbascum	67
Potamogeton	32	Smilax	32	Verbena	70
Potentilla	63	Solanum	67	Vernonia	45
Prenanthes	44	Solidago	44	Veronica	67
Proserpinaca	51	Sonchus	45	Veronicastrum	67
Prunella	53	Sorghastrum	29	Viburnum	37
Prunus	63	Sparganium	32	Vicia	55
Ptelea	64	Spartina	29	Viola	70
Pteretis	(18)	Specularia	(36)	Vitis	71
Pteridium	18	Sphenopholis	29	Wolffia	30
Pycnanthemum	53	Spiraea	64	Woodsia	18
Pyrola	49	Spiranthes	31	Xanthium	45
Pyrus	63	Spirodela	30	Xanthoxylum	64
Quercus	49, 72	Sporobolus	29	Yucca	19
Ranunculus	61	Stachys	53	Zigadenus	31
Raphanus	48	Staphylea	68	Zizia	69
Ratibida	44	Steironema	(60)	Zosterella	(31)
Rhammus	62	Stellaria	38		
Rhus	34	Stipa	29		