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## Lessons From an Inventory of the Ames, Iowa, Flora (1859–2000)

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A botanical survey of the vascular flora of the “planning and zoning jurisdiction” of the city of Ames, Iowa (i.e., the area within a boundary 3.2 km beyond the current city limits) was compiled from 1990 to 2000. During this survey, 916 taxa (71% native) were encountered within this boundary. Literature reviews and a survey of Iowa State University’s Ada Hayden Herbarium for specimens that had been collected in Ames since 1859 add 204 taxa to the flora. This total of 1,120 taxa exceeds the number of taxa known from any comparable area (including counties) in Iowa. We produced a checklist including date of first record, origin, abundance and habitat codes for all species that were noted during the current survey. Information for historic records includes source and, if based on a herbarium voucher, dates of first and most recent collections. This study reports 58 taxa that are not included in Eilers and Roosa’s (1994) checklist of the Iowa vascular flora; 28 species currently or historically known from Ames are included in the 1994 Iowa Department of Natural Resources list of endangered, threatened or special concern species. Two species on the federal list of threatened plant species, *Lespedeza leptostachya* (native) and *Boltonia decurrens* (naturalized), are also found within the study area. An outline of previous studies of the Ames flora is presented. Sites containing notable plant assemblages in the survey area are mapped and described.

The results of the survey provide both an enhanced general knowledge of the state’s flora and an example of local analysis of floristic change. These results are also relevant to conservation efforts, such as habitat restoration and reconstruction, and in evaluating the conservation status of the vascular plant species in the state. This inventory highlights the need for similar, intensive studies of the flora elsewhere in Iowa. The compilation of the historical data for such studies could be greatly aided by the development of computerized catalogs of the state’s herbaria.

INDEX DESCRIPTORS: Iowa flora, plant communities, floristic survey, urban flora, Story County, conservation, threatened and endangered species.

The vascular flora of Ames, Iowa, has received considerable attention from professional and amateur botanists since the middle of the nineteenth century. One period of extensive study occurred prior to 1900 and culminated with several published reports describing the flora in and around this city (Bessey 1871, Hitchcock 1890, Pammel 1898). The past vegetation of Ames (1859–1989) has also been documented by more than 4000 voucher specimens deposited in the Ada Hayden Herbarium (ISC) at Iowa State University. More recently (1990–2000), we conducted a second major inventory of the Ames flora, which resulted in the addition of many new plant species to the checklist. We suspect that the flora of no other comparable area in Iowa (i.e., county, state preserve, state park, etc.) has been as thoroughly studied as this one.

In this paper, we begin with a review of past botanical studies of the Ames flora. Then, we present a checklist of this flora as documented by past researchers and ourselves. Although the natural vegetation of Ames has been drastically altered by human pressures since the time of European settlement, we discovered 916 vascular plant taxa in or near Ames during our recent (1990–2000) inventory. Addition of historical records to this checklist elevates this total to

1,120 plant taxa, more taxa than are known from any Iowa county. These findings suggest that we still have much to learn about the Iowa flora.

### THE STUDY AREA

Ames (1995 population: 48,691) is located in Story County in central Iowa. The boundary of the current plant inventory (Fig. 1) represents a 3.2 km (=2 mi) extension of the Ames city limits, which corresponds to the city’s planning and zoning jurisdiction. The area lies within the following coordinates: 41°57’40”N to 42°05’30”N latitude and 93°31’40”W to 93°43’30”W longitude. Most of the area thus circumscribed (23,700 ha = 58,560 ac) lies within Story County; however, a very small portion to the west extends into Boone County.

Formerly, most of Story County was covered by prairie vegetation (Anderson 1996), but today the majority of this land area has been converted to crop fields. Nevertheless, several remnants of prairie vegetation still exist in the study area. Significant tracts of forest vegetation also occur in Ames, most in association with streams and rivers. Ames forests belong to the Central Hardwoods Forest Region (Braun 1964) and are dominated primarily by oak (*Quercus*) species. Wetland habitats, which were more common in Ames at the time

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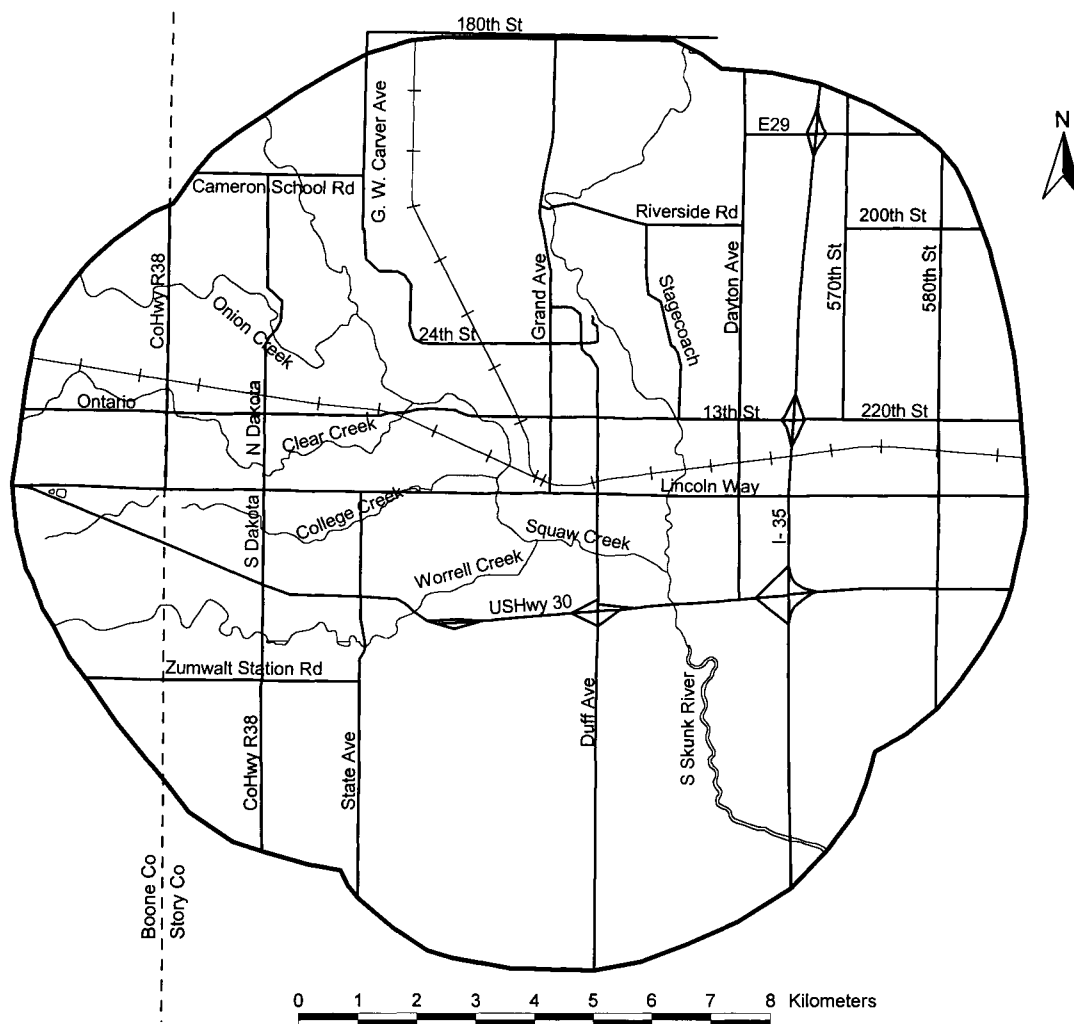


Fig. 1. Map of the current survey area—Ames, Iowa.

of settlement by Europeans (Anderson 1996), are currently restricted to only a few tracts within the boundary of this inventory. Detailed descriptions of many of these natural habitats in Ames are given by Norris and Farrar (1999).

Many vascular plants in Ames commonly occur in areas subject to frequent human disturbance. These include construction sites, railroad and road rights-of-way, old fields, crop fields, sidewalks, residential lawns and waste treatment areas. A large number, but by no means all, of the plant species typical of these sites have been introduced from outside of Iowa. Although these anthropogenic habitats are not usually the focus of floristic studies in the Midwest (but see Swink and Wilhelm 1994), they comprise a majority of the land area in Ames. Therefore, we thoroughly surveyed a large variety of disturbed sites in Ames for plant species during this inventory.

**PAST STUDIES OF THE AMES FLORA (to 1889)**

Although a few herbarium specimens collected in Ames prior to 1870 have been preserved, concerted study of the flora was initiated that year with the arrival of Charles Bessey. Bessey founded the Iowa Agricultural College Herbarium soon after his arrival and began collecting specimens of the local flora. His annual report of the Botany

Department to the college administration for 1871 included an appendix entitled "Contributions to the Flora of Iowa" (Bessey 1871). It listed 588 taxa, most (452, 77%) of which were cited as occurring in Ames. According to unpublished reports (Parks Library Special Collections Department, Iowa State University), the students in Bessey's first-year botany course were required to collect and identify a minimum of 100 species. Some students chose to mount their specimens in bound volumes (exsiccatae) and personally retained their collections, but others were mounted and added to the herbarium. This resulted in rapid growth of the herbarium, so that within Bessey's first year at the college, the herbarium had grown to ca. 2,500 specimens, most from the Ames vicinity.

The rate of collecting and adding specimens to the herbarium grew during the 1870s and 1880s (see Fig. 2). The species list resulting from the 132 Ames collections of Vene Gambell, one of Bessey's students in the early 1880s, was posthumously reported by Lindly (1911). But Albert Hitchcock, another of Bessey's students and subsequently a staff member of the college in the 1880s (Isely 1994), developed an even more active interest in the Ames flora. He prepared a checklist of the flora of the Ames area, comprising ca. 700 taxa (Hitchcock 1890). The Ames specimens still in the her-

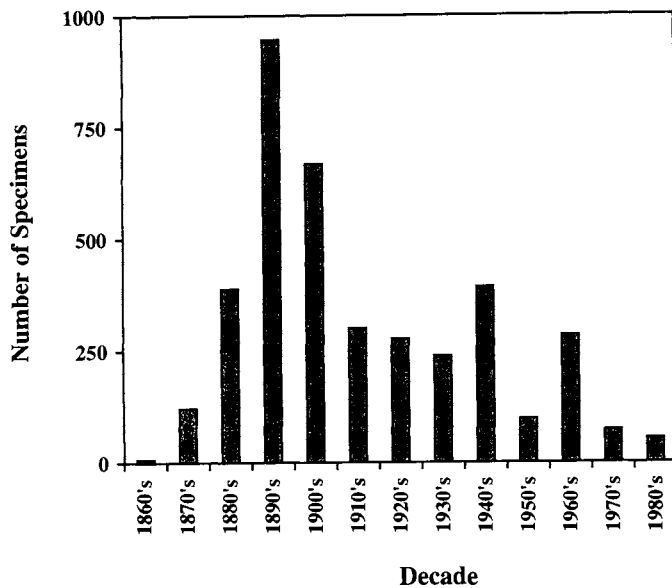


Fig. 2. Graph indicating the number of plant specimens collected in Ames, Iowa, 1860–1989 (by decade).

barium and Hitchcock's (1890) publication have provided us with an excellent opportunity to compare the current flora with that of the past.

In 1889, Louis Pammel was named to head the College's Botany Department, at about the same time as Hitchcock's departure from the state. Pammel's own collecting and that of his students would add greatly to the herbarium during the next 40 years. In our 1999 survey of the herbarium, we found approximately 4,200 specimens from Ames. Of that total, approximately one-third had been added by 1900, and 607 specimens, far more than from any other collector, had been made by Pammel. Pammel's active collecting and his research interests resulted in publications on the flora of Story County (Pammel 1898) and a survey of the weeds of Story County (Pammel and King 1914). Pohl's (1985) biography of Pammel detailed his work and interests.

Three of the next four highest numbers of specimens collected in Ames were made by his students: Ada Hayden (1901–1943; 476 specimens), Jacob Anderson (1913, 1942–43; 232 specimens), and George Washington Carver (1892–1897; 171 specimens). Hayden was curator of the herbarium from 1934 to 1950 and was one of the founders of Iowa's state preserve system (Isely 1989). Anderson is primarily known for his floristic studies of the Alaskan flora; however, following his return to Ames, he collected plants in the vicinity of the college campus (Isely 1954). Carver received his bachelor's and master's degrees at Iowa Agricultural College (now Iowa State University) and was on the college staff before his appointment at Tuskegee University (McMurry 1981).

Hitchcock's known collections ranked fourth on the list at 188. However, Hitchcock (1890) stated that all of the nearly 700 names on his published list were based on specimens in his personal herbarium, with only a few having been deposited in the college herbarium. Figure 2 clearly shows the increase of activity in collecting herbarium specimens during Pammel's tenure, the maintenance of fairly high numbers until 1950 (the year of Hayden's death), and the subsequent decline in more recent decades.

Ames collections from 1950 to 1989 were sporadic, comprising barely 15% of the more than 4,200 specimens found in our herbarium survey. We hypothesize that this decline in local collecting was

due to several factors, including changing floristic and taxonomic interests, with a decreased emphasis on the local flora, and a general shift from field- to laboratory-oriented studies (Lewis 1998). Duane Isely and Richard Pohl both joined the Iowa State College Botany Department faculty in the 1940s. Each had a primary focus on a single plant family: Isely's research was on the Fabaceae (s.l.) of the United States, and Pohl's research was on the Poaceae of the United States and eventually the Neotropics. Generally, the research projects of their graduate students followed suit, with the exception of Paul Monson's (1959) floristic study of the area encompassing Iowa's Des Moines Lobe of the Wisconsinan glaciation (Prior 1991). Occasionally, local projects also captured the secondary research interests of these students, e.g., Robert Freckmann's (1968) study of the prairies in the Ames area.

Although providing a baseline for general comparisons, it would be misleading to imply that the 1999 herbarium survey provides a comprehensive record of past collections made in Ames. Catastrophic events, including a tornado (1882) and fire (1900), damaged the buildings that were home to the herbarium and damaged or destroyed part of the holdings. Some collections were also damaged by insects, water, and other environmental problems due to the early use of wooden cabinets that could not be adequately sealed. It is unknown whether such factors resulted in actual destruction or deaccession of specimens, and if so, to what degree. Loss of specimens in loan shipments may also have occurred. Misidentification of specimens, illegibility of label data, scant locality information, and misinterpretation of the information are other factors that may affect the accuracy of data compiled in our survey. The published accounts (Bessey 1871, Hitchcock 1890) and herbarium specimens (ISC) that document the historic Ames flora offered the additional challenges of changes in taxonomic and nomenclatural concepts during the intervening years, of relocation of cited localities, and of an incomplete set of specimens to document Hitchcock's study. Despite these problems, the efforts of Hitchcock and other early researchers of the Ames flora have given us a fascinating glimpse of the dynamics of the Ames flora during the past 141 years.

## METHODS

### Field Work

An inventory and evaluation of Ames, Iowa, natural areas were initiated in 1991 by the Ames City Planning Office (Norris 1994, Norris 1995, Norris and Farrar 1999). The purpose of this inventory was to identify and rate the natural quality of all forests, prairies and wetlands in the study area. The boundary of this inventory was established in 1991 as a two-mile (3.2 km) extension of the Ames corporate limits (Fig. 1), which encloses an area corresponding to the zoning jurisdiction of the Ames City Planning Office. W.R. Norris conducted field work for this inventory between 1991 and 1995, primarily in forest, prairie and wetland habitats. He summarized his findings in a report submitted to the City of Ames in 1994 (Norris 1994). This report consisted of maps and written descriptions of all surveyed areas.

Although not a goal of the initial inventory, Norris compiled lists of all vascular plant taxa encountered during his surveys of Ames forests, prairies and wetlands (Norris 1995). This list of 493 taxa observed between 1991 and 1995 was based on sight observations of numerous common plant species as well as field collections of difficult-to-identify taxa (e.g., grasses, sedges, rushes, smartweeds, asters, goldenrods, sunflowers, etc.).

Norris and D.Q. Lewis (curator, ISC) conducted additional field work in 1996 and 1997 to further document the Ames flora. They expanded the realm of the initial survey (i.e., forests, prairies and wetlands) to include open and disturbed habitats including riparian

Table 1. Codes used to describe preferred habitats of vascular plants in Ames, Iowa.

1) T (tree-dominated habitats)	
df	dry forest—typically on ridgetops and on south- and west-facing slopes
mf	moist forest—typically on north- and east-facing slopes
wf	wet forest—typically in bottomlands
wd	woodland—tree-dominated habitats with incomplete canopy closure
es	escarpment—due to erosion or soil slumping
ed	edge
2) P (prairie habitats)	
dr	dry prairie
ms	moist prairie
wt	wet prairie—includes ‘wet meadow’ vegetation from some wetland classification systems
3) W (wetland habitats)	
ez	emergent zone—typically dominated by bulrush, bur-reed and several deep- to shallow-water sedge species
sz	submergent zone—typically dominated by pondweeds and duckweeds
rp	riparian—includes grassy stream edges and sandbars
md	mudflat—not associated with running water
sp	seep
4) O (open habitats—primarily anthropogenic)	
ur	urban—sidewalks, lawns, etc.
cr	cropfields, gardens, flowerbeds
rw	rights-of-way, including fencerows, railroad embankments and powerlines
rc	rocky habitats, including railroad ballast, gravel pits and sand
of	old field, hayfield
ps	pasture

areas, seeps, mudflats, roadsides, old fields, agricultural fields, construction sites and railroad rights-of-way. R.O. Pope and M. P. Widrlechner joined the project in late 1997 and contributed additional plant records based on their observations of the Ames flora since 1990. A final collaborator, J.D. Thompson, joined this effort in June 1998. Extensive field work by all of us resulted in the discovery of an additional ca. 400 plant taxa between 1996 and 2000.

Our field work resulted in the collection of over 1,500 voucher specimens to document the Ames flora in the past decade. These have been submitted for deposit in the Ada Hayden Herbarium (ISC) at Iowa State University.

#### Species Historically Reported from Ames

In early 1998, Norris and Lewis conducted an exhaustive inventory of the Iowa collections in the Ada Hayden Herbarium and developed a computer database of all (approximately 4,200) Ames voucher specimens deposited there. We analyzed this database to develop a list of “historic species” not observed by us during the current inventory but documented to have occurred in Ames between 1859 and 1989. We supplemented this list with additional plant species reported by C. E. Bessey (1871) and A. S. Hitchcock (1890). These efforts provided a valuable target list of taxa to help focus our field work during the last two years of this inventory.

#### Compilation of the Checklist

We compiled a comprehensive checklist of all vascular plant taxa documented to have occurred in Ames between 1859 and 2000. Nomenclature for all plant taxa previously reported in Iowa follows Eilers and Roosa (1994) except for *Rubus* L., which follows Widrlechner (1998). Nomenclature for plant species previously unreported in Iowa follows Gleason and Cronquist (1991), the Great Plains Flora Association (1986), and/or Swink and Wilhelm (1994), with a few

exceptions (e.g., *Digitaria bicornis* (Lam.) R. & S., *Poa pratensis* subsp. *angustifolia* (L.) Lej.) in which “expert determinations” were followed.

*Modern species.* To compile a checklist of Ames plants (1859 to mid-2000), we first listed all native or naturalized plant taxa encountered by us during our field work in the past decade. Crop species with no tendency to persist (e.g., *Zea mays* L.) and ornamental species not demonstrated to spread from their point of introduction (e.g., *Syringa vulgaris* L.) were excluded from the checklist.

We indicated the status of both modern and historic taxa as either native (no symbol), exotic (\*) or native to Iowa but probably introduced in Ames (+). The latter category contains species that have spread from their point of introduction in lawns (e.g., *Buchloe dactyloides* (Nutt.) Engelm.), gardens and prairie restorations/reconstructions (e.g., *Echinacea purpurea* (L.) Moench, *Gaillardia pulchella* Fouq., *Ratibida columnifera* (Nutt.) Wooten & Standley), woodland understory restorations (e.g., *Trillium nivale* Riddell), and wildlife or wind-break plantings (e.g., *Physocarpus opulifolius* (L.) Maxim.). This category also encompasses two taxa (*Erythronium americanum* Ker-Gawl., *Napaea dioica* L.) encountered by us during the current inventory whose occurrences in central Iowa are disjunct from known eastern Iowa populations (Eilers and Roosa 1994) and are thus difficult to explain.

In the checklist, we also provided information about the habitat preferences in the Ames area of each plant observed by us during the current inventory. We established habitat codes within four main categories: tree-dominated (T), prairie (P), wetland (W) and open (O); the latter category represents sites primarily associated with human activity. Within each of these main categories, we recognized several subcategories (Table 1). The habitat codes in the checklist represent a consensus of results after we had independently assigned codes to each taxon.

We also assigned an abundance code (common, frequent, infre-

quent, rare) in the Ames area to each plant species found by us in the current survey. Definitions for these codes were borrowed (with slight modifications) from Eilers and Roosa (1994):

*Common*: widely distributed and often found growing in large quantities in several different habitats.

*Frequent*: widespread but not abundant and usually found in only one type of habitat.

*Infrequent*: not widespread and often not found in places where it might be expected to occur.

*Rare*: found in only one or a few places.

As with assignment of habitat codes, the abundance codes presented in the checklist represent a consensus of results after we independently assigned codes to the taxa.

*Historic species.* We supplemented the list of our own findings with historic species documented from herbarium specimens (ISC). Before including such taxa, we reexamined at least two specimens (when available) of each species to verify the identification. When we could not verify the identification of a particular species (e.g., *Cuscuta corylii* Engelm.) due to the fragmentary nature of the voucher specimen, we assigned that species to a separate list of "excluded records and observations." Likewise, crop and ornamental species (e.g., *Syringa vulgaris* L., *Zea mays* L.) collected in Ames prior to 1990 were excluded unless label information on voucher specimens provided compelling evidence that the species had in fact escaped cultivation and persisted for a number of years.

A problem with inclusion of historic species from herbarium voucher specimens is uncertain knowledge of collection sites in relation to our inventory boundaries. For example, of the approximately 4,200 voucher specimens collected in Ames prior to 1990, well over half state the place of collection as "Ames" with no further information. We included species reported to be collected in "Ames" on the checklist unless their occurrence in central Iowa is implausible (e.g., *Arabis lyrata* L.) based on current knowledge of plant species distributions (Eilers and Roosa 1994).

We also included historic species reported from two published floras (Bessey 1871, Hitchcock 1890) on the checklist. Here, a daunting task was to uncover synonymies between nomenclature used by Bessey and Hitchcock and modern plant names. We resolved many synonymies by consulting older editions of standard botanical reference books (e.g., Gray et al. 1890, Britton 1901, Robinson and Fernald 1908, Fernald 1950), regional floras and state checklists (Gleason and Cronquist 1991, Eilers and Roosa 1994, Steyermark 1963, Voss 1972, 1985, 1996), taxonomic treatments of specific plant families and genera (Gilly 1946, Hitchcock 1971) and the "Tropicos" database of the Missouri Botanical Garden (W<sup>3</sup>Tropicos 2000). Very rarely, we associated a published name with several modern taxa (e.g., "*Ampelopsis quinquefolia* (L.) Michx." = *Parthenocissus quinquefolia* (L.) Planchon and *P. vitacea* (Knerr) A.S. Hitchcock). A number of plant names (e.g., *Rubus villosa* Ait.) remained unresolved to the end; we assigned such species to the excluded list. At least once we assigned a current name, *Polygonum amphibium* L. of Hitchcock (1890), to the excluded list because we could not determine which modern variety (i.e., *P. amphibium* L. var. *emersum* Michx. or *P. amphibium* L. var. *stipulaceum* (Coleman) Fern.) the author intended.

We were also careful to exclude species listed by Bessey and Hitchcock when they left doubt that a particular taxon actually occurred in Ames. Bessey (1871) did not formally define the boundaries of his inventory of the Ames flora, giving "Ames" as the location for most plants with no further description. In a few instances (e.g., "*Campsosorus rhizophyllus* Link.", "*Polypodium vulgare* L.") he reported plants as occurring in Ames in the vicinity of the Des Moines River. We assigned Bessey's reports of such plants to the excluded list because this river is situated more than 16 km west of Ames.

Hitchcock (1890), on the other hand, carefully defined the boundaries of his own inventory work as:

"... region [in] the vicinity of the Agricultural College at Ames. Quite thorough explorations have been made within a radius of three to four miles about this point. From four to nine miles they have been confined to certain directions; viz., along the railroad from Ames to Gilbert, and from Ames to Nevada; southwest to the 'Big prairie,' and southeast to a small 'lake' about ten miles from the College. A few plants have been included from the Des Moines river west of Boone, eighteen miles distant; several have also been included from Cairo lake and vicinity, about twenty-two miles away. But in all cases it is so stated if the plant has been found only beyond the three-mile circle."

Thus, we assigned all species (e.g., *Aesculus glabra* Willd., *Rumex maritimus* L.) reported by Hitchcock to occur only at Cairo Lake, Big Prairie, etc., to the list of excluded records and observations.

## RESULTS

We discovered 916 plant taxa in the study area during the 1990s to mid-2000 (Table 2, Appendix A). The occurrences of almost all (908) of the above taxa in Ames are documented by at least one herbarium voucher specimen collected in Ames since 1859 (ISC). We observed that these taxa occur in a variety of generalized habitat types (Table 3) and also vary in their abundance in the study area (Table 4); the more specific habitat and abundance codes for each of these taxa are found in Appendix A.

We also report 151 historic taxa documented by herbarium voucher specimens and 53 from the two published floras (Bessey 1871, Hitchcock 1890) which occurred in Ames prior to 1990. The grand total, then, is 1,120 taxa; these data from the currently known and historic taxa are summarized in Table 2. Table 2 also contains the listings of numbers of taxa in the largest families and genera found in the survey area. For reasons mentioned in our Methods, we excluded over 100 historic records and current observations (Appendix B) from the official checklist of Ames vascular plants.

[Note: We observed five additional species just outside the inventory boundary in the last decade: *Cephalanthus occidentalis* L., *Cyperus schweinitzii* Torrey, *Elodea canadensis* Michx., *Lobelia cardinalis* L. and *Polygonum hydroperoides* Michx.]

Significant plant assemblages in Ames are described and mapped in Appendix C and Figure 3.

## DISCUSSION

A major result of this study is our discovery that about 1,120 plant taxa have probably resided (at least temporarily) in Ames since 1859. This total exceeds the number of plant taxa reported from the 17 Iowa counties inventoried since 1950 (Table 5). How was it possible to discover so many plant species in Ames? This result is due in large part to the intense study this flora has received from botanists who have worked and/or studied at Iowa State University in Ames (described previously). These findings are also due in large part to our "team" approach, which permitted us to draw upon the individual expertise of each team member. In particular, our study benefited from expertise in Scrophulariaceae (Lewis), graminoids (Norris), agricultural weed species (Pope) and woody plants (Widrechner).

Another contributing factor to our success in finding plant taxa was the long duration (ten years) of this inventory. In contrast, primary field work for many recent county inventories (e.g., Peck et al. 1978, 1980, 1981, 1984) was conducted over one or two field seasons. During the last two full years of the current inventory (1998

Table 2. Floristic composition of the Ames, Iowa, survey area.

Major Groups	Species (+Hybrids/ Subspecific Taxa)	Genera	Families
Pteridophytes	14 (2)	11	6
Gymnosperms	2	2	2
Dicoryledons	772 (17)	357	82
Monocotyledons	303 (10)	115	19
Total	1,091 (29)	485	109

B. Current and historic taxa

Origin	Current	Historic	Total	%
Native to Ames	652	158	810	72.3
Elsewhere in IA	15	0	15	1.3
Non-native	249	46	295	26.4
Total	916	204	1,120	100

C. Ten largest families

Family	Native	Else- where in Iowa	Non- Native	Total (Hybrid)
Poaceae	95	1	53	149 (2)
Asteraceae	110	3	35	148 (2)
Cyperaceae	78	0	0	78 (1)
Fabaceae	33	1	16	50 (0)
Brassicaceae	16	0	33	49 (0)
Rosaceae	35	1	11	47 (0)
Lamiaceae	25	0	8	33 (1)
Ranunculaceae	25	0	3	28 (0)
Liliaceae	17	2	6	25 (0)
Scrophulariaceae	17	1	7	25 (0)

D. Ten largest genera

Family	Native	Else- where in Iowa	Non- Native	Total (Hybrid)
<i>Carex</i>	54	0	0	54 (1)
<i>Aster</i>	19	0	0	19 (2)
<i>Polygonum</i>	11	0	5	16 (0)
<i>Viola</i>	10	1	2	13 (1)
<i>Chenopodium</i>	7	0	5	12 (0)
<i>Euphorbia</i>	9	0	3	12 (0)
<i>Verbena</i>	11	0	0	11 (5)
<i>Cyperus</i>	10	0	0	10 (0)
<i>Dichanthelium</i>	10	0	0	10 (0)
<i>Muhlenbergia</i>	10	0	0	10 (0)

Table 3. Habitats of the Ames, Iowa, flora.

Habitat Type	No. of Taxa	%
Tree-dominated	385	42
Prairie	270	29
Wetland	171	19
Open	440	48
More than one type	289	32

Table 4. Abundance of the Ames, Iowa, flora.

Abundance	No. of Taxa	%
Rare	323	35
Infrequent	196	21
Frequent	194	21
Common	203	22

and 1999), Thompson devoted approximately 40 hours per week to field work for this inventory during the growing season and personally discovered more than 200 new plant species in Ames through his intense survey efforts. We conclude that plant inventories conducted over a 1–2 year period in regions as large or larger than Ames are probably not complete.

Finally, several facilities in Ames associated with Iowa State University have probably served as special sources of introduced, now naturalized, plant species, which expanded our total species count. These include the North Central Regional Plant Introduction Station, the ISU Horticulture Farm and the ISU Campus. Furthermore, the Hillculture Research Station (SCS) may also have contributed additional exotic plant species during the 1930s and 1940s (Widrechner and Rabeler 1991).

The checklist includes 204 species documented by herbarium specimens and/or reported in past studies of the Ames flora that were not found in our current inventory. Although we feel we were conservative in including these species, our level of confidence in these additions is not as high as for those encountered in the current survey. The species documented by herbarium vouchers are more definitive than those in literature reports. However, especially for 19<sup>th</sup> century collections, the locality was often cited only as "Ames"; thus we had to assume that the collection was from within the project boundary. Confirmation of the accuracy of the identification of species listed in Bessey's (1871) and Hitchcock's (1890) lists that are not vouchered at ISC is also problematic. However, these species, if not excluded through objective criteria presented in the Methods, help provide insights into the Ames flora of more than a century ago.

Applications of Floristics

There is a general perception that research focused on floristics is no longer in vogue (Lewis 1998, Weber and Wittmann 1992). This paper presents results and analyses in support of an opposing viewpoint; namely, that field-based botanical research remains relevant. Although the Ames flora *per se* is probably not of interest to all botanists, we offer this study as a model to demonstrate how floristic studies can be the focus of interesting academic discussions as well as the foundation of sound conservation practices. Below, we provide some examples to illustrate several analyses of the Ames flora, as well as applications of this study in natural resource management.

*Phytogeographic Origins of the Ames Flora.* Eilers and Roosa (1994) stated that the Iowa flora has affinities with eastern deciduous forests, boreal forests, Great Plains prairies and Ozarkian (oak-hickory) forests due to its mid-continental location. To illustrate this point, they provided lists of plant species found in Iowa that are representative of these vegetation assemblages. We conclude that the Ames flora has a strong Ozarkian component because 68 of the 76 Iowa plant species considered to be representative of oak-hickory forests occur in Ames. In contrast, only three (*Coeloglossum viride* (L.) Hartman var. *virescens* (Muhl. ex Willd.) Luer, *Liparis loeselii* (L.) L.C. Rich., *Oryzopsis racemosa* (Smith) Ricker) of 44 Iowa taxa listed as having boreal affinities are known from Ames. Likewise, we documented the oc-

Table 5. Number of taxa in published floras and checklists of Iowa counties completed since 1950 and the Ames checklist (current).

Location (County unless specified)	Author & Year	Total Taxa	Based on <sup>a</sup>
Ames (city zoning jurisdiction)	Current study	1,120	Field, herb. (ISC), lit.
Allamakee	Peck et al. 1980	1,040	Field, herb., lit. (Hartley 1966)
Emmet	Wolden 1956	1,013	Field, lit.
Johnson	Thorne 1955	966	Field, herb., lit. as verified
Lee	Peck et al. 1981	876	Field, herb., lit. as verified
Des Moines	Lammers 1983	809	Field, herb.
Dickinson	Grant 1950, 1953	800	Lit., herb. (ILH), some field
Cedar	Fay 1951, Fay and Thorne 1953	775	Mainly field, some herb.
Guthrie	Roosa et al. 1991	748	Field, herb., lit.
Page	Wilson 1992	746	Mainly field
Poweshiek	Russell 1956	699	Mainly herb. (GRI)
Iowa	Easterly 1951	679	Mainly field, some herb., lit.
Washington	Wagenknecht 1954	677	Mainly field
Lyon	Peck et al. 1984	561	Field, herb., lit. as verified
Fremont	Peck et al. 1978	550	Field, lit., some herb.
Sioux	Peck et al. 1984	506	Field, herb., lit. as verified
Cherokee	Carter 1962	401	Field

<sup>a</sup> Source of information used to compile checklist as stated or implied in paper. Field = field work; herb. = herbarium voucher specimens (with herbarium acronym if primarily from one herbarium); lit. = literature sources; as verified = only including records from literature if verified by voucher specimens. Herbarium acronyms cited: ISC = Ada Hayden Herbarium, Iowa State University; ILH = Iowa Lakeside Laboratory Herbarium; GRI = Grinnell College Herbarium.

attempts to update the Iowa threatened, endangered and special concern lists of vascular plants (i.e., the Iowa "T&E" list; Iowa Administrative Code 1994) were hampered by a general lack of knowledge among botanists about many species in the state (Pearson 1999). Our checklist provides habitat and abundance information for 916 vascular plant taxa (more than 40% of the state's known vascular flora) in central Iowa and will thus be a valuable resource to individuals attempting future revisions of the Iowa T&E list.

In addition to the potential uses of the data, the findings of this study have already contributed to the conservation efforts within the survey area. It was noted during the survey that the Raymond-Rolling Prairie (Appendix C), containing a population of *Lespedeza leptostachya* (prairie bush-clover, federally listed as threatened), was being encroached upon by *Juniperus virginiana* L. (red cedar) and *Gleditsia triacanthos* L. (honey-locust) trees. More than 50 local volunteers soon became involved in active management of the site. The prairie and the bush-clover population have responded well to this intervention.

## CONCLUSIONS

We do not contend that the flora of Ames, Iowa, is especially remarkable; in fact, we suspect that the floras of many Iowa counties are more diverse than this one. Therefore, a major lesson of this investigation is that additional field botanical work is needed to more thoroughly document the Iowa flora. Such efforts would undoubtedly result in the discovery of hundreds of new county records throughout the state. Furthermore, these efforts would probably reveal many plant taxa new to the Iowa checklist of vascular plants (Eilers and Roosa 1994).

This study also stresses the significance of an inventory occurring over an extended number of years in comparison to most surveys. This approach allows not only the accumulation of a large number of hours spent in field study, but also increases the likelihood for observing the impact of climatic fluctuations (such as the higher than

average rainfall during the summer of 1993 or the lower than usual rainfall in the spring and early summer of 2000) on the vegetation.

A less obvious but equally important lesson of this plant inventory is the need for a computer database to compile information about voucher specimens deposited in Iowa herbaria. Our search of the Iowa holdings in the Ada Hayden Herbarium (ISC) for plant specimens collected in Ames required more than 160 hours to complete. Nevertheless, this database of Ames voucher specimens has already become obsolete with the submission of new plant specimens to the herbarium. Researchers wishing to repeat this study a century from now would benefit greatly from a continuously maintained database of all Iowa voucher specimens deposited in herbaria throughout the state. Such a database would be especially valuable to organizations and government agencies (The Nature Conservancy, Iowa Department of Natural Resources, etc.) whose mission is the management and preservation of rare plant habitat in Iowa.

In summary, we hope that this study convinces Iowa botanists, conservationists and funding agencies that it is time to revive field botanical research in this state.

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Table 6. Vascular plant species encountered during inventory of the Ames flora (1859–2000) that are listed as Endangered (E), Threatened (T) or of Special Concern (SC) by the Iowa Department of Natural Resources (Iowa Administrative Code 1994). B = Bessey (1871); H = Hitchcock (1890); I = specimen collected prior to 1990 held in the Ada Hayden Herbarium (ISC); C = encountered during current study (1990–2000).

<i>Aster pubentior</i> Cronq. [H, I] SC	<i>Muhlenbergia asperifolia</i> (Nees & Meyer) L. Parodi [C] SC
<i>Carex aggregata</i> Mack. [C] SC	<i>Napaea dioica</i> L. [C] SC
<i>Carex crawei</i> Dewey [C] SC	<i>Penstemon tubaeflorus</i> Nutt. [I] SC
<i>Chenopodium foggii</i> H.A. Wahl [I] SC	<i>Platanthera bookeri</i> (Torr. ex Gray) Lindley [H, I] T
<i>Chenopodium missouriensis</i> Aellen [I] SC	<i>Platanthera hyperborea</i> (L.) R. Br. [H, I] T
<i>Chenopodium rubrum</i> L. [I] SC	<i>Platanthera praeclara</i> Sheviak & Bowles [H, I] T
<i>Cirsium hillii</i> (Canby) Fern. [I, C] SC	<i>Poa wolfii</i> Scribn. [I, C] SC
<i>Cypripedium candidum</i> Muhl. ex Willd. [H, I] SC	<i>Polygala incarnata</i> L. [H, I] T
<i>Cypripedium reginae</i> Walter [H, I] T	<i>Senecio pseudolaureus</i> Rydb. var. <i>semicordatus</i> (Mack. & Bush) T. Barkley [I, C] SC
<i>Dalea villosa</i> (Nutt.) Sprengel [H] E	<i>Sibara virginica</i> (L.) Rollins [C] SC
<i>Eriophorum angustifolium</i> Honck. [B, H] SC	<i>Spiranthes magnicamporum</i> Sheviak [C] SC
<i>Erythronium americanum</i> Ker Gawler [C] T	<i>Spiranthes ovalis</i> Lindl. [C] T
<i>Euphorbia missurica</i> Raf. [H, I] SC	<i>Tomantbera auriculata</i> (Michx.) Raf. [H, I, C] SC
<i>Lespedeza leptostachya</i> Engelm. [H, C] T	
<i>Malaxis unifolia</i> Michx. [I] SC	

Table 7. Vascular plant taxa encountered during inventory of the Ames flora (1859–2000) that are not listed in Eilers and Roosa (1994). B = Bessey (1871); H = Hitchcock (1890); I = specimen collected prior to 1990 held in the Ada Hayden Herbarium (ISC); C = encountered during current study (1990–2000). "\*" = taxon not native to North America.

* <i>Ajuga reptans</i> L. [C]	* <i>Ligustrum obtusifolium</i> Sieb. & Zucc. [C]
* <i>Ampelopsis brevipedunculata</i> (Maxim.) Trautv. [C]	* <i>Ligustrum vulgare</i> L. [C]
* <i>Anthemis nobilis</i> L. [B]	* <i>Lonicera × bella</i> Zabel [C]
* <i>Arabidopsis thaliana</i> (L.) Heynh. [C]	* <i>Lonicera maackii</i> (Rupr.) Herder. [C]
<i>Aster cordifolius</i> L. × <i>A. drummondii</i> Lindley [I, C]	<i>Lycopus × sberardii</i> Steele [C]
* <i>Bassia hyssopifolia</i> (Pallas) Kuntze [C]	* <i>Metaplexis japonica</i> (Thunb.) Makino [I]
<i>Boltonia decurrens</i> (T. & G.) A. Wood. [C]	* <i>Parthenocissus tricuspidata</i> (Sieb. & Zucc.) Planchon [C]
* <i>Bromus catharticus</i> Vahl. [I]	<i>Physalis bispida</i> (Waterfall) Cronq. [I]
<i>Carex atherodes</i> Sprengel × <i>C. trichocarpa</i> Schkuhr [C]	* <i>Poa pratensis</i> subsp. <i>angustifolia</i> (L.) Lej. [C]
<i>Carex mesochorea</i> Mack. [C]	* <i>Prunus tomentosa</i> Thunb. [C]
* <i>Carthamus tinctorius</i> L. [C]	* <i>Rhamnus utilis</i> Decne. [C]
* <i>Centaurium pulchellum</i> (Schwartz) Druce [C]	<i>Rosa × rudiusscula</i> Greene [I]
* <i>Cleome hassleriana</i> Chodat [C]	<i>Rubus ablatus</i> Bailey [I, C]
* <i>Cotoneaster multiflora</i> Bunge [C]	* <i>Rubus caesius</i> L. [C]
* <i>Crepis capillaris</i> (L.) Wallr. [I, C]	<i>Rubus frondosus</i> Bigelow [C]
* <i>Cynodon dactylon</i> (L.) Pers. [I, C]	* <i>Rubus parvifolius</i> L. [I, C]
* <i>Cynodon transvaalensis</i> Burt.-Davy [I]	<i>Rubus roribaccus</i> (Bailey) Rydb. in Britton [I]
<i>Datura wrightii</i> Regel [C]	* <i>Rumex stenophyllus</i> Ledeb. [C]
* <i>Digitaria bicornis</i> (Lam.) R. & S. [C]	<i>Sagina procumbens</i> L. [C]
* <i>Duchesnea indica</i> (Andrews) Focke [C]	<i>Sagittaria australis</i> (J.G. Smith) J.K. Small [I, C]
* <i>Epipactis helleborine</i> (L.) Crantz [C]	* <i>Scilla siberica</i> L. [C]
* <i>Erysimum diffusum</i> Ehrh. [C]	* <i>Sedum kamtschaticum</i> Fisch. & C. A. Meyet [C]
* <i>Erysimum hieracifolium</i> L. [C]	* <i>Spergularia marina</i> (L.) Griseb. [C]
* <i>Festuca myuros</i> L. [C]	* <i>Ulmus pumila</i> L. × <i>U. americana</i> L. [C]
* <i>Festuca trachyphylla</i> (Hackel) Krajina [C]	* <i>Ulmus pumila</i> L. × <i>U. rubra</i> Muhl. [C]
* <i>Geranium sibiricum</i> L. [C]	<i>Verbena × perriana</i> Moldenke [I]
* <i>Hieracium piloselloides</i> Villars. [C]	* <i>Veronica polita</i> Fries [C]
* <i>Lapsana communis</i> L. [I, C]	* <i>Viburnum lantana</i> L. [C]
* <i>Lathyrus latifolius</i> L. [C]	* <i>Viola arvensis</i> Murray [C]

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We dedicate this paper to the memory of two renowned Iowa botanists: Dr. Lawrence J. Eilers (1927–2000) and Dr. Duane Isely

(1918–2000). Dr. Eilers was a great supporter of floristic study in Iowa during the past half century. His efforts culminated in the publication of *The Vascular Plants of Iowa: an Annotated Checklist and Natural History* (1994, co-authored by Dean Roosa), which has provided the baseline for all subsequent floristic study in the state. Dr. Iely spent an equal number of years of research on the Fabaceae (bean family), becoming a nationally recognized scholar of this important plant family. His many years of work resulted in the 1998 publication of *Native and Naturalized Leguminosae (Fabaceae) of the United States (exclusive of Alaska and Hawaii)*. The achievements of these two botanists exemplify the two major aspects of plant taxonomy—floristic and monographic research.

## LITERATURE CITED

- ANDERSON, P. F. 1996. GIS research to digitize maps of Iowa 1832–1859 vegetation from government Land Office Township Plat Maps. Report to the Bureau of Preserves and Ecological Services, Iowa Department of Natural Resources.
- BESSEY, C. E. 1871. Contributions to the Flora of Iowa. Fourth Biennial Report of the Trustees, Iowa Agricultural College, pp. 90–127.
- BRAUN, E. L. 1964. Deciduous forests of eastern North America. Hafner. New York, NY.
- BRITTON, N. L. 1901. Manual of the flora of the northern states and Canada. Henry Holt and Company. New York, NY.
- CARTER, J. L. 1962. The vascular flora of Cherokee County. Proceedings of the Iowa Academy of Science 69:60–70.
- DRAYTON, B. and R. B. PRIMACK. 1996. Plant species lost in an isolated conservation area in metropolitan Boston from 1894 to 1993. Conservation Biology 10:30–39.
- DREWRY, G. (ED.). 1993. Plant taxa for listing as endangered or threatened species; notice of review. 50 CFR Part 17. Federal Register 58(188): 51144–51190.
- EASTERLY, N. W. 1951. The flora of Iowa County. Proceedings of the Iowa Academy of Science 58:71–95.
- EILERS, L. J. and D. M. ROOSA. 1994. The vascular plants of Iowa: an annotated checklist and natural history. University of Iowa Press. Iowa City, IA.
- FAY, M. J. 1951. The flora of Cedar County, Iowa. Proceedings of the Iowa Academy of Science 58:107–131.
- FAY, M. J. and R. F. THORNE. 1953. Additions to the flora of Cedar County, Iowa. Proceedings of the Iowa Academy of Science 60:122–130.
- FERNALD, M. L. 1950. Gray's manual of botany, 8<sup>th</sup> edition. American Book Company. New York, NY.
- FRECKMANN, R. W. 1968. Prairie remnants of the Ames area. Proceedings of the Iowa Academy of Science 73:126–136.
- GALATOWITSCH, S. M. and A. G. VAN DER VALK. 1994. Restoring prairie wetlands: an ecological approach. Iowa State University Press. Ames, IA.
- GIELLER, A. M., D. C. LOCKE, V. KILANOWSKI and G. E. LOTOWYCZ. 1990. Changes in vegetation composition and soil acidity between 1922 and 1985 at a site on the North Shore of Long Island, New York. Bulletin of the Torrey Botanical Club 117:450–458.
- GILLY, C. L. 1946. The Cyperaceae of Iowa. Iowa State College Journal of Science 21:55–151.
- GLEASON, H. A. and A. CRONQUIST. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2<sup>nd</sup> edition. The New York Botanical Garden. Bronx, NY.
- GRANT, M. L. 1950. Dickinson County flora (A preliminary check-list of the vascular plants of Dickinson County, Iowa, based largely on the herbarium of Iowa Lakeside Laboratory). Proceedings of the Iowa Academy of Science 57:91–129.
- GRANT, M. L. 1953. Additions to and notes on the flora of Dickinson County, Iowa. Proceedings of the Iowa Academy of Science 60:131–140.
- GRAY, A., S. WATSON and J. M. COULTER. 1890. Manual of the botany of the northern United States, 6<sup>th</sup> edition. American Book Company. New York, NY.
- GREAT PLAINS FLORA ASSOCIATION. 1986. Flora of the Great Plains. University Press of Kansas. Lawrence, KS.
- HARTLEY, T. G. 1966. The flora of the "Driftless Area". University of Iowa Studies in Natural History 21:1–174.
- HITCHCOCK, A. S. 1890. A catalogue of the Anthophyta and Pteridophyta of Ames, Iowa. Transactions of the St. Louis Academy of Science 5:477–532.
- HITCHCOCK, A. S. 1971. Manual of the grasses of the United States, volumes one and two, 2nd edition (revised by A. Chase). Dover Publications, Inc. New York, NY.
- IOWA ADMINISTRATIVE CODE. 1994. Endangered and threatened plant and animal species. Natural Resource Commission [571], Chapter 77. 13 pp. March 3 1994.
- ISELY, D. 1954. Jacob P. Anderson (obituary). Proceedings of the Iowa Academy of Science 60:53–54.
- ISELY, D. 1989. Ada Hayden: a tribute. Journal of the Iowa Academy of Science 96:1–5.
- ISELY, D. 1994. One hundred and one botanists. Iowa State University Press. Ames, IA.
- LAMMERS, T. G. 1983. The vascular flora of Des Moines County, Iowa. Proceedings of the Iowa Academy of Science 90:55–71.
- LEWIS, D. Q. 1998. A literature review and survey of the status of Iowa's terrestrial flora. Journal of the Iowa Academy of Science 105:45–54.
- LINDLY, J. M. 1911. Flowers of Story County. Proceedings of the Iowa Academy of Science 18:19–24.
- MCMURRY, L. O. 1981. George Washington Carver: scientist and symbol. Oxford University Press. New York, NY.
- MONSON, P. H. 1959. Spermatophytes of the Des Moines Lobe in Iowa. Ph.D. dissertation, Iowa State University. Ames, IA.
- NORRIS, W. R. 1994. A natural areas inventory of Ames, Iowa. Unpublished report to the City of Ames, IA.
- NORRIS, W. R. 1995. A natural areas inventory of Ames, Iowa. M.S. thesis, Iowa State University. Ames, IA.
- NORRIS, W. R. and D. R. FARRAR. 1999. A municipal inventory and evaluation of natural areas: history and methodology. Journal of the Iowa Academy of Science 106:49–62.
- PACKARD, S. and C. F. MUTEL. 1997. The tallgrass restoration handbook: for prairies, savannas and woodlands. Island Press. Washington, DC.
- PAMMEL, L. H. 1898. Flora of Story County, Iowa. Iowa Geological Survey Annual Report 9:239–245.
- PAMMEL, L. H. and C. M. KING. 1914. Weed survey of Story County, Iowa. Proceedings of the Iowa Academy of Science 21:115–118, + 6 plates.
- PEARSON, J. 1999. Iowa endangered, threatened and special concern plants. Iowa Native Plant Society Newsletter 5(1):1, 4–5.
- PECK, J. H., L. J. EILERS and D. M. ROOSA. 1978. The first Iowa foray (continued): the vascular plants of Fremont County, Iowa. Iowa Bird Life 48:3–18.
- PECK, J. H., D. M. ROOSA and L. J. EILERS. 1980. A checklist of the vascular flora of Allamakee County, Iowa. Proceedings of the Iowa Academy of Science 87:62–75.
- PECK, J. H., T. G. LAMMERS, B. W. HAGLAN, D. M. ROOSA and L. J. EILERS. 1981. A checklist of the vascular flora of Lee County, Iowa. Proceedings of the Iowa Academy of Science 88:159–171.
- PECK, J. H., B. W. HAGLAN, L. J. EILERS, D. M. ROOSA and D. VAN DER ZEE. 1984. Checklist of the vascular flora of Lyon and Sioux Counties, Iowa. Proceedings of the Iowa Academy of Science 91:92–97.
- POHL, M. C. 1985. Louis H. Pammel: pioneer botanist. Proceedings of the Iowa Academy of Science 92:1–50.
- PRIOR, J. C. 1991. Landforms of Iowa. University of Iowa Press. Iowa City, IA.
- ROBINSON, B. L. and M. L. FERNALD. 1908. Gray's new manual of botany, 7<sup>th</sup> edition. American Book Company. New York, NY.
- ROBINSON, G. R., M. E. YURLINA and S. N. HANDET. 1994. A century of change in the Staten Island flora: ecological correlates of species losses and invasions. Bulletin of the Torrey Botanical Club 21:199–229.
- ROOSA, D. M., L. J. EILERS and S. ZAGER. 1991. An annotated checklist of the vascular plant flora of Guthrie County, Iowa. Journal of the Iowa Academy of Science 98:14–30.
- RUSSELL, N. H. 1956. A checklist of the vascular flora of Poweshiek County, Iowa. Proceedings of the Iowa Academy of Science 63:161–176.
- SHIRLEY, S. 1994. Restoring the tallgrass prairie: an illustrated manual for Iowa and the upper Midwest. University of Iowa Press. Iowa City, IA.

- STEYERMARK, J. A. 1963. Flora of Missouri. Iowa State University Press. Ames, IA.
- SWINK, F. and G. WILHELM. 1994. Plants of the Chicago region, 4th edition. Indiana Academy of Science. Indianapolis, IN.
- THOMPSON, J. R. 1992. Prairie, forests and wetlands: the restoration of natural landscape communities in Iowa. University of Iowa Press. Iowa City, IA.
- THORNE, R. F. 1955. Flora of Johnson County, Iowa. Proceedings of the Iowa Academy of Science 62:155–196.
- VOSS, E. G. 1972. Michigan flora, part I: gymnosperms and monocots. Cranbrook Institute of Science. Bloomfield Hills, MI.
- VOSS, E. G. 1985. Michigan flora, part II: dicots (Saururaceae—Cornaceae). Cranbrook Institute of Science. Bloomfield Hills, MI.
- VOSS, E. G. 1996. Michigan flora, part III: dicots (Pyrolaceae—Compositae). Cranbrook Institute of Science. Bloomfield Hills, MI.
- WAGENKNECHT, B. L. 1954. The flora of Washington County, Iowa. Proceedings of the Iowa Academy of Science 61:184–204.
- WEBER, W. A. and R. C. WITTMANN. 1992. Catalog of the Colorado flora: a biodiversity baseline. University Press of Colorado. Niwot, CO.
- WIDRLECHNER, M. P. 1998. The genus *Rubus* L. in Iowa. Castanea 63: 415–465.
- WIDRLECHNER, M. P. and R. K. RABELER. 1991. *Rubus parvifolius* (Rosaceae), naturalized in Illinois and Iowa. Michigan Botanist 30:23–30.
- WILSON, B. L. 1992. Checklist of the vascular flora of Page County, Iowa. Journal of the Iowa Academy of Science 99:23–33.
- WITHERS, M. A., M. W. PALMER, G. L. WADE, P. S. WHITE and P. R. NEAL. 1999. Changing patterns in the number of species in North American floras. Pages 23–31. In Perspectives on the land use history of North America: a context for understanding our changing environment. T.D. Sisk, ed. Biological Science Report USGS/BRD/BSR-1998-0003 (revised September 1999).
- WOLDEN, B. O. 1956. The flora of Emmet County, Iowa. Proceedings of the Iowa Academy of Science 63:118–136.
- W<sup>3</sup>TROPICOS VASCULAR PLANTS DATABASE. Retrieved 2000 January and May from: <http://www.mobot.mobot.org/Pick/Search/pick.html>

#### Appendix A. Annotated catalogue of the Ames flora

Voucher specimens are indicated by date and are deposited in the Ada Hayden Herbarium (ISC) at Iowa State University, Ames, IA.

#### Key

- \* = Species not native to Iowa  
 + = Species native to Iowa but probably not to Ames  
 B = Species listed for Ames by Bessey (1871), followed by synonym used by Bessey in brackets  
 H = Species included in Hitchcock (1890), followed by synonym used by Hitchcock in brackets  
 = = name as currently used was recognized by Bessey or Hitchcock in addition to synonym listed  
 Dates are of the earliest and, if not encountered during current survey, the most recent collections  
 n.d. = No date cited  
 C = Encountered during the current survey, 1991–2000  
 Plant Habitat Codes—see Table 1  
 Abundance Codes—rare, infrequent, frequent, or common; see Methods for further discussion

### PTERIDOPHYTES

#### ADIANTACEAE

*Adiantum pedatum* L., B, H, 1869–C, Tmf—infrequent

#### ASPLENIACEAE

*Asplenium platyneuron* (L.) Oakes ex D.C. Eaton, 1999–C, Tmf,ed—rare  
*Athyrium felix-femina* (L.) Roth var. *angustum* (Willd.) Moore, H

[*Asplenium felix-foemina* (L.) Bernh.], 1869–C, Tmf,wf—infrequent

*Cystopteris protrusa* (Weath.) Blasdell, B[C. *fragilis* Bernh.], H[C. *fragilis* (L.) Bernh.], 1870–C, Tmf—common

*Dryopteris carthusiana* (Vill.) H.P. Fuchs, 1995–C, Tmf—rare

*Matteuccia struthiopteris* (L.) Todaro, 1881–C, Wsp; Our—rare

*Onoclea sensibilis* L., B, H, 1938–1938

#### DENNSTAEDTIACEAE

*Pteridium aquilinum* (L.) Kuhn var. *latiusculum* (Desv.) Underw. ex Heller, H[Pteris *aquilina* L.], 1889–1895

#### EQUISETACEAE

*Equisetum arvense* L., B, H, 1881–C, Twf; Our—common

*Equisetum* × *ferrissii* Clute, 1998–C, Pwt; Orw—frequent

*Equisetum hyemale* L. var. *affine* (Engelm.) A.A. Eaton, B, 1889–C,

Orw—common

*Equisetum laevigatum* A. Br., 1893–C, Pwt—frequent

#### OPHIOGLOSSACEAE

*Botrychium dissectum* Sprengel f. *dissectum*, 1998–C, Tmf,wd—rare

*Botrychium dissectum* Sprengel f. *obliquum* (Muhl.) Clute, 1998–C,

Tdf,mf,wd—rare

*Botrychium virginianum* (L.) Sw., B[B. *virginicum* Swartz.], H, 1881–C, T—common

#### OSMUNDACEAE

*Osmunda claytoniana* L., H, 1876–1901

### GYMNOSPERMS

#### CUPRESSACEAE

*Juniperus virginiana* L., H, 1901–C, Tdf,wd; Pdr; Orw,of,ps—common

#### PINACEAE

+*Pinus strobus* L., 2000–C, Twd,ed—rare

### ANGIOSPERMS

#### (DICOTYLEDONS)

#### ACERACEAE

\**Acer ginnala* Maxim., 1999–C, Orw—infrequent

*Acer negundo* L., B[Negundo *aceroides* Moench], H[Negundo *aceroides* Moench], 1892–C, Tmf,ed; Orw—common

*Acer nigrum* Michx., B[A. *saccharinum* Wang.], H[A. *saccharum* Marsh. var. *nigrum* (Michx. f.) Britton], 1892–C, Tmf,wf—common

*Acer saccharinum* Marsh., B[A. *dasycarpum* Ehrhart.], H, 1895–C, Twf; Our,rw—common

#### AIZOACEAE

\**Mollugo verticillata* L., H, 1892–C, Wrp; Ocr—frequent

#### AMARANTHACEAE

*Amaranthus albus* L., H, 1907–C, O—common

\**Amaranthus graecizans* L., H[A. *blitoides* Wats.], 1897–C, Our—common

\**Amaranthus hybridus* L., 2000–C, Wrp; Our—rare

\**Amaranthus powellii* S. Watson, 2000–C, Wrp—rare

\**Amaranthus retroflexus* L., B, H, 1887–C, O—common

*Amaranthus rudis* Sauer, 1877–C, O—common

*Amaranthus tuberculatus* (Moq.) Sauer, H[*Acnida tuberculata* Moq.], 1907–C, O—common

## ANACARDIACEAE

- +*Rhus aromatica* Aiton, 1938-C, Orw—rare  
*Rhus glabra* L., B, H, 1907-C, Twd,ed; Pms; Orw,of—common  
 +*Rhus typhina* L., 1948-C, Our,rw—rare  
*Toxicodendron radicans* (L.) Kuntze ssp. *negundo* (Greene) Gillis,  
 B[*Rhus toxicodendron* L.], H[*Rhus radicans* L.], 1893-C, T; Pdr;  
 Orw—common

## APIACEAE

- Angelica atropurpurea* L., B[*Archangelica atropurpurea* Hoffm.]  
*Chaerophyllum procumbens* (L.) Crantz, B, H, 1897-C, Twf—frequent  
*Cicuta maculata* L., H, 1907-C, Pwt—frequent  
 \**Conioselinum chinense* (L.) BSP., H  
 \**Conium maculatum* L., 1926-C, Orw—frequent  
*Cryptotaenia canadensis* (L.) DC., B, H, 1896-C, Tmf,wf—common  
 \**Daucus carota* L., H, 1907-C, Orw,of—common  
*Eryngium yuccifolium* Michx., B, H, 1888-C, Pwt—infrequent  
*Heracleum lanatum* Michx., B, H, 1881-C, Twf—infrequent  
*Osmorhiza claytonii* (Michx.) C.B. Clarke, B[*Osmorhiza brevistylis*  
 DC.], H[*Osmorhiza claytonii* (Michx.) BSP.], 1896-C, Tmf,wf—common  
*Osmorhiza longistylis* (Torrey) DC., B, H, 1887-C, Tmf,wf—common  
*Oxypolis rigidior* (L.) Raf., B[*Archemora rigida* DC.], H[*Tiedemannia rigida*  
 (L.) C. & R.], 1896-C, Pwt—infrequent  
 \**Pastinaca sativa* L., B, H, 1907-C, Orw,of—common  
*Polytaenia nuttallii* DC., H  
*Sanicula canadensis* L., H[=; *S. canadensis* L. var. *marylandica* (L.)],  
 1942-C, Tdf,mf—frequent  
*Sanicula gregaria* Bickn., 1897-C, Tmf,wf—common  
*Sium suave* Walter, H[*S. cicutaeifolium* Gmel.], 1881-C, Twf;  
 Pwt—rare  
*Taenidia integerrima* (L.) Drude, B[*Zizia integerrima* DC.], H[*T. integerrima*  
 (L.) Benth. & Hook.], 1897-C, Tdf,wd,ed—rare  
*Thaspium barbinode* (Michx.) Nutt., 1907-1907  
*Zizia aurea* (L.) Koch, B[*Thaspium aureum* Nutt.], H, 1893-C,  
 Twd,ed; Pms,wt—frequent

## APOCYNACEAE

- Apocynum androsaemifolium* L., B, H, 1895-C, Orw—rare  
*Apocynum cannabinum* L., B, H, 1895-C, Pms,wt; Orw—common  
*Apocynum* × *medium* Greene, 1907-1907  
*Apocynum sibiricum* Jacq., 1895-C, Pms,wt; Orw—common  
 \**Vinca minor* L., 2000-C, Twf—rare

## ARALIACEAE

- Aralia nudicaulis* L., B, H, 1897-C, Tdf—rare  
*Aralia racemosa* L., B, H, 1999-C, Tmf,es—rare  
*Panax quinquefolia* L., H[*Aralia quinquefolia* (L.) Decaisne &  
 Planch.], photo, C, Twf—rare

## ARISTOLOCHIACEAE

- Asarum canadense* L., B, H, 1881-C, Tmf,wf—frequent

## ASCLEPIADACEAE

- Asclepias amplexicaulis* Smith, 1949-C, Pdr—rare  
*Asclepias incarnata* L., B, H, 1896-C, Pms,wt—frequent  
*Asclepias ovalifolia* Decne., H  
*Asclepias purpurascens* L., B, H, 1897-1897  
*Asclepias sullivantii* Engelm., H, 1907-C, Pms,wt—rare  
*Asclepias syriaca* L., B[*A. cornuti* Decaisne.], H, 1881-C, P; O—common

- Asclepias tuberosa* L. ssp. *interior* Woodson, B, H[=; *A. tuberosa* L.  
 var. *decumbens* (L.) Pursh], 1881-C, Pdr,ms—rare  
*Asclepias verticillata* L., B, H, 1878-C, Pms—frequent  
*Asclepias viridiflora* Raf., B[*Asclepias viridiflora* Ell.], H[*Acerates viridiflora*  
 (Raf.) Ell.; *Acerates viridiflora* (Raf.) Ell. var. *lanceolata*  
 (Ives) Gray], 1894-95-C, Pdr—rare  
*Cynanchum laeve* (Michx.) Pers., 1964-C, Our,rw—frequent  
 \**Metaplexis japonica* (Thunb.) Makino, 1958-1958

## ASTERACEAE

- Achillea millefolium* L. ssp. *lanulosa* (Nutt.) Piper, B, H, 1881-C,  
 Twd; Pdr; Oof,ps—frequent  
*Ambrosia artemisiifolia* L., B, H, 1881-C, Pdr; O—common  
*Ambrosia psilostachya* DC., B, H, 1942-C, Pdr—infrequent  
*Ambrosia trifida* L., B[=; *A. trifida* L. var. *integrifolia*], H[=; *A.*  
*trifida* L. var. *integrifolia* (Muhl.) Torr. & Gray], 1888-C, P; O—common  
*Antennaria neglecta* Greene, 1887-C, Tdr,wd; Pdr—infrequent  
*Antennaria plantaginifolia* (L.) Richardson, B[*A. plantaginifolia*  
 Hook.], H, 1902-C, Tdr,wd; Pdr—infrequent  
 \**Anthemis arvensis* L., H  
 \**Anthemis cotula* L., B[*Maruta cotula* DC.], H, 1881-C,  
 Orw,rc,ps—frequent  
 \**Anthemis nobilis* L., B  
 \**Arctium minus* Bernh., B[*Lappa officinalis* Allioni var. *major*], H[*A.*  
*lappa* L.], 1888-C, Ted; Wrp; O—common  
 \**Artemisia annua* L., 2000-C, Wrp—infrequent  
 \**Artemisia biennis* Willd., B, H, 1898?-C, Twf—infrequent  
 \**Artemisia absinthium* L., 1998-C, Orw—rare  
*Artemisia dracunculoides* L., B[*A. dracunculoides* Pursh], H[*A. dracunculoides*  
 Pursh], 1928-1928  
*Artemisia ludoviciana* Nutt., B, H, 1881-C, Pdr,ms—frequent  
*Artemisia serrata* Nutt., H, 1909-1917  
 \**Artemisia vulgaris* L., 1999-C, Orc,ur—rare  
*Aster* × *amethystinus* Nutt., H  
*Aster azureus* Lindley, H, 1876-C, P—infrequent  
*Aster cordifolius* L., B, H, 1876-C, T—common  
*Aster cordifolius* L. × *A. drummondii* Lindley, 1921-C, Twd,ed—infrequent  
*Aster ericoides* L., B[*A. multiflorus* Ait.], H[*A. multiflorus* Ait.],  
 1876-C, Pdr,ms; Orw,of—frequent  
*Aster laevis* L., H, 1902-C, Pms,wt—frequent  
*Aster lanceolatus* Willd., B[*A. simplex* Willd.], H[*A. paniculatus* L.],  
 1909-C, Pwt—infrequent  
*Aster lateriflorus* (L.) Britton, B[*A. miser* L.], H, 1876-C, T—common  
*Aster novae-angliae* L., B, H[=; *A. novae-angliae* L. var. *roseus* (Desf.)  
 DC.], 1876-C, Pms,wt—frequent  
*Aster oblongifolius* Nutt., H[*A. oblongifolius* Nutt. var. *rigidulus*  
 Gray], 1938-1938  
*Aster ontarionis* Wieg., 1876-C, Twt—infrequent  
*Aster pilosus* Willd., 1974-C, P; Orw,of—common  
*Aster praealtus* Poir., B[*A. carneus* Nees.], 1999-C, Pwt—rare  
*Aster prenanthoides* Muhl. ex Willd., B, H, 1876-C, Wsp—rare  
*Aster pubentior* Cronq., H[*A. umbellatus* Mill. var. *pubens* Gray],  
 1896-1920  
*Aster puniceus* L., H[*A. puniceus* L. var. *lucidulus* (Wendr.) Gray],  
 1889-1922  
*Aster sagittifolius* Willd., 1993-C, Ted—infrequent  
*Aster sericeus* Vent., B, H, 1888-C, Pdr—rare  
*Aster umbellatus* Miller, H  
*Bidens cernua* L., B[*B. chrysanthemoides* Michx.], H[=; *B. chrysanthemoides*  
 Michx.], 1897-C, Wrp—frequent  
*Bidens connata* (L.) Britton, B, H, 1920-C, Wrp—frequent

- Bidens frondosa* L., B, H, 1888–C, **Wrp**—common  
*Bidens polylepis* Blake, 1917–C, **Pms**; **Orw**—infrequent  
*Bidens tripartita* L., B[B. *comata* L. var. *comosa*], 1920–C, **Wrp**—infrequent  
*Bidens vulgata* Greene, 1896–C, **Pwt**—infrequent  
*Boltonia asteroides* (L.) L'Her., B[B. *glastifolia* L'Her.], H, 1876–1876  
 \**Boltonia decurrens* (T. & G.) A. Wood, 2000–C, **Pwt**—rare  
*Brickellia eupatorioides* (L.) Shinnery, B[Kubnia *eupatorioides* L.], H[Kubnia *eupatorioides* L.; K. *eupatorioides* L. var. *glutinosa* (Ell.)], 1888–C, **Twed**; **Pdr**—frequent  
*Cacalia plantaginea* (Raf.) Shinnery, B[C. *tuberosa* Nutt.], H[C. *tuberosa* Nutt.], 1894–C, **Tes**; **Pdr,ms**—infrequent  
 \**Carduus acanthoides* L., 1999–C, **Oof**—rare  
 \**Carduus nutans* L., 1894–C, **Ops**—infrequent  
 \**Carthamus tinctorius* L., 2000–C, **Wrp**; **Our**—rare  
 \**Centaurea cyanus* L., B, 1904–1924  
 \**Cichorium intybus* L., 2000–C, **Orw**—infrequent  
*Cirsium altissimum* (L.) Sprengel, B, H[Cnicus *altissimus* (L.) Willd.], 1888–C, **P**; **O**—common  
 \**Cirsium arvense* (L.) Scop., H[Cnicus *arvensis* (L.) Hoffm.], 1898–C, **P**; **O**—common  
*Cirsium discolor* (Muhl. ex Willd.) Sprengel, H[Cnicus *altissimus* (L.) Willd. var. *discolor* (Muhl.) Gray], 1896–C, **P**; **O**—common  
*Cirsium flodmanii* (Rydb.) Arthur, 1910–1910  
*Cirsium hillii* (Canby) Fern., H[Cnicus *odoratus* Muhl.], 1897–C, **Pdr**—rare  
 \**Cirsium vulgare* (Savi) Tenore, H[Cnicus *lanceolatus* (L.) Hoffm.], 1896–C, **P**; **O**—common  
*Conyza canadensis* (L.) Cronq., H[*Erigeron canadensis* L.], 1897–C, **O**—common  
*Conyza ramosissima* Cronq., B[*Erigeron divaricatus* Michx.], H[*Erigeron divaricatus* Michx.], 1942–C, **O**—infrequent  
*Coreopsis palmata* Nutt., B, H, 1893–C, **Pms**—frequent  
 \**Coreopsis tinctoria* Nutt., 1892–C, **Oof**—rare  
*Coreopsis tripteris* L., H, 1912–C, **Twed**—rare  
 \**Crepis capillaris* (L.) Wallr., 1948–C, **Our**—rare  
 \**Crepis tectorum* L., 1999–C, **Our**—rare  
*Dysodia papposa* (Vent.) A.S. Hitchc., B[*Dysodia chrysanthemoides* Lag.], H, 1906–1906  
*Echinacea pallida* Nutt., B[E. *angustifolia* DC.], H[E. *angustifolia* DC.], 1891–C, **Pdr,ms**—infrequent  
 +*Echinacea purpurea* (L.) Moench, 1998–C, **Orw**—rare  
*Eclipta alba* (L.) Hassk., 1998–C, **Wmd**—rare  
*Erechtites hieracifolia* (L.) Raf. ex DC., B, H, 1943–C, **Our**—infrequent  
*Erigeron annuus* (L.) Pers., B, H, 1880–C, **Pms**; **O**—common  
*Erigeron philadelphicus* L., B, H, 1884–C, **Tes,ed**; **Wrp**; **Our**—infrequent  
*Erigeron strigosus* Muhl. ex Willd., B, H[E. *ramosus* (Walt.) B.S.P.], 1888–C, **Pdr,ms**; **Orw,of**—common  
*Eupatorium altissimum* L., H, 1907–C, **Orw**—infrequent  
*Eupatorium maculatum* L., H[E. *purpureum* L. var. *maculatum* (L.) Darl.], 1896–1942  
*Eupatorium perfoliatum* L., B, H, 1907–C, **Pwt**—infrequent  
*Eupatorium purpureum* L., B, H, 1897–C, **T**—frequent  
*Eupatorium rugosum* Houtt., B[E. *ageratoides* L.], H[E. *ageratoides* L.], 1896–C, **T**—common  
*Euthamia graminifolia* (L.) Nutt. ex Cass, B[*Solidago lanceolata* L.], H[*Solidago graminifolia* (L.) Ell.], 1884–C, **Pwt**—infrequent  
 +*Gaillardia pulchella* Foug., 1998–C, **Orw**—rare  
 \**Galinsoga quadriradiata* Ruiz & Pavon, 1970–C, **Our,rc,cr**—infrequent  
*Gnaphalium obtusum* L., 1942–C, **Twed,ed**; **Oof**—infrequent  
*Grindelia squarrosa* (Pursh) Dunal, 1904–C, **Orc**—rare  
*Helenium autumnale* L., B, H, 1909–C, **Pwt**—infrequent  
*Helianthus annuus* L., B, H, 2000–C, **O**—frequent  
*Helianthus decapetalus* L., H[H. *tracheliifolius* Willd.], H[*Helianthus grosseserratus* Martens, B, H, 1888–C, **Pms,wt**; **Orw**—common  
*Helianthus maximiliani* Schrader, 2000–C, **Orc**—infrequent  
*Helianthus rigidus* (Cass.) Desf., B[=; H. *laetiflorus* Pers.], H[H. *diffusus* Sims; H. *laetiflorus* Pers.], 1896–C, **Pdr,ms**; **Orw**—infrequent  
*Helianthus strumosus* L., H, 1897–C, **Twed**—frequent  
*Helianthus tuberosus* L., H, 1890–C, **Twed,ed**; **Pms**; **Orw**—frequent  
*Heliopsis helianthoides* (L.) Sweet, B[H. *laevis* Pers.], H[H. *scabra* Dunal], 1888–C, **Pdr,ms**—frequent  
*Hieracium longipilum* Torrey, B, H, 1888–1898  
 \**Hieracium piloselloides* Villars., 2000–C, **Wrp**—rare  
*Hieracium scabrum* Michx., H, 1902–C, **Tms**—rare  
*Iva xanthifolia* Nutt., 1926–C, **Twed,ed**—rare  
*Krigia biflora* (Walter) Blake, 1907–1907  
*Lactuca biennis* (Moench) Fern., H[L. *spicata* Lam.], H[*Lactuca canadensis* L., B, H, 1897–C, **Pwt**; **Orw**—common  
*Lactuca floridana* (L.) Gaertner, H, 1873–C, **T**—frequent  
*Lactuca ludoviciana* (Nutt.) Riddell, H, 1888–C, **Oof**—rare  
 \**Lactuca scariola* L., B[L. *scariola* L.], H[L. *scariola* L.], 1913–C, **O**—frequent  
*Lactuca tatarica* (L.) C.A. Meyer ssp. *puchella* (Pursh) Stebbins, 1927–C, **Pms,wt**—rare  
 \**Lapsana communis* L., 1966–C, **Orc**—rare  
 \**Leucanthemum vulgare* Lam., B, H[*Chrysanthemum Leucanthemum* L.], 1887–C, **O**—infrequent  
*Liatris aspera* Michx., B[L. *scariosa* (L.) Willd.], H[L. *scariosa* (L.) Willd.], 1897–C, **Pdr,ms**—infrequent  
*Liatris cylindracea* Michx., B, H, 1888–1907  
*Liatris pycnostachya* Michx., B, H, 1888–C, **Pms,wt**—infrequent  
*Liatris squarrosa* (L.) Michx., 1906–1906  
 \**Matricaria matricarioides* (Less.) Porter, 1994–C, **Our,rc**—common  
*Nothocalais cuspidata* (Pursh) Greene, B[*Troximon cuspidatum* Pursh.], H[*Troximon cuspidatum* Pursh.], 1869–C, **Pdr,ms**—rare  
*Prenanthes alba* L., B[*Nabalus albus* Hook.], H, 1869–C, **T**—common  
*Prenanthes aspera* Michx., B[*Nabalus asper* Torr. & Gray], H, 1877–1906  
*Prenanthes racemosa* Michx., H, 1885–C, **Pwt**—infrequent  
 +*Ratibida columnifera* (Nutt.) Wootton & Standley, 1998–C, **Orw**—rare  
*Ratibida pinnata* (Vent.) Barnh., H[*Lepachys pinnata* (Vent.) Torr. & Gray], 1888–C, **Pdr,ms**—frequent  
*Rudbeckia hirta* L., B, H, 1897–C, **Twed**; **Pdr,ms**; **Orw**—frequent  
*Rudbeckia laciniata* L., B, H, 1920–C, **Twf**—frequent  
*Rudbeckia subtomentosa* Pursh, H, 1897–C, **Pms,wt**—rare  
*Rudbeckia triloba* L., B, H, 1896–C, **Twf,ed**; **Wrp**—frequent  
*Senecio aureus* L., B, H  
*Senecio pauperculus* Michx., 1873–1907  
*Senecio plattensis* Nutt., 1897–C, **Ted**; **P**—infrequent  
*Senecio pseudoreus* Rydb. var. *semicordatus* (Mack. & Bush) T. Bar-  
 kley, 1884–C, **Pwt**—rare  
 \**Senecio vulgaris* L., 1998–C, **Wrp**; **Our,cr**—infrequent  
*Silphium integrifolium* Michx., 2000–C, **Pwt**—rare  
*Silphium laciniatum* L., B, H, 1895–C, **Pms,wt**—frequent  
*Silphium perfoliatum* L., B, H, 1897–C, **Pms,wt**; **Wrp**—frequent  
*Solidago canadensis* L., B, H[=; S. *canadensis* L. var. *procera* (Ait.) Torr. & Gray], 1874–C, **P**; **O**—common

- Solidago flexicaulis* L., B[*S. latifolia* L.], H[*S. latifolia* L.], 1876–C, Tdf,mf—infrequent  
*Solidago gigantea* Aiton, H[*S. serotina* Ait.; *S. serotina* Ait. var. *gigantea* (Ait.) Gray], 1876–C, P; O—common  
*Solidago missouriensis* Nutt., B, H, 1869–C, Pdr—rare  
*Solidago nemoralis* Aiton, H, 1895–C, Twd; Pdr—frequent  
*Solidago riddellii* Frank ex Riddell, B, H, 1896–C, Pwt—rare  
*Solidago rigida* L., B, H, 1876–C, Pdr,ms—frequent  
*Solidago speciosa* Nutt., H[*S. speciosa* Nutt. var. *angustata* Torr. & Gray], 1878–C, Pdr—rare  
*Solidago ulmifolia* Muhl. ex Willd., B, H, 1869–C, Tmf—frequent  
*\*Sonchus arvensis* L., 1928–C, Orw—infrequent  
*\*Sonchus asper* (L.) Hill, H, 1885–C, Our,rw—frequent  
*\*Sonchus oleraceus* L., H, 1890–C, Our,rw—frequent  
*\*Tanacetum vulgare* L., H, 1924–C, Our,rc—rare  
*\*Taraxacum laevigatum* (Willd.) DC., 1918–C, Twd; Our,ps—infrequent  
*\*Taraxacum officinale* Weber, B[*T. dens-leonis* Desf.], H, 1873–C, O—common  
*\*Tragopogon dubius* Scop., 1928–C, Our,rw—frequent  
*\*Tragopogon pratensis* L., 1921–1921  
*Verbesina alternifolia* (L.) Britton, B[*Actinomeris squarrosa* Nutt.], H[*Actinomeris alternifolia* (L.) DC.], 1896–C, Twf,wd—rare  
*Vernonia baldwinii* Torrey, 2000–C, Pdr—rare  
*Vernonia fasciculata* Michx., B, H, 1895–C, Pwt—infrequent  
*\*Xanthium strumarium* L., B, H[X. *canadense* Mill.], 1871–C, Wrp; O—common

## BALSAMINACEAE

- Impatiens capensis* Meerb., B[*I. fulva* Nutt.], H[*I. biflora* Walt.], 1896–C, Twf; Wrp,sp—common  
*Impatiens pallida* Nutt., H[*I. aurea* Muhl.], 1907–C, Twf; Wrp,sp—frequent

## BERBERIDACEAE

- \*Berberis thunbergii* DC., 2000–C, Tdf,wd; Ops—frequent  
*\*Berberis vulgaris* L., 1922–1923  
*Caulophyllum thalictroides* (L.) Michx., B, H, 1890–C, Tmf—rare  
*Podophyllum peltatum* L., B, H, 1881–C, Tmf,wf—frequent

## BETULACEAE

- Corylus americana* Walter, B, H, 1893–C, Tdr,wd,ed; Orw—infrequent  
*Ostrya virginiana* (P. Miller) K. Koch, B[*O. virginica* Willd.], H, 1891–C, T—common

## BIGNONIACEAE

- \*Campsis radicans* (L.) Seem. ex Bureau, 1968–C, Ted—rare  
*\*Catalpa speciosa* Warder, 1905–C, Twf—infrequent

## BORAGINACEAE

- \*Cynoglossum officinale* L., B[*C. morissoni* DC.], 1897–C, Twd—rare  
*Hackelia virginiana* (L.) I.M. Johnston, H[*Echinosperrum virginianum* (L.) Lehm.], 1894–C, T—common  
*\*Lappula echinata* Gilib., B[*Echinosperrum lappula* Lehm.], H[*Echinosperrum lappula* (L.) Lehm.], 1895–C, Orw,rc—infrequent  
*Lithosperrum canescens* (Michx.) Lehm., B, H, 1881–C, Pdr,ms—infrequent  
*Lithosperrum incisum* Lehm., B[*L. longiflorum* Spreng.], H[*L. angustifolium* Michx.], 1881–C, Twd; Pdr—rare  
*Lithosperrum latifolium* Michx., B, H  
*Mertensia virginica* (L.) Pers. ex Link, B[*M. virginica* DC.], H, 1881–C, Tmf,wf—frequent

- Onosmodium molle* Michx. var. *bispidissimum* (Mack.) Cronq., B[*O. carolinianum* DC.], H[*O. carolinianum* (Lam.) DC.], 1895–C, Pdr—infrequent

## BRASSICACEAE

- \*Alliaria petiolata* (Bieb.) Cavara & Grande, 1998–C, Tdf,mf,wf—infrequent  
*\*Alyssum alyssoides* (L.) L., H[*A. calycinum* L.], 1999–C, Orc—rare  
*\*Arabidopsis thaliana* (L.) Heynh., 2000–C, Our—rare  
*Arabis canadensis* L., H, 1998–C, Tdf,ed—infrequent  
*Arabis glabra* (L.) Bernh., 1999–C, Ops—rare  
*Arabis hirsuta* (L.) Scop., H, 1897–C, Tmf; Orc,ps—infrequent  
*Arabis laevigata* (Muhl. ex Willd.) Poirer, 1903–1903  
*Arabis shortii* (Fern.) Gl., H[*A. dentata* Torr. & Gray], 1895–C, Tmf,wf—infrequent  
*\*Armoracia rusticana* (Lam.) Gaertner, Meyer & Schreber, H[*Nasturtium armoracia* (L.) Fries], 1897–C, Ted—rare  
*\*Barbarea vulgaris* R. Br., H, 1890–C, Twf; Wrp; Orw,cr,of—common  
*\*Berteroa incana* (L.) DC., 1927–C, Orw—infrequent  
*\*Brassica campestris* L., 1924–C, O—infrequent  
*\*Brassica juncea* (L.) Czern., 1904–C, Orw—frequent  
*\*Brassica nigra* (L.) W.D.J. Koch, B, H, 1891–C, O—common  
*\*Camelina microcarpa* Andr. ex DC., 1962–C, Orc—rare  
*\*Camelina sativa* (L.) Crantz, B, H  
*\*Capsella bursa-pastoris* (L.) Medicus, B, H, 1892–C, O—common  
*Cardamine bulbosa* (Schreber) BSP, B[*C. rhomboidea* DC.], H, 1887–C, Wrp,sp—infrequent  
*\*Cardamine flexuosa* With., 1998–C, Our—rare  
*Cardamine pensylvanica* Muhl. ex Willd., H[*C. flexuosa* With.], 1897–C, Wrp,sp—rare  
*\*Cardaria draba* (L.) Desv., 1927–C, Our—rare  
*\*Chorispora tenella* (Pallas) DC., 1975–C, Our—rare  
*\*Conringia orientalis* (L.) Dum., 1911–1954  
*Dentaria laciniata* Muhl. ex Willd., B, H, 1887–C, Tmf,wf—frequent  
*Descurainia pinnata* (Walter) Britton var. *brachycarpa* (Richardson) Fern., H[*Sisymbrium canescens* Nutt.], 1897–C, Our,rc—frequent  
*\*Descurainia sophia* (L.) Webb ex Prantl, 1999–C, Orc—rare  
*Draba reptans* (Lam.) Fern., B[*D. caroliniana* Walt.], H[*D. caroliniana* Walt.], 1892–1937  
*\*Erysimum cheiranthoides* L., B, H, 1897–C, Orc—infrequent  
*\*Erysimum diffusum* Ehrh., 1999–C, Orc—rare  
*\*Erysimum hieracifolium* L., 1999–C, Orw,rc—rare  
*\*Erysimum repandum* L., 1940–C, Our—frequent  
*\*Hesperis matronalis* L., H, 1962–C, Twf,wd,ed; Orw—frequent  
*Iodanthus pinnatifidus* (Michx.) Steudel, H[*Thelypodium pinnatifidum* (Mich.) Wats.], 1895–C, Twf—rare  
*\*Lepidium campestre* (L.) R. Br., 1943–C, O—infrequent  
*Lepidium densiflorum* Schrader, H[*L. intermedium* Gray], 1891–C, O—common  
*\*Lepidium perfoliatum* L., 1950–1958  
*Lepidium virginicum* L., B, H, 1912–C, O—common  
*\*Nasturtium officinale* R. Br., H, 1998–C, Wrp—rare  
*\*Rorippa austriaca* (Crantz) Besser, 1951–C, Twd—rare  
*Rorippa palustris* (L.) Besser, H[*Nasturtium palustre* (Leys.) DC.], 1897–C, Pwt; Wrp,md—common  
*Rorippa sessiliflora* (Nutt.) A.S. Hitchc., H[*Nasturtium sessiliflorum* Nutt.], 2000–C, Wrp—rare  
*\*Rorippa sylvestris* (L.) Besser, 1926–1926  
*\*Sibara virginica* (L.) Roll., 2000–C, Wrp—rare  
*\*Sinapis alba* L., H[*Brassica alba* (L.) Boiss.]

- \**Sinapis arvensis* L., B, H[*Brassica sinapistrum* Boiss.], 1893–C, **Our**—rare  
 \**Sisymbrium altissimum* L., 1898–C, **Our,rw**—frequent  
 \**Sisymbrium loeselii* L., 1976–C, **Our,rw**—infrequent  
 \**Sisymbrium officinale* (L.) Scop., B, H, 1897–C, **Our,rw**—frequent  
 \**Thlaspi arvensis* L., 1909–C, **Our,rc,cr**—common

## CAMPANULACEAE

- Campanula americana* L., B, H, 1888–C, **T; Wrp**—common  
*Campanula aparinoides* Pursh, B, H, 1896–C, **Pwt; Wsp**—rare  
 \**Campanula rapunculoides* L., 1958–C, **Ted; Our,rw**—infrequent  
*Lobelia cardinalis* L., B, H, 1888–1913  
*Lobelia inflata* L., H, 1896–C, **Twd,ed**—frequent  
*Lobelia siphilitica* L., B, H, 1881–C, **Twf,es,ed; Pwt; Wrp; Orw**—common  
*Lobelia spicata* Lam., B, H[*L. spicata* Lam. var. *hirtella* Gray], 1942–C, **Twd; Pdr,ms**—infrequent  
*Triodanis perfoliata* (L.) Nieuw., B[*Specularia perfoliata* A. DC.], H[*Specularia perfoliata* (L.) A. DC.], 1897–C, **Orc,cr,of**—frequent

## CAPPARIDACEAE

- \**Cleome hassleriana* Chodat, 2000–C, **Wrp**—rare  
*Polanisia dodecandra* (L.) DC., B[P. *graveolens* Raf.], H, 1892–1962

## CAPRIFOLIACEAE

- \**Lonicera × bella* Zabel, 1998–C, **Ted**—infrequent  
*Lonicera dioica* L. var. *glaucescens* (Rydb.) Butters, B[*L. parviflora* Lam. var. *douglasii*], H[*L. glauca* Hill], 1881–C, **Tmf,df,wd**—infrequent  
 \**Lonicera maackii* (Rupr.) Herder, 1993–C, **T; Our,rw**—common  
 \**Lonicera tatarica* L., 1891–C, **T; Our,rw**—common  
*Sambucus canadensis* L., B, H, 1897–C, **Twf,ed; Orw**—common  
*Symphoricarpos occidentalis* Moench, H, 1998–C, **Pms; Orw**—infrequent  
*Symphoricarpos orbiculatus* Moench, H[*S. vulgaris* Michx.], 1998–C, **Tmf,wd; Oof**—rare  
*Triosteum perfoliatum* L., B, H, 1881–C, **Tdf,wd**—infrequent  
 \**Viburnum lantana* L., 1998–C, **Tmf,wf; Our**—rare  
*Viburnum lentago* L., B, H, 1881–C, **Tdf,mf,ed; Our,rw**—infrequent  
 \**Viburnum opulus* L., 1993–C, **Tmf,wf; Our**—infrequent  
*Viburnum rafinesquianum* Schultes, B[V. *pubescens* Pursh], H[V. *pubescens* Pursh], 1895–C, **Tmf**—infrequent

## CARYOPHYLLACEAE

- \**Agrostemma githago* L., B[*Lychnis githago* Lam.], H[*Lychnis githago* (L.) Lam.], 1895–1895  
 \**Arenaria serpyllifolia* L., 2000–C, **Wrp**—rare  
 \**Cerastium glomeratum* Thuill., B[*Cerastium viscosum* L.]  
*Cerastium nutans* Raf., 1897–C, **Orc**—rare  
 \**Cerastium vulgatum* L., 1924–C, **Our,rw,ps**—common  
 \**Dianthus armeria* L., 2000–C, **Pdr**—infrequent  
 \**Holosteum umbellatum* L., 1999–C, **Our**—rare  
 \**Myosoton aquaticum* (L.) Moench, 1998–C, **Our**—rare  
*Paronychia canadensis* (L.) Wood, H[*Anychia canadensis* (L.) B.S.P.], 1892–C, **Tdf**—rare  
 \**Sagina procumbens* L., 2000–C, **Wrp**—rare  
 \**Saponaria officinalis* L., H, 1961–C, **Orw**—common  
*Silene antirrhina* L., B, H, 1894–C, **Orc**—infrequent  
 \**Silene cserei* Baumg., 1962–C, **Orw,rc**—infrequent  
 \**Silene dichotoma* Ehrh., 1907–1907  
*Silene nivea* (Nutt.) Orth, H, 1897–C, **Twf; Wsp**—rare  
 \**Silene noctiflora* L., 1890–C, **Orc**—infrequent

- \**Silene pratensis* (Raf.) Gren. & Godrun, 1892–C, **O**—common  
*Silene stellata* (L.) Aiton, B, H, 1879–C, **Tmf,wf,ed; Wrp**—infrequent  
 \**Silene vulgaris* (Moench) Garcke, 1897–C, **Oof**—rare  
 \**Spergula arvensis* L., B  
 \**Spergularia marina* (L.) Griseb., 1999–C, **Our**—rare  
*Stellaria longifolia* Muhl. ex Willd., H  
 \**Stellaria media* (L.) Vill., H, 1895–C, **Our**—common  
 \**Vaccaria pyramidata* Medicus, H[*Saponaria vaccaria* L.], 1895–1928

## CELASTRACEAE

- Celastrus scandens* L., B, H, 1897–C, **Tmf,wf,ed; Orw**—frequent  
 \**Euonymus alatus* (Thunb.) Sieb., 1999–C, **Tmf,wd,ed**—rare  
*Euonymus atropurpureus* Jacq., B, H, 1891–C, **Twf,ed; Orw**—infrequent

## CERATOPHYLLACEAE

- Ceratophyllum demersum* L., H, 1998–C, **Wsz**—frequent

## CHENOPODIACEAE

- Atriplex patula* L., 1907–C, **Wrp; Our,cr**—infrequent  
 \**Bassia hyssopifolia* (Pallas) Kuntze, 1998–C, **Orc**—rare  
 \**Chenopodium album* L., B, H, 1888–C, **O**—common  
*Chenopodium berlandieri* Moq., 1897–C, **Twf; Our**—common  
 \**Chenopodium botrys* L., H, 1892–1895  
 \**Chenopodium bushianum* Aellen, 1961–C, **Twf**—rare  
*Chenopodium desiccatum* A. Nelson, 1942–1942  
*Chenopodium foggii* H.A. Wahl, 1897–1907  
 \**Chenopodium glaucum* L., 1999–C, **Orc**—rare  
*Chenopodium hybridum* L., B, H, 1895–C, **Twf; Wrp**—frequent  
*Chenopodium missouriensis* Aellen, 1898–1898  
*Chenopodium rubrum* L., 1960–1960  
*Chenopodium standleyanum* Aellen, B[C. *album* L. var. *boscianum* Gr.], H[C. *boscianum* Moq.], 1896–C, **Twf,ed; Our**—frequent  
 \**Chenopodium urticum* L., H, 1894–1894  
*Cycloloma atriplicifolium* (Sprengel) Coulter, 1892–1942  
 \**Kochia scoparia* (L.) Schrader, 1927–C, **Orw,rc**—infrequent  
 \**Monolepis nuttalliana* (Roemer & Schultes) Greene, 1917–1917  
 \**Salsola collina* Pallas, 1959–C, **Orw,rc**—frequent  
 \**Salsola iberica* Sennen & Pau, 1904–C, **Orw,rc**—rare

## CISTACEAE

- Helianthemum bicknellii* Fern., H, 1897–C, **Tmf,wd; Pdr**—rare

## CONVOLVULACEAE

- Calystegia sepium* (L.) R. Br., B, H[*Convolvulus sepium* L.], 1881–C, **Our,rw**—common  
 \**Convolvulus arvensis* L., H, 1895–C, **Our,rw**—common  
*Cuscuta cephalanthii* Engelm., H, 1999–C, **Oof**—rare  
*Cuscuta coryli* Engelm., H  
*Cuscuta glomerata* Choisy, B, H, 1888–1942  
*Cuscuta gronovii* Willd., B, H  
*Cuscuta pentagona* Engelm., 1909–C, **Twf**—infrequent  
 \**Ipomoea hederacea* (L.) Jacq., 1998–C, **Ted; Oof**—rare

## CORNACEAE

- Cornus alternifolia* L.f., H, 1896–C, **Tmf,wf**—frequent  
*Cornus amomum* P. Miller ssp. *obliqua* (Raf.) J.S. Wilson, B[C. *sericea* L.], H[C. *sericea* L.], 1892–C, **Ted; Wrp; Orw**—frequent  
*Cornus drummondii* C.A. Meyer, H[C. *asperifolia* Michx.], 1914–C, **Ted; Orw,of**—frequent  
*Cornus foemina* P. Miller ssp. *racemosa* (Lam.) J.S. Wilson, B[C.

- paniculata* L'Her.], H[*C. candidissima* Marsh.], 1894–C, **Ted**—frequent  
*Cornus rugosa* Lam., B[*C. circinata* L'Her.], H[*C. circinata* L'Her.]  
 +*Cornus stolonifera* Michx., 2000–C, **Oof**—rare
- CRASSULACEAE**  
 \**Sedum kamtschaticum* Fisch. & C.A. Meyer, 1999–C, **Orw**—rare
- CUCURBITACEAE**  
*Echinocystis lobata* (Michx.) T. & G., B, H[*E. echinata* (Muhl.) B.S.P.], 1885–C, **Twf**—rare  
*Sicyos angulatus* L., B, 1902–C, **Twf**—infrequent
- ELAEAGNACEAE**  
 \**Elaeagnus angustifolia* L., 1951–C, **Our**—rare  
 \**Elaeagnus umbellata* Thunb., 1891–C, **Twd,ed**; **Orw,of**—frequent
- ERICACEAE**  
*Monotropa uniflora* L., B, H, 1889–C, **Tdf,mf**—infrequent
- EUPHORBIACEAE**  
*Acalypha rhomboidea* Raf., 1884–C, **Wrp**; **Our**—common  
*Acalypha virginica* L., B, H, 1933–C, **Twd**—rare  
*Croton glandulosus* L. var. *septentrionalis* Mueller-Arg., 2000–C, **Pdr**—rare  
*Euphorbia corollata* L., B, H, 1880–C, **P**; **Orw,rc**—frequent  
*Euphorbia cyathophora* Murray, H[*E. heterophylla* L.], 1933–C, **Orc,of**—infrequent  
 \**Euphorbia cyparissias* L., H, 1891–C, **Orc**—rare  
*Euphorbia dentata* Michx., 1928–C, **O**—frequent  
 \**Euphorbia esula* L., 1907–C, **Pdr**—rare  
*Euphorbia glyptosperma* Engelm., H, 1897–C, **Twd**; **Our**—infrequent  
*Euphorbia maculata* L., B[=; *E. hypericifolia* L.], H[=; *E. hypericifolia* L.], 1907–C, **Our,rw,cr**—common  
*Euphorbia marginata* Pursh, H, 1956–1956  
*Euphorbia missurica* Raf., H[*E. petaloidea* Engelm.], n.d.—n.d.  
*Euphorbia nutans* Lag., 1888–C, **Our,rw,cr**—common  
*Euphorbia serpens* HBK., 1998–C, **Our,cr**—frequent  
 \**Euphorbia serpyllifolia* Pers., B
- FABACEAE**  
*Amorpha canescens* Pursh, B, H, 1897–C, **Twd**; **Pdr,ms**—infrequent  
*Amorpha fruticosa* L., B, H, 1881–C, **Twf**—infrequent  
*Amphicarpaea bracteata* (L.) Fern., H[*A. comosa* (L.) Riddell], 1897–C, **Twf**—frequent  
*Apios americana* Medicus, B[*A. tuberosa* Moench], H[*A. tuberosa* Moench], 1896–C, **Twf,ed**—infrequent  
*Astragalus canadensis* L., B, H, 1913–C, **Twf,ed**—infrequent  
*Astragalus crassiscarpus* Nutt., B[*A. caryocarpus* Ker.], H[*A. caryocarpus* Ker.], 1884–C, **Pdr,ms**—infrequent  
*Baptisia bracteata* Muhl. ex Ell. var. *glabrescens* (Larisey) Isely, B[*B. leucophaea* Nutt.], H[*B. leucophaea* Nutt.], 1881–C, **Pdr,ms**—infrequent  
*Baptisia lactea* (Raf.) Thieret, B[*B. leucantha* Torr. & Gray], H[*B. leucantha* Torr. & Gray], 1897–C, **Pdr,ms**—infrequent  
*Cassia marilandica* L., 1998–C, **Twf,ed**—rare  
 +*Cercis canadensis* L., 2000–C, **Ted**; **Our**—infrequent  
*Chamaecrista fasciculata* (Michx.) Greene, B[*Cassia chaemaecrista* L.], H[*Cassia chaemaecrista* L.], 1895–C, **Twd,ed**; **Pdr**; **Orw**—frequent  
 \**Coronilla varia* L., 1994–C, **Pdr,ms**; **Orw**—frequent
- Crotalaria sagittalis* L., 1998–C, **Ted**—rare  
*Dalea candida* Willd., B[*Petalostemon candidus* Michx.], H[*Petalostemon candidus* (Willd.) Michx.], 1880–C, **Pdr,ms**—infrequent  
*Dalea leporina* (Aiton) Bullock, H[*D. alopecuroides* Willd.], 1890–1890  
*Dalea purpurea* Vent., B[*Petalostemon violaceus* Michx.], H[*Petalostemon violaceus* (Willd.) Michx.], 1880–C, **Pdr,ms**—frequent  
*Dalea villosa* (Nutt.) Sprengel, H[*Petalostemon villosus* Nutt.]  
*Desmodium canadense* (L.) DC., B, H, 1888–C, **Pdr**—frequent  
*Desmodium cuspidatum* (Muhl. ex Willd.) Louden, 1881–1961  
*Desmodium glutinosum* (Muhl. ex Willd.) Wood, B[*D. acuminatum* DC.], H[*D. grandiflorum* (Walt.) DC.], 1897–C, **Tdf,mf,wd**—infrequent  
*Desmodium illinoense* Gray, H, 1907–C, **Pdr,ms**—infrequent  
*Desmodium paniculatum* (L.) DC., H[*D. dillenii* Darl.]  
*Desmodium sessilifolium* (Torr.) T. & G., B, H  
*Gleditsia triacanthos* L., B, H, 1914–C, **Twf,wd,ed**; **Our,rw,of,ps**—common  
*Glycyrrhiza lepidota* Pursh, H, 1898–C, **Orw**—rare  
*Gymnocladus dioica* (L.) K. Koch, B[*G. canadensis* Lam.], H, 1906–C, **Tmf,wf**—infrequent  
 \**Lathyrus latifolius* L., 1948–C, **Twf**—rare  
*Lathyrus ochroleucus* Hooker, 1949–1949  
*Lathyrus palustris* L., B, H, 1897–C, **Pwt**; **Orw**—infrequent  
*Lathyrus venosus* Muhl. ex Willd., H, 1896–1907  
*Lespedeza capitata* Michx., H[*L. frutescens* (Willd.) Ell.], 1896–C, **Twd**; **Pdr,ms**—frequent  
*Lespedeza leptostachya* Engelm., H, photo, C, **Pdr**—rare  
 \**Lotus corniculatus* L., 1876–C, **Pdr,ms**; **O**—common  
*Lotus purshianus* Clem. & Clem., 1897–1897  
 \**Medicago lupulina* L., B, H, 1898–C, **O**—common  
 \**Medicago sativa* L., H, 1882–C, **Oof,rw**—frequent  
 \**Melilotus alba* Medicus, H, 1904–C, **Pdr**; **O**—common  
 \**Melilotus officinalis* (L.) Pallas, H, 1895–C, **Pdr**; **O**—common  
*Pedimelum argophyllum* (Pursh) Grimes, H[*Psoralea argophylla* Pursh], 1894–C, **Pdr,ms**—rare  
 \**Robinia pseudo-acacia* L., H, 1961–C, **Twf,ed**; **Our,rw**—infrequent  
*Strophostyles helvula* (L.) Ell., H[*S. angulosa* (Ort.) Ell.], 1891–C, **Orc**—rare  
 \**Trifolium arvense* L., B, H  
 \**Trifolium aureum* L., H[*T. agrarium* L.]  
 \**Trifolium campestre* Schreber, B[*T. procumbens* L.], H[*T. procumbens* L.], 1880–C, **Twd**—infrequent  
 \**Trifolium hybridum* L., 1895–C, **Our**—frequent  
 \**Trifolium pratense* L., H, 1880–C, **O**—common  
 \**Trifolium repens* L., H, 1892–C, **O**—common  
*Vicia americana* Muhl. ex Willd., B, H, 1881–C, **Pwt**; **Orw**—frequent  
 \**Vicia sativa* L. var. *nigra* L., 1963–1963  
 \**Vicia villosa* Roth, 1890–C, **Orc,of**—rare
- FAGACEAE**  
*Quercus alba* L., B, H, 1873–C, **Tdf,wd**—common  
*Quercus borealis* Michx.f. var. *maxima* (Marsh.) Ashe, H[*Q. rubra* L.], 1873–C, **Tdf,mf**—common  
*Quercus macrocarpa* Michx., B, H, 1873–C, **T**; **Ops**—common  
*Quercus velutina* Lam., H[*Q. coccinea* Wang.], 2000–C, **Tdf,ed**—infrequent



## GENTIANACEAE

- \**Centaurium pulchellum* (Schwartz) Druce, 1999–C, **Our**—rare  
*Gentiana alba* Muhl., B, H[G. *flavida* Gray], 1899–C, **Tdf,wd**—infrequent  
*Gentiana andrewsii* Griseb., B, H, 1899–C, **Tes**; **Pwt**—infrequent  
*Gentiana* × *billingtonii* Farw., B[G. *saponaria* L.]  
*Gentiana puberulenta* J. Pringle, B[G. *puberula* Michx.], H[G. *puberula* Michx.], 1898–C, **Pdr,ms**—rare  
*Gentianopsis crinita* (Froelich) Ma., B[Gentiana *crinita* Froel.], H  
*Gentianella quinquefolia* (L.) Small ssp. *occidentalis* (A. Gray) J. Gillett, B[Gentiana *quinqueflora* Lam.], H[Gentiana *quinquefolia* L. var. *occidentalis*], 1902–C, **Tes**; **Pms,wt**—rare

## GERANIACEAE

- \**Erodium cicutarium* (L.) L'Her. 1914–1914  
*Geranium carolinianum* L., 1929–C, **Our**—rare  
*Geranium maculatum* L., B, H, 1881–C, **Tmf,wf**—common  
*Geranium pusillum* L., 1929–1929  
*Geranium sibiricum* L., 1979–C, **Twf**; **Our,rw**—rare

## HALORAGIDACEAE

- Proserpinaca palustris* L., B, H

## HIPPOCASTANACEAE

- Aesculus glabra* Willd., 2000–C, **Twf**—rare

## HYDROPHYLLACEAE

- Ellisia nyctelea* L., B[E. *ambigua* Nutt.], H, 1887–C, **Twf**;  
**Our,rw**—frequent  
*Hydrophyllum virginianum* L., B, H, 1881–C, **Tmf,wf**—common

## HYPERICACEAE

- Hypericum majus* (Gray) Britton, H[H. *canadense* L. var. *majus* Gray], 2000–C, **Ted**—rare  
\**Hypericum perforatum* L., 1942–C, **Pwt**; **Orw,rc,of**—infrequent  
*Hypericum prolificum* (Spach) Steudel, 1989–C, **Twd**—rare  
*Hypericum punctatum* Lam., H[H. *maculatum* Walt.], 1951–C, **Tmf,wd**—infrequent  
*Hypericum pyramidatum* Aiton, B, H[H. *ascyron* L.], 1894–C, **Ted**;  
**Pdr**—infrequent

## JUGLANDACEAE

- Carya cordiformis* (Wang.) K. Koch, B[C. *amara* Nutt.], H[Hicoria *minima* (Marsh.) Britt.], 1901–C, **Tmf,wf**—common  
*Carya ovata* (P. Miller) K. Koch, B[C. *alba* Nutt.], H[Hicoria *ovata* (Mill.) Britt.], 1897–C, **Tdr,mf,wd**—common  
*Juglans cinerea* L., B, H, 1883–C, **Tmf,wf**—infrequent  
*Juglans nigra* L., B, H, 1897–C, **Tmf,wf**; **Our,rw**—common

## LAMIACEAE

- Agastache foeniculum* (Pursh) Kuntze, 1948–1948  
*Agastache nepetoides* (L.) Kuntze, H[Lophanthus *nepetoides* (L.) Benth.], 1897–C, **Twf**—frequent  
*Agastache scrophulariifolia* (Willd.) Kuntze, B[Lophanthus *scrophulariaefolius* Benth.], H[Lophanthus *scrophulariaefolius* (Willd.) Benth.], 1884–C, **Twd,ed**—rare  
\**Ajuga reptans* L., 1999–C, **Twd**—rare  
*Blephilia hirsuta* Benth., B  
*Dracocephalum parviflorum* Nutt., 1914–C, **Orc**—rare  
\**Glechoma hederacea* L., H[Nepeta *hederacea* (L.) B.S.P.], 1919–C, **Twf**; **Wrp**; **O**—common  
*Hedeoma hispidum* Pursh, H, 1907–C, **Twd**; **Orc**—frequent  
*Hedeoma pulegioides* (L.) Pers., H, 1889–C, **Tdf,wd**—rare  
\**Lamium amplexicaule* L., 1998–C, **Our,rw**—infrequent

- \**Leonurus cardiaca* L., H, 1895–C, **Twf,ed**; **Wrp**—common  
*Lycopus americanus* Muhl. ex Barton, B[L. *europaeus* L. var. *sinuatus* Gr.], H[L. *sinuatus* Ell.], 1889–C, **Pwt**; **Wrp**; **Orw**—frequent  
*Lycopus* × *sberardii* Steele, 1999–C, **Wrp**—rare  
*Lycopus uniflorus* Michx., 1889–C, **Pwt**—rare  
*Lycopus virginicus* L., H[=; L. *rubellus* Moench (ISC specimen misidentified)], 1907–C, **Pwt**—frequent  
*Mentha arvensis* L., B[M. *canadensis* L.], H[M. *canadensis* L.; M. *canadensis* L. var. *borealis* (Michx.) Wood], 1917–C, **Pwt**;  
**Wrp**—frequent  
*Monarda fistulosa* L., B, H, 1881–C, **P**—common  
\**Nepeta cataria* L., B, H, 1881–C, **O**—common  
\**Perilla frutescens* (L.) Britton, C, **Ops**—rare  
*Physostegia parviflora* Nutt. ex Gray, 1907–C, **Wrp,md**—infrequent  
*Physostegia virginiana* (L.) Benth., B, H, 1999–C, **Wrp**—rare  
\**Prunella vulgaris* L., B[Brunella *vulgaris* L.], H[Brunella *vulgaris* L.], 1888–C, **T**; **O**—frequent  
*Prunella vulgaris* L. var. *lanceolata* (Bartram) Fern., 1897–C, **Twf**—rare  
*Pycnanthemum virginianum* (L.) Dur. & Jackson, B[P. *lanceolatum* Pursh], H, 1881–C, **Pms,wt**—frequent  
\**Salvia nemorosa* L., 1999–C, **Ocr**—rare  
*Salvia reflexa* Hornem., H[S. *lanceolata* Willd.], 1895–C, **Orc**—rare  
*Scutellaria galericulata* L., H, 1897–1942  
*Scutellaria lateriflora* L., B, H, 1961–C, **Pwt**; **Wrp**—frequent  
*Scutellaria leonardii* Epling, B[S. *parvula* Michx.], H[S. *parvula* Michx.], 1895–C, **Pdr,ms**; **Ops**—infrequent  
*Stachys palustris* L., H, 1894–95–C, **Pms,wt**; **Wrp**—frequent  
*Stachys tenuifolia* Willd., H[S. *aspera* Michx.; S. *aspera* Michx. var. *tenuifolia* (Willd.)], 1907–C, **Twf**—frequent  
*Teucrium canadense* L., B, H, 1896–C, **Twd,ed**—frequent  
*Teucrium canadense* L. var. *boreale* (Bickn.) Shinn., 1897–C, **Twd,ed**—frequent

## LENTIBULARIACEAE

- Utricularia vulgaris* L., H, 1999–C, **Wsz,md**—infrequent

## LINACEAE

- Linum sulcatum* Riddell, B, H, 1894–C, **Pdr**; **Ops**—rare

## LYTHRACEAE

- Ammania coccinea* Rottb., H, 1999–C, **Wmd**; **Ocr**—frequent  
*Lythrum alatum* Pursh, B, H, 1895–C, **Pms,wt**—frequent  
\**Lythrum salicaria* L., 1998–C, **Pwt**—rare

## MALVACEAE

- \**Alcea rosea* L., 1927–C, **Our**—rare  
\**Abutilon theophrasti* Medicus, B[A. *avicennae* Gaertn.], H[A. *avicennae* Gaertn.], 1881–C, **O**—common  
*Callirhoe involucrata* (Nutt. ex T. & G.) Gray, 1890–1969  
*Hibiscus laevis* All., 1940–C, **Wmd**—rare  
\**Hibiscus trionum* L., H, 1881–C, **O**—frequent  
\**Malva neglecta* Wallr., 1895–C, **Our,rc,cr**—frequent  
\**Malva rotundifolia* L., B, H, 1907–C, **Our**—infrequent  
\**Malva sylvestris* L., B, H, 1881–1881  
+ *Napaea dioica* L., 1998–C, **Twf**—rare  
\**Sida spinosa* L., 1998–C, **Our,cr**—rare

## MENISPERMACEAE

- Menispermum canadense* L., B, H, 1907–C, **Tmf,wf,ed**—rare

## MORACEAE

- \**Cannabis sativa* L., B, H, 1881–C, O—frequent  
 \**Humulus japonicus* Sieb., 1944–C, Ted—rare  
*Humulus lupulus* L., B, H, 1881–C, Twd,ed—frequent  
 \**Maclura pomifera* (Raf. ex Sarg.) Schneider, 2000–C, Twf—rare  
 \**Morus alba* L., 1960–C, Twf,ed; Our,rw,ps—common  
*Morus rubra* L., B, H, 1895–C, Tmf,wf—infrequent

## NYCTAGINACEAE

- Mirabilis albida* (Walter) Heimerl, 1992–C, Ted; Pdr—rare  
*Mirabilis hirsuta* (Pursh) MacM., 1892–C, Ted; Pdr—rare  
*Mirabilis nyctaginea* (Michx.) MacM., H[*Oxybaphus nyctagineus* (Michx.) Sweet], 1897–C, O—common

## NYMPHAEACEAE

- Nymphaea tuberosa* Paine, B[N. *odorata* Ait.]  
*Nuphar luteum* (L.) Smith, B[N. *advena* Ait.]

## OLEACEAE

- Fraxinus americana* L., B, H, 1924–C, Tdf,mf—frequent  
*Fraxinus nigra* Marsh, H[F. *sambucifolia* Lam.], 1914–C, Tmf,wf—infrequent  
*Fraxinus pennsylvanica* Marsh., H[F. *viridis* Michx.f. var. *pubescens*], 2000–C, Twf—rare  
*Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., H[F. *viridis* Michx.f.], 1896–C, Tmf,wf; Our,rw—common  
 \**Ligustrum obtusifolium* Siebold & Zucc., 1999–C, Ted—rare  
 \**Ligustrum vulgare* L., 1909–C, Wrp; Ops—rare

## ONAGRACEAE

- Calylophus serrulatus* (Nutt.) Raven, B[*Oenothera serrulata* Nutt.], H[*Oenothera serrulata* Nutt.], 1895–C, Pdr—rare  
*Circaea lutetiana* L. ssp. *canadensis* (L.) Ascherson & Magnus, B[C. *lutetiana* L.], H[C. *lutetiana* L.], 1895–C, Tmf,wf—common  
*Epilobium ciliatum* Raf., H[E. *adenocaulum* Haussku.]  
*Epilobium coloratum* Biehler, B, H, 1897–C, Tes; Pwt; Wrp—frequent  
*Epilobium leptophyllum* Raf., H[E. *lineare* Muhl.]  
*Gaura biennis* L., 1923–C, Orw—rare  
*Gaura parviflora* Douglas, 1892–1988  
*Ludwigia polycarpa* Short & Peter, B, H, 1897–1907  
*Oenothera laciniata* Hill, 1963–1963  
*Oenothera parviflora* L., 1999–C, Orc,of—infrequent  
*Oenothera rhombipetala* Nutt. ex T. & G., 1924–1924  
*Oenothera villosa* Thunb., B[O. *biennis* L.], H[O. *biennis* L.], 1881–C, O—common

## OROBANCHACEAE

- Orobanche uniflora* L., H[*Aphyllon uniflorum* (L.) Gray], n.d.[1800's]–n.d.

## OXALIDACEAE

- Oxalis dillenii* Jacq., 1897–C, Our—infrequent  
*Oxalis stricta* L., B, H[O. *corniculata* L.], 1881–C, O—common  
*Oxalis violacea* L., B, H, 1881–C, P—rare

## PAPAVERACEAE

- \**Cbelidonium majus* L., 1958–C, Twf—rare  
*Corydalis micrantha* (Engelm.) Gray, 1890–C, Orc—infrequent  
*Dicentra cucullaria* (L.) Bernh., B, H[*Dyclyptra cucullaria* (L.) DC.], 1881–C, Tmf—frequent  
 \**Fumaria officinalis* L., 1999–C, Orc—rare  
*Sanguinaria canadensis* L., B, H, 1881–C, Tmf—frequent

## PHRYMACEAE

- Phryma leptostachya* L., H, 1894–C, T—common

## PHYTOLACCACEAE

- Phytolacca americana* L., 1907–C, Our—rare

## PLANTAGINACEAE

- Plantago aristata* Michx., 1896–1968  
 \**Plantago lanceolata* L., B, H, 1890–C, Our,ps—common  
 \**Plantago major* L., B, H, 1961–C, Our—frequent  
*Plantago patagonica* Jacq., 1998–C, Orc—rare  
*Plantago rugelii* Dcne., H, 1909–C, Pdr,ms; O—common  
*Plantago virginica* L., 1924–1955

## PLATANACEAE

- Platanus occidentalis* L., B, H, 1897–C, Twf—frequent

## POLEMONIACEAE

- Phlox divaricata* L., B[P. *procumbens* Lehm.], H, 1881–C, Tmf,wf—common  
*Phlox maculata* L., H, 1907–1907  
 \**Phlox paniculata* L., 1909–C, Our,rw—rare  
*Phlox pilosa* L., B, H, 1881–C, P—frequent  
*Polemonium reptans* L., H, 1890–C, Tmf; Ops—infrequent

## POLYGALACEAE

- Polygala incarnata* L., B, H, 1907–1907  
*Polygala sanguinea* L., B, H, 1907–1907  
*Polygala senega* L., H, 1898–1898  
*Polygala verticillata* L., B, H, 1896–C, Twd,es; Pms—rare

## POLYGONACEAE

- Polygonum achoreum* Blake, 1998–C, Orw,cr—frequent  
*Polygonum amphibium* L. var. *emersum* Michx., B[P. *amphibium* L. var. *terrestre* Willd.], H[P. *amphibium* L.; P. *muhlenbergii* Wats.], 1897–C, Pwt; Wez—common  
*Polygonum amphibium* L. var. *stipulaceum* (Coleman) Fern., H[P. *hartwrightii* Gray], 1947–1947  
 \**Polygonum aviculare* L., B, H, 1897–C, O—common  
 \**Polygonum convolvulus* L., B, H, 1892–C, Ocr—frequent  
 \**Polygonum cuspidatum* Sieb. & Zucc., 1947–C, Twf,ed; Our—rare  
*Polygonum erectum* L., H, 1895–C, O—common  
*Polygonum hydropiper* L., B, H, 1888–C, Twf; Wrp,md—frequent  
*Polygonum lapathifolium* L., H[P. *lapathifolium* L. var. *incarnatum* (Ell.) Watson], 1877–C, Pwt; Wez,rp; Ocr—frequent  
 \**Polygonum orientale* L., B, H, 1902–1928  
*Polygonum pennsylvanicum* L. var. *laevigatum* Fern., B[P. *pennsylvanicum* L.], H[P. *pennsylvanicum* L.], 1903–C, Pwt; Wez,rp; Ocr—common  
 \**Polygonum persicaria* L., B, H, 1888–C, O—common  
*Polygonum punctatum* Ell., H[P. *acre* HBK.], 1907–C, Pwt; Wrp—frequent  
*Polygonum ramosissimum* Michx., B, H, 1902–C, Orc—rare  
*Polygonum scandens* L., H[P. *dumetorum* L. var. *scandens* (L.) Gray], 1890–C, Twf,ed; Our—common  
*Polygonum virginianum* L., B, H, 1897–C, Tmf,wf—common  
 \**Rumex acetosella* L., B, H, 1897–C, Our—frequent  
*Rumex altissimus* Wood, H, 1897–C, Pwt; Wez,rp; O—common  
 \**Rumex crispus* L., B, H, 1888–C, Pms,wt; Wez,rp,md; O—common  
*Rumex mexicanus* Meisner, 1904–C, Twf; Pwt—rare  
 \**Rumex obtusifolius* L., 1912–1912  
*Rumex orbiculatus* Gray, B[*Rumex brittanica* L.]  
 \**Rumex patientia* L., 1937–C, Ops—rare

\**Rumex stenophyllus* Ledeb., 1999-C, **Pwt**; **Oof**—infrequent  
*Rumex verticillatus* L., H, 1999-C, **Twf**—rare

## PORTULACACEAE

*Claytonia virginica* L., B, H, 1893-C, **Tmf,wf**—common  
 \**Portulaca oleracea* L., H, 1888-C, **Our**—common

## PRIMULACEAE

*Androsace occidentalis* L., 1998-C, **Our,rc**—rare  
*Lysimachia ciliata* L., B, H[*Steironema ciliatum* (L.) Raf.], 1988-C, **Twd,ed**; **Pms**; **Wrp**; **Orw,of**—frequent  
*Lysimachia hybrida* Michx., H[*Steironema lanceolatum* (Walt.) Gray var. *hybridum* (Michx.) Gray], 1907-C, **Oof**—rare  
 \**Lysimachia nummularia* L., 1892-C, **Twf**—rare  
*Lysimachia quadriflora* Sims, B[L. *longifolia* Pursh.], H[*Steironema quadriflorum* (Sims)], 1878-C, **Pms,wt**—infrequent  
*Lysimachia terrestris* (L.) BSP., 1907-1907  
*Lysimachia thyriflora* L., B, H, 1998-C, **Pwt**; **Wez**—rare

## RANUNCULACEAE

*Actaea pachypoda* Ell., B[A. *alba* Bigel.], H[A. *alba* (L.) Bigel.], 1881-1890  
*Actaea rubra* (Aiton) Willd., H[A. *spicata* L. var. *rubra* Ait.], 1907-C, **Tmf**—rare  
*Anemone canadensis* L., B[A. *pennsylvanica* L.], H[A. *pennsylvanica* L.], 1881-C, **Ted**; **Pwt**; **Orw**—common  
*Anemone caroliniana* Walter, B, H, 1894-1942  
*Anemone cylindrica* Gray, B, H, 1897-C, **Tw**; **Pdr**—frequent  
*Anemone quinquefolia* L., B[A. *memorosa* L.], H[A. *memorosa* L.], 1881-C, **Tdf,mf**—frequent  
*Anemone virginiana* L., H, 1895-C, **Tdf,mf,ed**; **Pdr**—frequent  
*Aquilegia canadensis* L., B, H, 1881-C, **T**; **Our**—common  
*Caltha palustris* L., B, H, 1887-C, **Wsp**—rare  
*Clematis pitcheri* T. & G., B[C. *viorna* L.], H, 1902-C, **Ted**; **Orc**—infrequent  
*Clematis virginiana* L., B, H, 1881-C, **Twf,ed**; **Orw**—infrequent  
 \**Consolida ambigua* (L.) Ball & Heywood, 1902-C, **Wrp**—rare  
*Delphinium tricornis* Michx., 1968-1968  
*Delphinium virescens* Nutt., B[D. *azureum* Michx.], H[D. *azureum* Michx.], 1897-C, **Pdr**; **Ops**—infrequent  
*Hepatica nobilis* P. Miller var. *acuta* (Pursh) Steyerf., B[H. *acutiloba* DC.], H[*Anemone hepatica* L. var. *acuta* (Pursh)], 1881-C, **Tmf**—frequent  
*Isopyrum biternatum* (Raf.) T. & G., B, H, 1881-C, **Tmf,wf**—frequent  
*Pulsatilla patens* (L.) P. Miller ssp. *multifida* (Pritz.) Zemels, H[*Anemone patens* L. var. *hirsutissima* (Pursh)], 1898-1919  
*Ranunculus abortivus* L., H, 1892-C, **Tmf,wf**; **Our**—common  
*Ranunculus cymbalaria* Pursh, B, H, 1907-1907  
*Ranunculus flabellaris* Raf., B[R. *multifidus* Pursh.], H[R. *lacustris* Beck & Tracy], 1881-C, **Wsz**—rare  
*Ranunculus pensylvanicus* L.f., 2000-C, **Wrp**—rare  
 \**Ranunculus repens* L., B, 1994-C, **Orw**—rare  
*Ranunculus sceleratus* L., B, 1998-C, **Twf**; **Wrp**—frequent  
*Ranunculus septentrionalis* Poirer, H, 1881-C, **Tmf,wf**—frequent  
 \**Ranunculus testiculatus* Crantz, 1999-C, **Orc**—rare  
*Thalictrum dasycarpum* Fischer & Ave-Lall., B[T. *purpurascens* L.; T. *cornuti* L.], H[T. *purpurascens* L.], 1894-C, **Twf**; **Pms,wt**; **Orw**—frequent  
*Thalictrum dioicum* L., B, H, 1892-C, **Tmf,wf**—frequent  
*Thalictrum thalictroides* (L.) Eames & Boivin, B[T. *anemonoides* Michx.], H[*Anemonella thalictroides* (L.) Spach], 1887-C, **Tdf,mf**—frequent

## RHAMNACEAE

*Ceanothus americanus* L. var. *pitcheri* T. & G., B, H, 1888-C, **Tw**; **Pdr,ms**—rare  
*Ceanothus herbaceus* Raf. var. *pubescens* (T. & G.) Shinnery, B[C. *ovatus* Bigelow], H[C. *ovatus* Desf. var. *pubescens* Torr. & Gray], 1881-1907  
 \**Rhamnus cathartica* L., 1961-C, **T**; **Our,rw**—common  
 \**Rhamnus utilis* Decne., 1999-C, **Tes**, **wf**—frequent

## ROSACEAE

\**Agrimonia eupatoria* L., B, H, 1907-1907  
*Agrimonia gryposepala* Wallr., 1888-C, **Tdf,wd,ed**—frequent  
*Agrimonia pubescens* Wallr., 1881-C, **Tdf**—infrequent  
*Agrimonia striata* Michx., 1894-1907  
*Amelanchier arborea* (Michx.) Fern., B[A. *canadensis* (L.) Torr. & Gray], H[A. *canadensis* (L.) Torr. & Gray], 1882-C, **Tdf,mf,wd,ed**—infrequent  
*Amelanchier humilis* Wieg., 1875-1914  
 \**Cotoneaster multiflora* Bunge, 1999-C, **Tw**—rare  
*Crataegus calpodendron* (Ehrh.) Medicus, 1891-C, **Tw,ed**; **Ops**—rare  
*Crataegus mollis* (T. & G.) Scheele, H[C. *coccinea* L. var. *mollis* Torr. & Gray], 1884-C, **Twf,wd,ed**; **Wrp**; **Ops**—frequent  
*Crataegus punctata* Schrader ex Link, B[C. *tomentosa* L. var. *punctata* Gray], H, 1893-C, **Tw,ed**—infrequent  
*Crataegus succulenta* Schrader ex Link, 1999-C, **Ops**—rare  
 \**Duchesnea indica* (Andrews) Focke, 1994-C, **Tmf,wf**; **Our**—infrequent  
*Fragaria vesca* L. var. *americana* Porter, 1929-C, **Tw**—rare  
*Fragaria virginiana* Duchesne, B, H[F. *virginiana* Duch. var. *illinoensis* (Prince) Gray], 1881-C, **T**; **P**; **O**—common  
*Geum aleppicum* Jacq. var. *strictum* (Aiton) Fern., 1998-C, **P**; **Orc**—rare  
*Geum canadense* Jacq., B[G. *album* Gmel.], H[G. *album* Gmel.], 1883-C, **Tmf,df,ed**; **Pms,wt**—common  
*Geum laciniatum* Murray, H[G. *virginianum* L.], 1889-1897  
*Malus ioensis* (Wood) Britton, B[*Pyrus coronaria* L.], H[*Pirus coronaria* L.], 1883-C, **Tw,ed**; **Pdr**; **Ops**—infrequent  
 \**Malus sylvestris* (L.) P. Miller, 1899-C, **Tw,ed**; **O**—frequent  
 +*Physocarpus opulifolius* (L.) Maxim., 1998-C, **Orw,of**—rare  
 \**Potentilla argentea* L., 1948-C, **Our,ps**—rare  
*Potentilla arguta* Pursh, B, H, 1894-C, **Pdr,ms**—infrequent  
*Potentilla norvegica* L., B, H, 1888-C, **Pdr,ms**; **Orw,rc,of**—common  
 \**Potentilla recta* L., 1933-C, **O**—frequent  
*Potentilla rivalis* Nutt., H[P. *rivalis* Nutt. var. *pentandra* (Engel.) Watson], 1889-1889  
*Potentilla simplex* Michx., B[P. *canadensis* L.], H[P. *canadensis* L.], 1897-C, **Tw,ed**; **Pms,wt**—frequent  
*Prunus americana* Marsh., B, H, 1887-C, **Ted**; **Pwt**; **Orw,of**—common  
*Prunus pensylvanica* L.f., B, H, 1887-1887  
*Prunus mexicana* S. Watson, 1998-C, **Ted**; **Wrp**—frequent  
*Prunus serotina* Ehrh., B, H, 1881-C, **Tdf,mf,ed**; **Orw**—common  
 \**Prunus tomentosa* Thunb., 1998-C, **Tw,ed**; **Our**—infrequent  
*Prunus virginiana* L., B, H, 1887-C, **Tdf,mf,wd,ed**; **Orw**—common  
*Rosa arkansana* Porter var. *suffulta* (Greene) Cockerell, H[*Rosa blanda* Ait. var. *arkansana* (Porter) Best], 1902-C, **Pdr,ms**; **Orw**—frequent  
*Rosa blanda* Aiton, B, 1895-C, **Ted**; **Pdr,ms**; **Orw**—frequent  
*Rosa carolina* L., 2000-C, **Ted**; **Pms**; **Orw**—frequent  
 \**Rosa eglanteria* L., 1926-C, **Tw**—rare

- \**Rosa multiflora* Thunb. ex Murray, 2000–C, Twd,ed; Orw,ps—common  
*Rosa* × *rudiuscula* Greene, 1928–1933  
*Rosa setigera* Michx., 1999–C, Ted—rare  
*Rubus ablatius* Bailey, 1924–C, Ted; Orw—infrequent  
*Rubus allegheniensis* Porter ex Bailey, 1989–C, Ted; Wrp; Orw—infrequent  
 \**Rubus caesius* L., 1998–C, T; Wrp; Oof—rare  
*Rubus frondosus* Bigel., 1993–C, Ted—rare  
*Rubus idaeus* L. var. *strigosus* (Michx.) Maxim., B[*R. strigosus* Michx.], 1924–C, Tes—rare  
*Rubus occidentalis* L., B, H, 1904–C, T; P; O—common  
 \**Rubus parvifolius* L., 1888–C, Tmf,wf,ed; Orw—frequent  
*Rubus roribaccus* (L.H. Bailey) Rydb. in Britton, 1924–1931

## RUBIACEAE

- Cephalanthus occidentalis* L., B, H, 1870–1889  
*Galium aparine* L., H, 1871–C, T—common  
*Galium boreale* L., 1998–C, Tdf,mf—rare  
*Galium circaezans* Michx., 2000–C, Tdf,wd—rare  
*Galium concinnum* T. & G., H, 1873–C, Tmf,wf—common  
*Galium obtusum* Bigelow, 1873–C, Pwt—frequent  
*Galium tinctorium* L., H[*G. trifidum* L. var. *latifolium* Torr.]  
*Galium trifidum* L., B, H  
*Galium triflorum* Michx., H, 1887–C, Tmf,wf—common

## RUTACEAE

- Ptelea trifoliata* L., 1998–C, Ted—rare  
*Zanthoxylum americanum* P. Miller, B, H, 1883–C, T—common

## SALICACEAE

- \**Populus alba* L., 1913–C, Our,rw—infrequent  
*Populus deltoides* Bartram ex Marsh., B[*P. angulata* Ait.; *P. monilifera* Ait.], H[*P. monilifera* Ait.], 1878–C, Tmf,wf; Our,rw—common  
*Populus grandidentata* Michx., H, 1906–C, Tdf,wd,ed—infrequent  
*Populus tremuloides* Michx., B, H, 1906–1914  
*Salix amygdaloides* Andersson, 1891–C, Twf; Wrp; Orw—frequent  
*Salix bebbiana* Sarg., 1874–C, Wsp—rare  
*Salix discolor* Muhl., H, 1874–C, Pwt; Wrp; Orw—infrequent  
*Salix exigua* Nutt. ssp. *interior* (Rowlee) Cronq., H[*S. longifolia* Muhl.], 1872–C, Twf,ed; Pwt; Wrp,md; Orw—common  
 \**Salix fragilis* L., 1913–C, Wrp; Orw—rare  
*Salix humilis* Marsh., H, 1874–1937  
*Salix nigra* Marsh., H, 1901–C, Twf; Pwt; Wrp; Orw—frequent  
*Salix petiolaris* Smith, 1874–1938  
*Salix rigida* Muhl., H[*S. cordata* Muhl.], 1874–C, Twf,ed; Pwt,rp; Orw—common

## SANTALACEAE

- Comandra umbellata* (L.) Nutt., B, H, 1882–C, Twd; Pdr,ms—frequent

## SAXIFRAGACEAE

- Heuchera richardsonii* L. var. *hirsuticaulis* (Wheelock) Rosend., Butters & Lak., B[*H. hispida* Pursh], H[*H. hispida* Pursh.], 1884–C, Tdf,ms,wd,es; Pms—infrequent  
*Mitella diphylla* L., 1897–1897  
*Parnassia glauca* Raf., B[*P. caroliniana* Michx.]  
*Penthorum sedoides* L., B, H, 1892–C, Twf; Wrp,md; Orw—infrequent  
*Ribes americanum* P. Miller, B[*R. floridum* L.], H[*R. floridum* L'Her.], 1881–C, Pwt; Wrp,sp; Orw—rare

- Ribes cynosbati* L., H, 1914–C, Tmf—rare  
*Ribes missouriense* Nutt. ex T. & G., H[*R. gracile* Michx.], 1887–C, T; Ops—common

## SCROPHULARIACEAE

- Agalinis purpurea* (L.) Pennell, B[*Gerardia purpurea* L.], 1907–1907  
*Agalinis tenuifolia* (Vahl) Raf., B[*Gerardia tenuifolia* Vahl.], H[*Gerardia tenuifolia* Vahl.], 1897–C, Pwt—infrequent  
*Castilleja sessiliflora* Pursh, B, H, 1886–1927  
 \**Chaenorrhinum minus* (L.) Lange, 1943–C, Orc—infrequent  
*Chelone glabra* L., 1998–C, Wsp—rare  
*Dasistoma macrophylla* (Nutt.) Raf., 1942–C, Ted—rare  
 \**Linaria vulgaris* Hill, H, 1881–C, Our,rw—rare  
*Lindernia anagallidea* (Michx.) Pennell, 1999–C, Wmd—rare  
*Lindernia dubia* (L.) Pennell, H[*Ilysanthes gratioides* (L.) Bentham], 1883–C, Wrp,md; Oof—frequent  
*Mimulus ringens* L., B, H, 1884–C, Wrp,md—frequent  
*Pedicularis canadensis* L., B, H, 1881–C, Tmf,wd—infrequent  
*Pedicularis lanceolata* Michx., B, H, 1897–C, Pwt—rare  
 + *Penstemon digitalis* Nutt., 1927–C, Ted; Oof—rare  
*Penstemon tubiflorus* Nutt., 1951–1951  
*Scrophularia lanceolata* Pursh, 1927–1927  
*Scrophularia marilandica* L., B[*S. nodosa* L.], H[*S. nodosa* L. var. *marilandica* (L.) Gray], 1883–C, Tmf,wf,wd,ed—frequent  
*Tomanthera auriculata* (Michx.) Raf., B[*Gerardia auriculata* Michx.], H[*Gerardia auriculata* Michx.], 1883–C, Pwt—rare  
 \**Verbascum blattaria* L., H, 1889–C, Twd,ed—rare  
 \**Verbascum thapsus* L., B, H, 1888–C, O—common  
 \**Veronica anagallis-aquatica* L., B[V. *anagallis* L.], H[V. *anagallis* L.], 1999–C, Wsp,rp—rare  
 \**Veronica arvensis* L., H, 1998–C, Our—common  
*Veronica catenata* Pennell, 1883–C, Wrp,sp—rare  
*Veronica peregrina* L., B, H, 1873–C, Twf; Wrp; Ocr—common  
 \**Veronica polita* Fries, 1998–C, Orw—rare  
*Veronicastrum virginicum* (L.) Farw., B[*Veronica virginica* L.], H[*Veronica virginica* L.], 1888–C, Tmf,wd,ed; Pms,wt—frequent

## SIMAROUBACEAE

- \**Ailanthus altissima* (P. Miller) Swingle, 2000–C, Our,rw—infrequent

## SOLANACEAE

- \**Datura stramonium* L., B, H[=; *Datura tatula* L.], 1881–C, Orc—rare  
 \**Datura wrightii* Regel, 2000–C, Wrp—rare  
 \**Lycium halimifolium* P. Miller, 1999–C, Our—rare  
 \**Nicandra physalodes* (L.) Gaertner, 1906–1957  
 \**Petunia axillaris* (Lam.) BSP., 1932–C, Our—rare  
*Physalis heterophylla* Nees, 1889–C, P; Orw,rc,of—frequent  
 \**Physalis hispida* (Waterfall) Cronq., H[*P. lanceolata* Michx.], 1942–1942  
 \**Physalis pubescens* L. var. *integrifolia* (Dunal) Waterfall, H[*P. pubescens* L.], 1932–1942  
*Physalis virginiana* P. Miller, B[*P. pennsylvanica* L.], H[=; *P. philadelphica* Lam.], 1881–C, P; Orw—common  
*Solanum americanum* P. Miller, B[*S. nigrum* L.], H[*S. nigrum* L.], 1881–C, O—common  
*Solanum carolinense* L., H, 1890–C, O—frequent  
 \**Solanum dulcamara* L., 1914–C, Twf; Wrp; Our,rw—infrequent  
 \**Solanum rostratum* Dunal, 1902–C, Wrp; Our,rw,rc,of—infrequent

## STAPHYLEACEAE

*Staphylea trifolia* L., B, H, 1881–C, Tmf—infrequent

## TILIACEAE

*Tilia americana* L., B, H, 1897–C, Tmf,wf—common

## ULMACEAE

*Celtis occidentalis* L., B, H, 1897–C, Twf—common

*Ulmus americana* L., B, H, 1895–C, Tmf,wf; Our—common

\**Ulmus pumila* L., 1973–C, Ted; Our,rw—common

\**Ulmus pumila* L. × *U. americana* L., 2000–C, Ted—rare

\**Ulmus pumila* L. × *U. rubra* Muhl., 2000–C, Ted; Our,rw—infrequent

*Ulmus rubra* Muhl., B[*U. fulva* Michx.], H[*U. fulva* Michx.], 1895–C, Tmf,wf—common

*Ulmus thomasi* Sarg., 1902–1911

## URTICACEAE

*Boehmeria cylindrica* (L.) Sw., 1999–C, Twf—rare

*Laportea canadensis* (L.) Wedd., B[*L. canadensis* Gaudich.], H, 1897–C, Twf—common

*Parietaria pennsylvanica* Muhl. ex Willd., H, 1897–C, Twd; Our,cr—common

*Pilea pumila* (L.) Gray, B, H, 1907–C, Twf; Wsp—frequent

*Urtica dioica* L., H[*U. gracilis* Ait.], 1942–C, Twf; Orw,of—frequent

## VERBENACEAE

*Phyla lanceolata* (Michx.) Greene, 1907–C, Twf; Wrp—infrequent

*Verbena bracteata* Lag. & Rodr., B[*V. bracteosa* Michx.], H[*V. bracteosa* Michx.], 1882–C, Our—common

*Verbena canadensis* (L.) Britton, H[*V. aubletia* L.f.], 2000–C, Orc—rare

*Verbena* × *deamii* Moldenke, 1999–C, Orc—rare

*Verbena* × *engelmannii* Moldenke, 1909–C, Wrp; Ops—rare

*Verbena hastata* L., B, H, 1882–C, Pwt; Wrp; Orw—frequent

*Verbena* × *moenchina* Moldenke, 1894–C, Orc—rare

*Verbena* × *perriana* Moldenke, 1896–1896

*Verbena* × *rydbergii* Moldenke, 1902–C, Wrp; Orc—infrequent

*Verbena simplex* Lehm., 1952–1952

*Verbena stricta* Vent., B, H, 1880–C, Pdr; Orc,ps—common

*Verbena urticifolia* L., B, H, 1882–C, Pwt; Orc,of—frequent

## VIOLACEAE

\**Viola arvensis* Murray, B, 1998–C, Orw—rare

+*Viola canadensis* (L.) Britton, 1903–C, Our—rare

*Viola missouriensis* Greene, H[*V. palmata* L. var. *obliqua* (Hill)], 1932–C, Twf; Our—rare

*Viola nephrophylla* Greene, 1907–1931

*Viola pedata* L., B, H, 1884–1947

*Viola pedatifida* G. Don, B[*V. delphinifolia* Nutt.], H[*V. pinatifida* Don], 1881–C, Pdr—infrequent

*Viola pratincola* Greene, H[*V. palmata* L. var. *obliqua* (Hill)], 1897–C, Our—rare

*Viola pubescens* Aiton, B, H, 1881–C, Tmf,wf—frequent

*Viola rafinesquii* Greene, 1999–C, Our—rare

*Viola sororia* Willd., B[*V. cucullata* Ait.], H[*V. palmata* L. var. *obliqua* (Hill)], 1891–C, Tmf,wf; Our—common

*Viola sororia* Willd. × *V. pedatifida* G. Don, 1999–C, Pdr; Ops—rare

\**Viola tricolor* L., 1999–C, Our—rare

*Viola viarum* Pollard, H[*V. palmata* L.], 1897–C, Pdr—rare

## VITACEAE

\**Ampelopsis brevipedunculata* (Maxim.) Trautv., 2000–C, Our—rare  
*Parthenocissus quinquefolia* (L.) Planchon, B[*Ampelopsis quinquefolia* (L.) Michx.], H[*Ampelopsis quinquefolia* (L.) Michx.], 1897–C, T; Wrp; Orw—frequent

\**Parthenocissus tricuspidata* (Sieb. & Zucc.) Planchon, 1999–C, Our—rare

*Parthenocissus vitacea* (Kner) A.S. Hitchc., B[*Ampelopsis quinquefolia* (L.) Michx.], H[*Ampelopsis quinquefolia* (L.) Michx.], 1897–C, T; Pms; Orw—common

*Vitis riparia* Michx., H, 1881–C, T; Orw—common

## ZYGOPHYLLACEAE

\**Tribulus terrestris* L., 1940–1962

## (MONOCOTS)

## ALISMACEAE

*Alisma plantago-aquatica* L., B[*A. plantago* L. var. *americanum*], H[*A. plantago* L.], 1907–C, Wez,md—infrequent

*Echinodorus cordifolius* (L.) Griseb., 1998–C, Wmd—rare

*Sagittaria australis* (J.G. Smith) J.K. Small, 1907–C, Wez,sz; Orw—rare

*Sagittaria brevirostra* Mack. & Bush, B[*S. variabilis* Engelm.], H[*S. variabilis* Engelm.], 1871–C, Wez,sz,rp; Orw—infrequent

*Sagittaria graminea* Michx., B, H, 1883–1889

*Sagittaria rigida* Pursh, H[*S. heterophylla* Pursh]

## ARACEAE

*Acorus calamus* L., H, 2000–C, Wez—rare

*Arisaema dracontium* (L.) Schott, B, H, 1883–C, Tdf,mf,wf—infrequent

*Arisaema triphyllum* (L.) Schott, B[*A. triphyllum* Torr.], H, 1881–C, Tmf,wf—common

## COMMELINACEAE

\**Commelina communis* L., 1925–C, Our,rc—infrequent

*Tradescantia bracteata* Small, B[*T. virginica* L.], H[*T. virginiana* L.], 1887–C, Pms,wt; Orw—infrequent

## CYPERACEAE

*Bulbostylis capillaris* (L.) C.B. Clarke, 1959–1966

*Carex aggregata* Mack., 1999–C, Twd—rare

*Carex albursina* Sheldon, H[*C. laxiflora* Lam. var. *latifolia* Boott.], 1930–C, Tmf—rare

*Carex amphibola* Steudel var. *turgida* Fern., B[*C. grisea* Wahl.], H[*C. grisea* Wahl.], 1898–C, Tmf,wf—common

*Carex annectens* (Bickn.) Bickn. var. *xanthocarpa* (Bickn.) Wieg., C, Pwt—infrequent

*Carex atherodes* Sprengel, H[*C. trichocarpa* Muhl. ex Willd. var. *imberbis* Gray; *C. trichocarpa* Muhl. ex Willd. var. *aristata* (R. Br.) Bailey], 1938–C, Pwt; Wez—frequent

*Carex atherodes* Sprengel × *C. trichocarpa* Schkuhr, 1999–C, Wez—rare

*Carex bebbii* (Bailey) Fern., 1998–C, Pwt—infrequent

*Carex bicknellii* Britton, H[*C. straminea* Willd. var. *alata* (Torr.) Bailey], 1898–C, P—frequent

*Carex blanda* Dewey, 1897–C, T—common

*Carex brevior* (Dewey) Mack. ex Lunell, H[*C. straminea* Willd. var. *festucacea* (Willd.)], 1928–C, Ted; P—common

*Carex buxbaumii* Wahl., H[*Carex fusca* All.], 1923–C, Pwt—rare

*Carex cephalophora* (Dewey) Dewey, B[*C. cephalophora* Muhl.], H, 1898–C, Tdf,mf—frequent

*Carex conjuncta* Boott, H, n.d.[1890's]–C, Twf—infrequent

- Carex convoluta* Mack., B[*C. rosea* Schk.], 1902–C, Tdf,mf—common  
*Carex crawei* Dewey, 1999–C, Pms; Orw—rare  
*Carex crawfordii* Fern., 1999–C, Pwt—rare  
*Carex cristatella* Britton, H[*C. tribuloides* Wahl. var. *cristata* (Schwein.) Bailey], n.d.[1880's]–C, Pwt; Orw—frequent  
*Carex davisii* Schwein. & Torrey, H, 1895–C, Twf,ed; Wrp—frequent  
*Carex eburnea* Boott, H, n.d.[1800's]–C, Tdf,es—rare  
*Carex frankii* Kunth, 1994–C, Pwt—rare  
*Carex gravida* Bailey, H[*C. gravida* Bailey var. *laxifolia* Bailey], 1897–C, Ted; Orw—frequent  
*Carex grayi* Carey, B[*C. folliculata* L.], H, 1897–C, Twf—common  
*Carex haydenii* Dewey, 1993–C, Pwt—infrequent  
*Carex hirtifolia* Mack., H[*C. pubescens* Muhl. in Willd.], 1902–C, Tmf—infrequent  
*Carex hitchcockiana* Dewey, 1992–C, Tmf—infrequent  
*Carex hystericina* Muhl. ex Willd., B, H[*C. lurida* Wahl. (ISC specimen misidentified)], 1886–C, Wsp—rare  
*Carex jamesii* Schwein., 1930–C, Tdf,mf—frequent  
*Carex lacustris* Willd., H[*C. riparia* W. Curtis], 1880–C, Pwt; Orw—common  
*Carex laeviconica* Dewey, H[*C. trichocarpa* Muhl. var. *laeviconica* (Dewey)], 1878–C, Twf; Pwt; Orw—frequent  
*Carex lanuginosa* Michx., B, H, 1879–C, Pwt; Orw,of—common  
*Carex lasiocarpa* Ehrh. var. *americana* Fern., H[*C. filiformis* L.], n.d.[1880's]–n.d.  
*Carex leavenworthii* Dewey, 1999–C, Ted; Ops—rare  
*Carex lupulina* Muhl. ex Willd., H, 1880–C, Twf—rare  
*Carex meadii* Dewey, B[*C. straminea* Schk. var. *meadii*], H[*C. tetanica* Schkuhr var. *meadii* (Dewey) Bailey], 1898–C, Pdr,ms—frequent  
*Carex mesochorea* Mack., 1998–C, Ops—rare  
*Carex molesta* Mack., 1897–C, Pwt—frequent  
*Carex muskingumensis* Schwein., H, 1880–1887  
*Carex normalis* Mack., 1877–C, Tmf—infrequent  
*Carex oligocarpa* Willd., 1896–C, Tmf—frequent  
*Carex pennsylvanica* Lam., H, 1891–C, Tdf,mf—common  
*Carex prairiea* Dewey, 1938–C, Pwt—rare  
*Carex projecta* Mack., 1890–C, Tmf—rare  
*Carex sartwellii* Dewey, B[*C. disticha* Huds.], H, 1994–C, Pwt—infrequent  
*Carex sparganioides* Muhl. ex Willd., B, H, 1992–C, Tmf—infrequent  
*Carex sprengelii* Dewey, B[*C. longirostris* Torr.], H[*C. longirostris* Torr.], 1879–C, T—common  
*Carex stipata* Muhl. ex Willd., 1962–C, Wsp—rare  
*Carex stricta* Lam., B, H, 1998–C, Pwt; Wsp—infrequent  
*Carex suberecta* (Olney) Britton, n.d.–C, Pwt—infrequent  
*Carex tenera* Dewey, 1888–C, Twf—rare  
*Carex tetanica* Schkuhr, 1993–C, Pwt—rare  
*Carex tribuloides* Wahl, B[*C. lagopodioides* Schk.], 1895–C, Pwt—infrequent  
*Carex trichocarpa* Schkuhr, H, 1999–C, Orw—rare  
*Carex vesicaria* L., C, Pwt; Wez—frequent  
*Carex vulpinoidea* Michx., B, H, n.d.[1880's]–C, Pwt; Orw—common  
*Cyperus acuminatus* Torrey & Hooker, 1998–C, Orw,rc—infrequent  
*Cyperus aristatus* Rottb., H, 1897–C, Wrp; Our,rc—frequent  
*Cyperus diandrus* Schrank, H  
*Cyperus erythrorhizos* Muhl., H, 1998–C, Wrp—rare  
*Cyperus esculentus* L., H, 1909–C, Wrp; Our,rc—common  
*Cyperus filiculmis* Vahl., H, 1993–C, Ted—rare  
*Cyperus odoratus* L. var. *squarrosus* (Britton) Gilly, B[*C. michauxianus* Schultes.], 1920–C, Wrp—common  
*Cyperus rivularis* Kunth, H[*C. diandrus* Torr. var. *castaneus* (Pursh) Torr.], 1897–C, Wrp; Orw—frequent  
*Cyperus schweinitzii* Torrey, H, 1934–1934  
*Cyperus strigosus* L., H[=; *C. strigosus* L. var. *robustior* Kunth], 1881–C, Wrp; Our,rw—frequent  
*Eleocharis acicularis* (L.) R. & S., B[*E. acicularis* R. Br.], H  
*Eleocharis engelmannii* Steudel, 1998–C, Oof—rare  
*Eleocharis erythropoda* Steudel, B[*E. palustris* R. Br.], H[*E. palustris* (L.) R. Br.], 1998–C, Pwt; Wez; Orw—common  
*Eleocharis macrostachya* Britton, 1998–C, Pwt; Wez; Orw—infrequent  
*Eleocharis obtusa* (Willd.) Schultes, 1998–C, Orw—infrequent  
*Eriophorum angustifolium* Honck., B[*Eleocharis polystachyon* L.], H[*Eleocharis polystachyon* L.]  
*Hemiarpha micrantha* (Vahl) Pax, H, 1951–C, Wrp—infrequent  
*Scirpus acutus* Muhl. ex Bigelow, 1974–C, Pwt—rare  
*Scirpus americanus* Pers., H[*S. pungens* Vahl.], 1897–1897  
*Scirpus atrovirens* Willd., B[*S. atrovirens* Muhl.], H, 1873–C, Pwt; Orw,of—common  
*Scirpus fluviatilis* (Torrey) Gray, H, 2000–C, Wez—frequent  
*Scirpus pendulus* Muhl., H[*Eriophorum lineatum* (Michx.) Benth. & Hook.], 1938–C, Pwt; Orw,of—frequent  
*Scirpus validus* Vahl var. *creber* Fern., B, H[*S. lacustris* L.], 1881–C, Pwt; Wez—frequent
- DIOSCOREACEAE**  
*Dioscorea villosa* L., B, H, 1898–C, Tmf—infrequent
- HYDROCHARITACEAE**  
*Elodea canadensis* Michx., H  
*Elodea nuttallii* (Planchon) St. John, 1886–C, Wsz—rare
- IRIDACEAE**  
*\*Belamcanda chinensis* (L.) DC., H, n.d.[1800's]–C, Tmf,wd—rare  
*Iris shrevei* Small, B[*I. versicolor* L.], H[*I. versicolor* L.], 1881–C, Pwt—frequent  
*Sisyrinchium campestre* Bickn., B[*S. bermudiana* L. var. *anceps*; *S. bermudiana* L. var. *albidum*; *S. bermudiana* L. var. *mucronatum*], H[*S. angustifolium* Mill.], 1877–C, Pdr,ms; Oof—frequent
- JUNCACEAE**  
*Juncus balticus* Willd. var. *littoralis* Engelm., 1998–C, Pwt—rare  
*Juncus dudleyi* Wieg., 1891–C, Pwt—frequent  
*Juncus nodosus* L., 1998–C, Pwt—rare  
*Juncus tenuis* Willd., B, H, 1929–C, Ted; Our,rw—common  
*Juncus torreyi* Cov., H[*J. nodosus* L. var. *megacephalus* Torr.], 1891–C, Pwt—frequent  
*Luzula multiflora* (Retz.) Lej., 1901–1901
- JUNCAGINACEAE**  
*Triglochin maritimum* L., H
- LEMNACEAE**  
*Lemma minor* L., B, H, 1878–C, Wez,sz,md—common  
*Lemma trisulca* L., H, 1986–C, Wez,sz,md—frequent  
*Spirodela polyrrhiza* (L.) Schleiden, B[*Lemma polyrrhiza* L.], H, 1998–C, Wez,sz—rare  
*Wolffia columbiana* Karsten, 1998–C, Wsz—rare
- LILIACEAE**  
*Allium canadense* L., B[*A. canadense* Kalm.], H, 1895–C, Tmf,wf; Pms,wt—frequent

*Allium tricoccum* Aiton, B, H, n.d.[1800's]-C, Tmf—infrequent  
 \**Allium vineale* L., 1998-C, Our,rw—rare  
 \**Asparagus officinalis* L., H, 1892-C, Pdr,ms; Orw—infrequent  
 \**Convallaria officinalis* L., 1998-C, Ted; Our—rare  
*Erythronium albidum* Nutt., B, H, 1884-C, Tmf,wf—common  
 +*Erythronium americanum* Ker-Gawl., 1997-C, Tmf—rare  
 \**Hemerocallis fulva* (L.) L., 1998-C, Orw—frequent  
*Hypoxis hirsuta* (L.) Cov., B[*Hypoxis erecta* L.], H[*H. erecta* L.], 1884-C, Pms,wt—rare  
*Lilium michiganense* Farw., B[*L. superbum* L.], H[*L. canadense* L.; *L. superbum* L.], 1885-C, Tmf; Pwt—rare  
*Lilium philadelphicum* L. var. *andinum* (Nutt.) Ker-Gawl., B, H, 1909-1929  
*Maianthemum canadense* Desf., H  
 \**Ornithogalum umbellatum* L., 1999-C, Tmf—rare  
*Polygonatum biflorum* (Walter) Ell., B[*P. giganteum* Dietrich.], H[*P. commutatum* (Schyult.) Dietr.], 1881-C, Tmf,wf,wd,ed; Orw—common  
 \**Scilla siberica* Andr., 1969-C, Our—infrequent  
*Smilacina racemosa* (L.) Desf., B, H, 1881-C, Tmf,wf,wd—common  
*Smilacina stellata* (L.) Desf., B, H, 1878-C, Twf—frequent  
*Smilax ecirrhata* (Engelm. ex Kunth) S. Wats., 1895-C, Tmf,wf,wd—frequent  
*Smilax herbacea* L., B, H[=; *S. herbacea* var. *pulverulenta* (Michx.) Gray], 1877-C, Tmf,wf,wd—infrequent  
*Smilax hispida* Muhl., B, H, 1892-C, T; Wrp—common  
*Trillium cernuum* L., H  
*Trillium flexipes* Raf., H[*T. erectum* L.]  
 +*Trillium nivale* Riddell, 2001-C, Tmf—rare  
*Trillium recurvatum* Beck, 1958-1958  
*Uvularia grandiflora* Small, B[*U. grandiflora* Smith], H, 1881-C, Tmf,wf—infrequent

## NAJADACEAE

*Najas flexilis* (Willd.) Rostk. & Schmidt, H, 1886-C, Wsz—rare  
*Najas guadalupensis* (Sprengel) Magnus, 1999-C, Wsz—rare

## ORCHIDACEAE

*Coeloglossum viride* (L.) Hartman var. *virescens* (Muhl. ex Willd.) Luer, B[*Habenaria viridis* R. Br. var. *bracteata* Richenbach.], H[*Habenaria bracteata* (Willd.) R. Br.], 1886-C, Tmf,es,ed—rare  
*Corallorhiza odontorhiza* (Willd.) Nutt., 1972-C, Tdf,mf—rare  
*Cypripedium calceolus* L. var. *pubescens* (Willd.) Correll, B[*C. pubescens* Willd.], H[*C. pubescens* Willd.], 1870-1907  
*Cypripedium candidum* Muhl. ex Willd., B, H, 1881-1924  
*Cypripedium reginae* Walter, B[*C. spectabile* Swartz.], H, 1870-1883  
 \**Epipactis helleborine* (L.) Crantz, 2000-C, Our—rare  
*Galearis spectabilis* (L.) Raf., B[*Orchis spectabilis* L.], H[*Orchis spectabilis* L.], 1873-C, Tmf,wf—infrequent  
*Liparis loeselii* (L.) L.C. Rich., 2000-C, Twd—rare  
*Malaxis unifolia* Michx., n.d.-n.d.  
*Platanthera hookeri* (Torrey ex Gray) Lindley, n.d.-n.d.  
*Platanthera hyperborea* (L.) R. Br. var. *huronensis* (Nutt.) Luer, 1890-1890  
*Platanthera praeclara* Sheviak & Bowles, B[*Habenaria leucophaea* Gr.], H[*Habenaria leucophaea* (Nutt.) Gray], 1873-1907  
*Spiranthes cernua* (L.) L.C. Rich. B, H, 1877-C, Pwt—rare  
*Spiranthes magnicamporum* Sheviak, 1993-C, Pwt—rare  
*Spiranthes ovalis* Lindley, 1993-C, Twd,ed; Orc—rare

## POACEAE

×*Agrobordeum macounii* (Vasey) LePage, 1962-1964  
 \**Agropyron cristatum* (L.) Gaertner, 1966-1966  
 \**Agropyron pectiniforme* R. & S., 1961-1961  
 \**Agropyron repens* (L.) Beauv., B[*Triticum repens* L.], H, 1871-C, Pms; Orw—common  
*Agropyron smithii* Rydb., 1874-C, Orw,of—infrequent  
*Agropyron trachycaulum* (Link) Malte, 1890-1962  
 \**Agrostis gigantea* Roth, B[*A. vulgaris* With.], H[*A. alba* L.; *A. alba* L. var. *vulgaris* (With.) Thurb. in Watson], 1890-C, Pms,wt; Oof—frequent  
*Agrostis hyemalis* (Walter) BSP., 1895-C, Tes—rare  
*Agrostis hyemalis* (Walter) BSP. var. *tenuis* (Tuckerman) Gl., H[*A. hyemal* (Walt.) B.S.P.], 1942-1942  
*Agrostis perennans* (Walter) Tuckerman, H, 1878-C, Tdf,wd,ed—frequent  
 \**Agrostis stolonifera* L. var. *palustris* (Hudson) Farw., 2000-C, Twf; Wrp—infrequent  
*Alopecurus aequalis* Sobol., 2000-C, Wrp—rare  
*Alopecurus carolinianus* Walter, 1920-1920  
 \**Alopecurus pratensis* L., 1890-C, Wrp—rare  
*Andropogon gerardii* Vitman, B[*A. furcatus* Muhl.], H[*A. provincialis* Lam.], 1871-C, Twd,ed; P; Orw—common  
 \**Anthoxanthum odoratum* L., B  
*Aristida basiramea* Engelm. ex Vasey, 1896-1896  
*Aristida longispica* Poirer, H[*A. gracilis* Ell.]  
*Aristida oligantha* Michx., 1934-C, Orw,rc—frequent  
 \**Arrhenatherum elatius* (L.) Presl, 1891-1900  
 \**Avena fatua* L., 1896-C, Orc—rare  
*Bouteloua curtipendula* (Michx.) Torrey, B[*B. curtipendula* Gray], H, 1987-C, Ted; Pdr—infrequent  
*Bouteloua hirsuta* Lag., B, H, 1871-C, Pdr—rare  
*Brachyletrium erectum* (Schreber) Beauv., H, 1896-C, Tmf—rare  
 \**Bromus catharticus* Vahl, 1890-1890  
 \**Bromus commutatus* Schrader, 1859-1897  
 \**Bromus japonicus* Thunb. ex Murray, 1890-C, Orc,cr,of—frequent  
 \**Bromus inermis* Leysser, 1890-C, Ted,wd; P; O—common  
*Bromus kalmii* Gray, B, H  
*Bromus latiglumis* (Shear) A.S. Hitchc., 1887-C, Tmf,wf—rare  
*Bromus pubescens* Muhl. ex Willd., B[*B. ciliatus* L. var. *purgans*], H[*B. ciliatus* L. var. *purgans* (L.) Gray], 1871-C, Tdf—rare  
 \**Bromus secalinus* L., B, H, 1871-1898  
 \**Bromus tectorum* L., 1894-C, Orc,cr,of—frequent  
 +*Buchloe dactyloides* (Nutt.) Engelm., 1959-C, Our—infrequent  
*Calamagrostis canadensis* (Michx.) Beauv., H, 1894-C, Pwt—frequent  
*Calamagrostis inexpansa* Gray, 1999-C, Pwt—rare  
*Calamovilfa longifolia* (Hooker) Scribner, H, 1889-1889  
*Cenchrus longispinus* (Hackel) Fern., H[*C. tribuloides* L.], 1875-C, Orw,rc—infrequent  
 \**Chloris verticillata* Nutt., 1947-C, Our,rw—rare  
*Cinna arundinacea* L., H, 1873-C, Twf—common  
 \**Cynodon dactylon* (L.) Pers., 1923-C, Wrp; Our—rare  
 \**Cynodon transvaalensis* Burtt-Davy., 1934-1934  
 \**Dactylis glomerata* L., B, H, 1882-C, O—common  
*Diarrhena americana* Beauv. var. *obovata* Gl., H[*D. diandra* (Michx.)], 1998-C, Tdf,mf,wf—infrequent  
*Dichanthelium acuminatum* (Sw.) Gould & Clark, 1999-C, Oof—rare  
*Dichanthelium acuminatum* (Sw.) Gould & Clark var. *implicatum* (Scribner) Gould & Clark, B[*Panicum dichotomum* L.], H[*Panicum dichotomum* L.], 1871-C, Twd; P; Orc—frequent

- Dichanthelium acuminatum* (Sw.) Gould & Clark var. *villosum* (Gray) Gould & Clark, 1871–C, **Pwt**—infrequent  
*Dichanthelium depauperatum* (Muhl.) Gould, 1877–1877  
*Dichanthelium latifolium* (L.) Gould & Clark, B[*Panicum latifolium* L.], H[*Panicum latifolium* L.], 1871–C, **Tdf,wd**—rare  
*Dichanthelium leibergii* (Vasey) Freckm., 1870–C, **Pwt**—rare  
*Dichanthelium oligosanthes* (Schultes) Gould, 1999–C, **Pdr**—rare  
*Dichanthelium oligosanthes* (Schultes) Gould var. *scribnerianum* (Nash) Gould, H[*Panicum scoparium* Lam.], 1870–C, **Twd; P; Orw,rc,of**—common  
*Dichanthelium oligosanthes* (Schultes) Gould var. *wilcoxianum* (Vasey) Gould & Clark, 1965–C, **Pdr**—rare  
*Dichanthelium perlongum* (Nash) Freckm., 1896–1907  
\**Digitaria bicornis* (Lam.) R. & S., 1998–C, **Ocr**—rare  
\**Digitaria ischaemum* (Schreber ex Schweigger) Schreber ex Muhl., B[*Panicum glabrum* Gaudin], H[*Panicum glabrum* (Schrad.) Gand.], 1887–C, **Our**—common  
\**Digitaria sanguinalis* (L.) Scop., B[*Panicum sanguinale* L.], H[*Panicum sanguinale* L.], 1875–C, **Our,cr**—common  
\**Echinochloa crus-galli* (L.) Beauv., B[*Panicum crus-galli* L.], H[*Panicum crus-galli* L.], 1888–C, **Pwt; Wrp; Orw,cr,of**—common  
*Echinochloa muricata* (Beauv.) Fern., 1871–C, **Pwt; Wrp; Orw,cr,of**—frequent  
\**Eleusine indica* (L.) Gaertner, 1890–C, **Our,cr,ps**—rare  
×*Elyhordeum iowense* Pohl, 1964–1965  
*Elymus canadensis* L., B, H[=; *E. canadensis* L. var. *glaucofolius* (Muhl.) Gray], 1871–C, **P; Orw**—common  
*Elymus riparius* Wieg., 2000–C, **Twf; Wrp**—rare  
*Elymus villosus* Muhl. ex Willd., H[*E. striatus* Willd.], 1888–C, **Tmf,wf**—common  
*Elymus virginicus* L., H[=; *E. canadensis* L. var. *glabrifolius* Vasey], 1886–C, **Tmf,wf; Pms; Orc**—common  
\**Eragrostis cilianensis* (All.) Link ex E. Mosher, B[*E. poaeoides* Beauv. var. *megastachya*], H[*E. major* Host.], 1871–C, **Our**—frequent  
*Eragrostis frankii* C.A. Meyer ex Steudel, B, H, 1875–C, **Wrp**—infrequent  
*Eragrostis hypnoides* (Lam.) BSP., B[*E. reptans* Nees], H, 1870–C, **Wrp**—common  
*Eragrostis pectinacea* (Michx.) Nees, H[=; *E. purshii* Schrad.], 1871–C, **Wrp; Our**—common  
\**Eragrostis poaeoides* Beauv. ex R. & S., B, 1875–C, **Our**—infrequent  
*Eragrostis spectabilis* (Pursh) Steudel, 1942–C, **Pdr**—rare  
*Eragrostis trichodes* (Nutt.) Wood, 1951–C, **Orc**—rare  
\**Eriochloa villosa* (Thunb.) Kunth, 1998–C, **Ocr,of**—infrequent  
\**Festuca arundinacea* Schreber, 1956–C, **Orw**—infrequent  
\**Festuca myuros* L., 2000–C, **Wrp**—rare  
*Festuca obtusa* Biehler, H[*F. nutans* Willd.], 1924–C, **T**—common  
*Festuca octoflora* Walter var. *tenella* (Willd.) Fern., B[*F. tenella* Willd.], H, 1888–1945  
*Festuca ovina* L., 1900–C, **Wrp**—rare  
*Festuca paradoxa* Desv., H[*F. shortii* Kunth], 1871–1871  
\**Festuca pratensis* Hudson, 1902–C, **Wrp**—rare  
\**Festuca rubra* L., 2000–C, **Wrp**—rare  
\**Festuca trachyphylla* (Hackel) Krajina, 2000–C, **Wrp**—rare  
*Glyceria grandis* S. Watson, 1900–C, **Pwt; Wsp**—infrequent  
*Glyceria septentrionalis* A.S. Hitchc., H[*G. fluitans* (L.) R. Br.], 1884–C, **Wez**—rare  
*Glyceria striata* (Lam.) A.S. Hitchc., B[*G. nervata* Trin.], H[*G. nervata* (Willd.) Trin.], 1875–C, **Twf; Pwt**—frequent  
*Hierochloa odorata* (L.) Beauv., B[*Hierochloa borealis* Roem & Schultes]  
\**Holcus lanatus* L., 1893–1893  
*Hordeum jubatum* L., B, H, 1894–C, **Our,rw,cr**—common  
\**Hordeum pusillum* Nutt., 1917–C, **Orc**—infrequent  
*Hystrix patula* Moench, B[*Gymnostichum bystrix* Schreb.], H[*Asprella bystrix* (L.) Willd.], 1895–C, **Tmf**—frequent  
*Koeleria macrantha* (Ledeb.) Schultes, H, 1895–C, **Pdr**—infrequent  
*Leersia oryzoides* (L.) Sw., H[*Homalocenchrus oryzoides* (L.) Poll.], 1884–C, **Pwt; Wez,rp**—common  
*Leersia virginica* Willd., H[*Homalocenchrus virginica* (Willd.) Britt.], 1875–C, **Twf**—common  
*Leptochloa fascicularis* (Lam.) Gray var. *acuminata* (Nash) Gl., 1965–C, **Orc**—infrequent  
\**Lolium perenne* L., H, 1888–C, **Our**—infrequent  
\**Lolium perenne* L. var. *italicum* Parn., H[*L. perenne* L. var. *italicum* Vasey], 2000–C, **Wrp**—rare  
\**Lolium temulentum* L., 1880–1880  
\**Miscanthus sacchariflorus* (Maxim.) Hackel, 2000–C, **Orw**—infrequent  
*Muhlenbergia asperifolia* (Nees & Meyer) Parodi, 1999–C, **Pwt**—rare  
*Muhlenbergia bushii* Pohl, 1960–C, **Tdf,mf**—infrequent  
*Muhlenbergia cuspidata* (Torrey) Rydb., 1889–C, **Pdr**—rare  
*Muhlenbergia frondosa* (Poir.) Fern., 1889–C, **Ted; Pwt**—common  
*Muhlenbergia mexicana* (L.) Trin., 1889–C, **Tdf; Pdr**—frequent  
*Muhlenbergia racemosa* (Michx.) BSP., B[*M. glomerata* Trin.], H, 1889–C, **Pwt; Orw,rc**—frequent  
*Muhlenbergia schreberi* J.F. Gmelin, H[*M. diffusa* Schreb.], 1896–C, **Ted; Our**—frequent  
*Muhlenbergia sobolifera* (Muhl. ex Willd.) Trin., H  
*Muhlenbergia sylvatica* (Torrey) Torrey ex Gray, H  
*Muhlenbergia tenuiflora* (Willd.) BSP., H, 1889–C, **Tmf**—rare  
*Oryzopsis racemosa* (Smith) Ricker, H[*O. melanocarpa* Muhl.], 1889–C, **Tdf**—rare  
*Panicum capillare* L., B, H, 1934–C, **Pwt; Wrp; Orw,cr,of**—common  
*Panicum dichotomiflorum* Michx., H[*P. proliferum* Lam.], 1875–C, **Pwt; Wrp; Orw,cr,of**—common  
\**Panicum miliaceum* L., 1911–C, **Wrp**—rare  
*Panicum virgatum* L., H, 1934–C, **Pmf,wf; Orw**—common  
*Paspalum setaceum* Michx. var. *ciliatifolium* (Michx.) Vasey, 1964–C, **Orw**—rare  
*Phalaris arundinacea* L., H, 1907–C, **Pwt; Wez,rp; Orw**—common  
\**Pbleum pratense* L., B, H, 1891–C, **Our,rw**—frequent  
*Phragmites australis* (Cav.) Trin. ex Steudel, B[*P. communis* Trin.], H[*P. vulgaris* (Lam.) B.S.P.], 1998–C, **Pwt; Orw**—infrequent  
\**Poa annua* L., 1932–C, **Wrp; Our**—common  
\**Poa bulbosa* L., 1929–1929  
\**Poa compressa* L., H, 1907–C, **Pdr,ms**—frequent  
*Poa languida* A.S. Hitchc., 1897–1897  
*Poa palustris* L., H[*P. serotina* Ehr.], 1871–C, **Orw**—rare  
\**Poa pratensis* L., B, H, 1880–C, **P; O**—common  
\**Poa pratensis* L. ssp. *angustifolia* (L.) Lej., 2000–C, **Wrp**—rare  
*Poa sylvestris* Gray, 1871–C, **Twf**—rare  
\**Poa trivialis* L., 1960–C, **Orw**—rare  
*Poa wolfii* Scribner, 1897–C, **Wsp**—rare  
\**Puccinellia distans* (L.) Parl., 2000–C, **Wrp**—rare  
*Schizachyrium scoparium* (Michx.) Nash, B[*Andropogon scoparius* Michx.], H, 1871–C, **Ted,wd; Pdr**—frequent  
\**Sclerochloa dura* (L.) Beauv., 2000–C, **Wrp**—rare  
\**Setaria faberi* Herrm., 1949–C, **O**—common  
\**Setaria glauca* (L.) Beauv., H, 1883–C, **O**—common  
\**Setaria italica* (L.) Beauv., H, 1888–C, **Pms; Ocr**—infrequent  
\**Setaria viridis* (L.) Beauv., B, H, 1900–C, **O**—common  
\**Setaria verticillata* (L.) Beauv., 1927–C, **Our,cr**—rare



*Sorghastrum nutans* (L.) Nash, B[*Sorghum nutans* Gray], H[*Chrysopogon nutans* (L.) Benth.], 1883-C, Ted; P—common  
 \**Sorghum bicolor* (L.) Moench, 1890-C, Oof,cr; Wrp—rare  
 \**Sorghum halepense* (L.) Pers., 1890-1890  
*Spartina pectinata* Link, B[*S. cynosuroides* Willd.], H[*S. cynosuroides* (L.) Willd.], 1870-C, Pwt; Orw—frequent  
*Sphenopholis obtusata* (Michx.) Scribner, H[*Eatonia obtusata* (L.) Pers.], 1962-C, Tes; Pwt—frequent  
*Sphenopholis obtusata* (Michx.) Scribner var. *major* (Torrey) K.S. Erdman, 1871-C, Twf,wd; Orc—frequent  
*Sporobolus asper* (Michx.) Kunth, H, 1896-C, Pdr; O—frequent  
*Sporobolus cryptandrus* (Torrey) Gray, H, 1972-C, Orw,rc—rare  
*Sporobolus heterolepis* (Gray) Gray, H, 1875-C, P—infrequent  
*Sporobolus neglectus* Nash, 1873-C, Our,rw,rc—rare  
*Sporobolus vaginiflorus* (Torrey ex Gray) Wood, H[*S. vaginaeflorus* (Torr.) Vasey], 1896-C, Our,rw,rc—rare  
*Stipa spartea* Trin., B, H, 1875-C, Pdr; Orw—frequent  
*Stipa viridula* Trin., 1891-1976  
*Tridens flavus* (L.) A.S. Hitchc., 1980-C, Twd; Oof—rare  
*Zizania aquatica* L., H, 1887-1892

## PONTEDERIACEAE

*Heteranthera dubia* (Jacq.) MacM., 1880-1889  
*Pontederia cordata* L., H, n.d.[1880's]-n.d.

## POTAMOGETONACEAE

*Potamogeton foliosus* Raf., 1889-C, Wsz—rare  
*Potamogeton gramineus* L., H[*P. heterophyllus* Schreb.; *P. obtusifolius* Mertens and Koch (ISC specimen misidentified)], n.d.[1800's]-n.d.  
*Potamogeton illinoensis* Morong, H[=; *P. lucens* L.]  
*Potamogeton nodosus* Poirer, n.d.[1800's]-C, Wsz,md—frequent  
*Potamogeton pectinatus* L., 1998-C, Wsz—infrequent  
*Potamogeton pusillus* L., 1998-C, Wsz—rare  
*Potamogeton zosteriformis* Fern., H[*P. zosteraefolius* Schum.], 1999-C, Wsz—rare

## SPARGANIACEAE

*Sparganium chlorocarpum* Rydb., H[*S. simplex* Huds. (ISC specimen misidentified)], 1885-C, Wez—rare  
*Sparganium eurycarpum* Engelm., H, 1889-C, Wez—frequent

## TYPHACEAE

*Typha angustifolia* L., 1998-C, W; Orw—frequent  
*Typha* × *glauca* Godron, 2000-C, W; Orw—frequent  
*Typha latifolia* L., B, H, 1889-C, W; Orw—common

## ZANNICHELLIACEAE

*Zannichellia palustris* L., H, 1889-C, Wsz—rare

Appendix B. Historic reports, ISC specimens and plant species observations excluded from official list of Ames vascular plant species. Names in brackets indicate nomenclature not in current usage. Reason for exclusion: 1 = unable to resolve synonymy; 2 = no evidence for naturalization; 3 = reported in Ames by Bessey (1871) or Hitchcock (1890) at a site outside our current (1990–2000) inventory boundary; 4 = known from Iowa but occurrence in central Iowa is unlikely; 5 = occurrence in Iowa is unlikely; 6 = unable to verify identification of species from herbarium material.

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A) Published reports in Bessey (1871)

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|--|--|
| <i>Asplenium rhizophyllum</i> L. [ <i>Camptosorus rhizophyllum</i> Link.] 3                  | [ <i>Lappa officinalis</i> All. var. <i>major</i> ] 1  |
| <i>Aster dumosus</i> L. 4  | <i>Lobelia paludosa</i> Nutt. 5  |
| <i>Aster patens</i> Aiton 5  | <i>Panicum rigidulum</i> Nees [ <i>Panicum agrostoides</i> L.] 5                                 |
| <i>Athyrium thelypteroides</i> (Michx.) Desv. [ <i>Asplenium thelypteroides</i> Michx.] 4    | [ <i>Phaseolus diversifolius</i> Pers.] 1  |
| [ <i>Arabis hesperidoides</i> Gray] 1  | [ <i>Phaseolus perennis</i> Walt.] 1   |
| <i>Carex adusta</i> Boott. 5   | [ <i>Physalis viscosa</i> L.] 1  |
| <i>Carex bromoides</i> Willd. [ <i>Carex bromoides</i> Schk.] 5                              | <i>Polypodium virginianum</i> L. [ <i>Polypodium vulgare</i> L.] 3                               |
| [ <i>Crataegus tomentosa</i> L.] 1   | <i>Prenanthes crepidinea</i> Michx. [ <i>Nabalus crepidinus</i> DC.] 5                           |
| <i>Dichantheium xanthophyllum</i> (Gray) Freckmann [ <i>Panicum xanthophyllum</i> Gray] 5    | [ <i>Ribes rotundifolium</i> Michx.] 5   |
| <i>Equisetum palustre</i> L. 5   | [ <i>Rosa lucida</i> Ehrhart] 1  |
| <i>Fagopyrum esculentum</i> Moench. 2  | [ <i>Rubus villosus</i> Ait.] 1  |
| <i>Helianthus giganteus</i> L. × <i>mollis</i> Lam. [ <i>Helianthus doronicoides</i> Lam.] 5 | <i>Sambucus racemosa</i> L. ssp. <i>pubens</i> (Michx.) House [ <i>Sambucus pubens</i> Michx.] 4 |
| <i>Lepidium ruderales</i> L. 5   | <i>Sanicula marilandica</i> L. 4   |
| <i>Linum usitatissimum</i> L. 2  | <i>Vitis vulpina</i> L. [ <i>Vitis cordifolia</i> Michx.] 4                                      |

B) Published reports in Hitchcock (1890)

- |  |   |
|--|---|
| <i>Agalinis nuttallii</i> Shinnars [ <i>Gerardia longifolia</i> Benth.] 5  | <i>Myriophyllum spicatum</i> L. 3   |
| <i>Asclepias engelmanniana</i> Woodson [ <i>Acerates floridana</i> (Lam.)] 5   | <i>Nuphar luteum</i> (L.) Sibth. and Smith ssp. <i>variegatum</i> (Engelm. ex Dur.) E. O. Beal [ <i>Nymphaea advena</i> Solander] 3 |
| <i>Aesculus glabra</i> Willd. 3  | <i>Nymphaea tuberosa</i> Paine [ <i>Castalia tuberosa</i> (Paine) Greene] 3   |
| <i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) Hall & Clem [ <i>Artemisia caudata</i> Michx.] 3                     | <i>Oenothera rhombipetala</i> Nutt. ex T. & G. 3  |
| <i>Beckmannia syzigachne</i> (Steudel) Fern. [ <i>Beckmannia erucaeformis</i> (L.) Host var. <i>uniflorus</i> Scrib. in Vasey] 4 | <i>Parnassia glauca</i> Raf. [ <i>Parnassia caroliniana</i> Michx.] 3   |
| <i>Blephilia hirsuta</i> (Pursh) Bentham 3   | <i>Phalaris canariensis</i> L. 2  |
| <i>Brasenia schreberi</i> J.F. Gmelin [ <i>Brasenia nymphoides</i> (Thunb.) Ball] 3  | [ <i>Polygonum amphibium</i> L.] 1  |
| <i>Bromus ciliatus</i> L. 4  | <i>Potamogeton nodosus</i> Poir. [ <i>Potamogeton fluitans</i> Roth.] 3   |
| <i>Carex intumescens</i> Rudge 4   | <i>Potentilla anserina</i> L. 3   |
| <i>Crataegus tomentosa</i> L. 1  | <i>Quercus muhlenbergii</i> Engelm. 3   |
| <i>Eleocharis cyperinum</i> L. 1   | <i>Ranunculus acris</i> L. 2  |
| <i>Fagopyrum esculentum</i> Moench 2   | <i>Raphanus sativus</i> L. 2  |
| <i>Foeniculum vulgare</i> Hill [ <i>Foeniculum officinale</i> L.] 2  | [ <i>Rubus villosus</i> Ait.] 1   |
| [ <i>Helianthus strumosus</i> L. var. <i>mollis</i> (Willd.) Torr. & Gray] 1   | <i>Rumex maritimus</i> L. 3   |
| [ <i>Heteranthera graminea</i> (Michx.) Vahl.] 1   | <i>Senecio obovatus</i> Muhl. ex Willd. [ <i>Senecio aureus</i> L. var. <i>obovatus</i> (Muhl.) Torr. & Gray] 5                     |
| <i>Hydrophyllum appendiculatum</i> Michx. 3  | <i>Senecio pauperculus</i> Michx. [ <i>Senecio aureus</i> L. var. <i>balsamitae</i> (Muhl.) Torr. & Gray] 3                         |
| <i>Ipomoea purpurea</i> (L.) Roth 2  | <i>Silphium integrifolium</i> Michx. 3  |
| <i>Lechea minor</i> L. 5   | <i>Sphenopholis nitida</i> (Biehler) Scribn. [ <i>Eatonia pennsylvanica</i> (Sprengel)] 5   |
| <i>Linum usitatissimum</i> L. 2  | <i>Trillium nivale</i> Riddell 3  |
| <i>Lycopus rubellus</i> Moench. 5  | <i>Vallisneria americana</i> Michx. [ <i>Vallisneria spiralis</i> L.] 3   |
| <i>Megalondonta beckii</i> (Torrey ex Sprengel) Greene [ <i>Bidens beckii</i> Torr. in Sprengel] 3                               |   |

C) Herbarium Voucher Specimens (ISC)

- |   |   |
|---|---|
| <i>Amaranthus hybridus</i> L. 2                       | <i>Cotinus obovatus</i> Raf. 2                                  |
| <i>Anaphalis margaritacea</i> (L.) Bentham & Hooker 6 | <i>Crataegus monogyna</i> Jacq. 2                               |
| <i>Anethum graveolens</i> L. 2                        | <i>Cucurbita maxima</i> Duches. ex Lam. 2                       |
| <i>Arabis lyrata</i> L. 4                             | <i>Cucurbita pepo</i> L. 2                                      |
| <i>Berberis amurensis</i> Rupr. 2                     | <i>Cuscuta coryli</i> Engelm. 6                                 |
| <i>Berberis esculenta</i> 2                           | <i>Elymus submuticus</i> (Hook.) Smyth 6                        |
| <i>Berberis fischeri</i> 2                            | <i>Foeniculum vulgare</i> Hill 2                                |
| <i>Berberis macrophylla</i> 2                         | <i>Gentiana alba</i> Muhl. × <i>G. puberulenta</i> J. Pringle 6 |
| <i>Carum carvi</i> L. 2                               | <i>Hordeum vulgare</i> L. 2                                     |
| <i>Centaurea calcitrapa</i> L. 1, 2                   | <i>Linum usitatissimum</i> L. 2                                 |
| <i>Cicer arietinum</i> L.                             | <i>Lonicera prolifica</i> (Kirchner) Rehder 2                   |
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## Appendix B. Continued.

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<i>Morus nigra</i> L. 1, 6	<i>Solanum jamesii</i> Torr. 2
<i>Notboscordum bivalve</i> (L.) Britton 6	<i>Sorghum sudanense</i> (Piper) Stapf 2
[ <i>Oenothera biennis</i> L.] 1, 6	<i>Symphoricarpos albus</i> (L.) Blake 2
<i>Phalaris canariensis</i> L. 2	<i>Syringa persica</i> L. 2
<i>Raphanus sativus</i> L. 2	<i>Syringa vulgaris</i> L. 2
<i>Salix alba</i> L. 2	<i>Tragopogon porrifolius</i> L. 6
<i>Secale cereale</i> L. 2	<i>Trifolium medium</i> L. 2
<i>Shepherdia argentea</i> (Pursh) Nutt. 2	<i>Trifolium striatum</i> L. 2
<i>Silene gallica</i> L. 5, 6	<i>Tripsacum dactyloides</i> (L.) L. 2
<i>Sisyrinchium angustifolium</i> Miller 6	<i>Viburnum dentatum</i> L. 4
<i>Smilax rotundifolia</i> L. 5, 6	<i>Vicia cracca</i> L. 2
<b>D) Observations (1990–2000)</b>	
<i>Avena sativa</i> L. 2	
<i>Borago vulgaris</i> L. 2	
<i>Brassica oleracea</i> L. 2	
<i>Filipendula rubra</i> (Hill) B.L. Robinson 2	
<i>Glycine max</i> (L.) Merr.	
<i>Lycopersicon esculentum</i> P. Millet 2	
<i>Raphanus sativus</i> L. 2	
<i>Syringa vulgaris</i> L. 2	
<i>Taxus</i> sp. 2	
<i>Triticum aestivum</i> L. 2	
<i>Zea mays</i> L. 2	

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Appendix C. Descriptions and map (fig. 3) of sites containing significant plant assemblages in Ames, Iowa. Sites 1–26 currently exist; the plant communities of sites B and H have largely been destroyed. All sites occur in Story County except for the west end of site 21.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
1	Cooper's Marsh	T84N R23W sec 21 se1/4 sw1/4 sw1/4; 42°03'50"N, 93°32'10"W	Pwt; Wsz, ez	<i>Agalinis tenuifolia</i> , <i>Campanula aparinoides</i> , <i>Carex atherodes</i> × <i>trichocarpa</i> , <i>C. crawei</i> , <i>C. crawfordii</i> , <i>Potamogeton zosteriformis</i> , <i>Tomanthera auriculata</i> , <i>Utricularia vulgaris</i>
2	Ketelsen Marsh	T84N R23W sec 31 ne1/4; 42°02'40"N, 93°34'00"W	Pwt; Wsz, ez	<i>Bidens vulgata</i> , <i>Boltonia decurrens</i> , <i>Carex bebbii</i> , <i>C. stricta</i> , <i>C. suberecta</i> , <i>Echinodorus cordifolius</i> , <i>Eleocharis macrostachya</i> , <i>Eupatorium perfoliatum</i> , <i>Glyceria septentrionalis</i> , <i>Hibiscus laevis</i> , <i>Juncus nodosus</i> , <i>Lysimachia thyriflora</i> , <i>Pedicularis lanceolata</i> , <i>Scirpus fluviatilis</i> , <i>Solidago riddellii</i> , <i>Sparganium chlorocarpum</i> , <i>S. eurycarpum</i> , <i>Spirodela polyrhiza</i>
3	Peterson Pits	T84N R24W sec 13 w1/2 and ne1/4; 42°05'10"N, 93°35'40"W	Twf, wd; Pdr; Wez, sz, rp; Orc	<i>Agastache scrophulariifolia</i> , <i>Androsace occidentalis</i> , <i>Arisaema dracontium</i> , <i>Boehmeria cylindrica</i> , <i>Carex leavenworthii</i> , <i>Clematis pitcheri</i> , <i>Dracocephalum parviflorum</i> , <i>Echinocystis lobata</i> , <i>Eragrostis trichodes</i> , <i>Geum aleppicum</i> var. <i>strictum</i> , <i>Hemicarpha micrantha</i> , <i>Lilium michiganense</i> , <i>Najas guadalupensis</i> , <i>Plantago patagonica</i> , <i>Potamogeton foliosus</i> , <i>Sium suave</i> , <i>Spiranthes ovalis</i> , <i>Strophostyles helvula</i> , <i>Verbena</i> × <i>deamii</i> , <i>V. × rydbergii</i> , <i>V. × moebina</i> , <i>Zannichellia palustris</i>
4	Raymond-Rolling Prairie	T84N R24W sec 14 e1/2; 42°05'10"N, 93°36'10"W	Pdr, ms	<i>Asclepias viridiflora</i> , <i>Asplenium rhizophyllum</i> , <i>Aster azureus</i> , <i>Astragalus crassicaerpus</i> , <i>Cirsium hillii</i> , <i>Croton glandulosa</i> , <i>Dalea candida</i> , <i>Eragrostis spectabilis</i> , <i>Gentiana puberulenta</i> , <i>Helianthemum bicknellii</i> , <i>Lespedeza leptostachya</i> , <i>Linum sulcatum</i> , <i>Mirabilis albida</i> , <i>M. hirsuta</i> , <i>Notbocalais cuspidata</i> , <i>Viola pedatifida</i> , <i>V. viarum</i>
5	Hallett's Quarry	T84N R24W sec 22; 42°04'00"N, 93°37'30"W	Twf; Orc	<i>Cuscuta cephalanthii</i> , <i>Dichantheium acuminatum</i> var. <i>acuminatum</i> , <i>Eclipta alba</i> , <i>Eleocharis engelmannii</i> , <i>Helianthemum bicknellii</i> , <i>Lactuca ludoviciana</i> , <i>Lysimachia hybrida</i> , <i>Verbena canadensis</i>
6	Inis Grove Park	T84N R24W sec 26 and 35; 42°03'00"N, 93°36'50"W	Tdf, mf, wf, es; Wsp	<i>Arabis hirsuta</i> , <i>Aralia nudicaulis</i> , <i>Astragalus canadensis</i> , <i>Carex conjuncta</i> , <i>C. normalis</i> , <i>Lilium michiganense</i> , <i>Lonicera dioica</i> var. <i>glaucescens</i> , <i>Polygala verticillata</i> , <i>Spiranthes ovalis</i>
7	North River Valley Park	T84N R24W sec 35 e1/2 and 36 sw1/4; 42°02'20"N, 93°36'00"W	Twf	<i>Arabis sbortii</i> , <i>Botrychium dissectum</i> f. <i>dissectum</i> , <i>Botrychium dissectum</i> f. <i>obliquum</i> , <i>Panax quinquefolius</i>
8	Holub Prairie	T83N R23W sec 5 ne1/4; 42°01'50"N, 93°32'30"W	Twf; Pwt	<i>Agalinis tenuifolia</i> , <i>Carex frankii</i> , <i>Scirpus acutus</i> , <i>Spiranthes cernua</i> , <i>S. magnicamporum</i>
9	Interstate 35 East–Between Lincoln Way and Highway 30	T83N R23W sec 7 e1/2; 42°01'00"N, 93°34'00"W	Twf, wd	<i>Asplenium rhizophyllum</i> , <i>Botrychium dissectum</i> f. <i>dissectum</i> , <i>Botrychium dissectum</i> f. <i>obliquum</i> , <i>Galearis spectabilis</i> , <i>Liparis loeselii</i>
10	Stargrass Prairie	T83N R23W sec 17 sw1/4; 41°59'40"N, 93°33'10"W	Prairie reconstruction with some natural prairie	<i>Asclepias amplexicaulis</i> , <i>Cassia marilandica</i> , <i>Paspalum setaceum</i> var. <i>ciliatifolium</i> , <i>Prunus mexicana</i> , <i>Rudbeckia subtomentosa</i>
11	Pohl Memorial State Preserve at Ames High School	T84N R24W sec 34 nw1/4 sw1/4; 42°02'20"N, 93°38'20"W	Pdr, ms	<i>Asclepias tuberosa</i> ssp. <i>interior</i> , <i>A. viridiflora</i> , <i>Aster azureus</i> , <i>A. sericeus</i> , <i>Astragalus crassicaerpus</i> , <i>Baptisia bracteata</i> var. <i>glabrescens</i> , <i>B. lactea</i> , <i>Bouteloua hirsuta</i> , <i>Calylophus serrulata</i> , <i>Carex meadii</i> , <i>Ceanothus americanus</i> var. <i>pitcheri</i> , <i>Dichantheium oligosanthes</i> var. <i>oligosanthes</i> , <i>D. oligosanthes</i> var. <i>wilcoxianum</i> , <i>Echinacea pallida</i> , <i>Gentiana puberulenta</i> , <i>Hypoxis hirsuta</i> , <i>Koeleria macrantha</i> , <i>Linum sulcatum</i> , <i>Lithospermum incisum</i> , <i>Pediomelum argophyllum</i> , <i>Notbocalais cuspidata</i> , <i>Tridens flavus</i> , <i>Vernonia baldwinii</i> , <i>Viola pedatifida</i> , <i>V. pedatifida</i> × <i>sororia</i>

## Appendix C. Continued.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
12	Brookside Park	T83N R24W sec 3 n1/2; 42°01'50"N, 93°37'50"W	Twf	<i>Carex grayi</i> , <i>Cuscuta pentagona</i> , <i>Juglans cinerea</i>
13	Pammel Woods	T83N R24W sec 4 nw1/4; 42°02'00"N, 93°39'10"W	Tdf, mf, wf	<i>Arisaema dracontium</i> , <i>Brachyletrum erectum</i> , <i>Diarrhena americana</i> var. <i>obovata</i>
14	Emma McCarthy Lee Park	T83N R24W sec 5 ne1/4; 42°01'50"N, 93°39'40"W	Twf, mf, ed	<i>Arisaema dracontium</i>
15	Clear Creek Woods	T83N R24W sec 5 ne1/4; 42°01'40"N, 93°40'10"W	Tdf, mf, wf	<i>Arisaema dracontium</i> , <i>Napaea dioica</i>
16	Munn Woods	T83N R24W sec 5 sw1/4; 42°01'30"N, 93°40'30"W	Tdf, mf, wf, es	<i>Agrostis hyemalis</i> , <i>Campanula aparinoides</i> , <i>Corallorhiza odoratorhiza</i> , <i>Gentiana quinquefolia</i> var. <i>occidentalis</i> , <i>Monotropa uniflora</i> , <i>Muhlenbergia tenuiflora</i> , <i>Polygala verticillata</i>
17	Reactor Woods	T84N R24W sec 32; 42°02'40"N, 93°39'50"W	Tdf, mf, wf, es	<i>Actaea rubra</i> , <i>Arabis canadensis</i> , <i>Aralia racemosa</i> , <i>Asplenium platyneuron</i> , <i>Athyrium felix-femina</i> var. <i>angustum</i> , <i>Bromus pubescens</i> , <i>Carex albursina</i> , <i>C. conjuncta</i> , <i>C. hirtifolia</i> , <i>C. hitchcockiana</i> , <i>C. sparganioides</i> , <i>Coeloglossum viride</i> var. <i>virescens</i> , <i>Diarrhena americana</i> var. <i>obovatus</i> , <i>Dichanthelium latifolium</i> , <i>Dryopteris carthusiana</i> , <i>Galearis spectabilis</i> , <i>Gentiana alba</i> , <i>G. andrewsii</i> , <i>Hieracium scabrum</i> , <i>Juglans cinerea</i> , <i>Lonicera dioica</i> var. <i>glaucescens</i> , <i>Oryzopsis racemosa</i> , <i>Panax quinquefolius</i> , <i>Populus grandidentata</i> , <i>Taenidia intergerrima</i>
18	Union Pacific Railroad (North)	T84N R24W sec 16, 21 and 28; 42°03'50"N, 93°38'50"W	Pms, wt	<i>Carex sartwellii</i> , <i>Lilium michiganense</i> , <i>Oxypolis rigidior</i> , <i>Sium suave</i> , <i>Symphoricarpos occidentalis</i>
19	Northridge Seep	T84N R24W sec 33 nw1/4 nw1/4 nw1/4; 42°02'50"N, 93°39'20"W	Wsp, rp	<i>Aster prenanthoides</i> , <i>Caltha palustris</i> , <i>Campanula aparinoides</i> , <i>Carex stipata</i> , <i>C. stricta</i> , <i>C. tenera</i> var. <i>echinoides</i> , <i>Chelone glabra</i> , <i>Poa sylvestris</i> , <i>P. wolfii</i> , <i>Salix bebbiana</i> , <i>Silene nivea</i>
20	Squaw Creek	T84N R24W sec 29 e1/2 and sec 20 w1/2; 42°03'50"N, 93°40'10"W	Tdf, mf, wf, es, ed; Pdr; Wrp	<i>Asplenium rhizophyllum</i> , <i>Botrychium dissectum</i> f. <i>obliquum</i> , <i>Calylophus serrulata</i> , <i>Carex conjuncta</i> , <i>C. grayi</i> , <i>C. lupulina</i> , <i>Cuscuta pentagona</i> , <i>Elodea nuttallii</i> , <i>Gnaphalium obtusifolium</i> , <i>Hedeoma pulegioides</i> , <i>Hemicarpha micrantha</i> , <i>Iodanthus pinnatifidus</i> , <i>Lilium michiganense</i> , <i>Linum sulcatum</i> , <i>Mirabilis albida</i> , <i>M. hirsuta</i> , <i>Muhlenbergia bushii</i> , <i>Paronychia canadensis</i> , <i>Spiranthes ovalis</i> , <i>Veronica amagallisaquatica</i> , <i>V. catenata</i>
21	Union Pacific Railroad (West)	T84N R24W sec 31 sw1/4; T84N R25W sec 36; 42°02'20"N, 93°42'00"W	Pms, wt	<i>Agalinis tenuifolia</i> , <i>Aster praealtus</i> , <i>Calamagrostis inexpansa</i> , <i>Carex lacustris</i> , <i>C. prairea</i> , <i>C. sartwellii</i> , <i>C. tetanica</i> , <i>C. trichocarpa</i> , <i>Dichanthelium leibergii</i> , <i>Eryngium yuccifolium</i> , <i>Gentiana andrewsii</i> , <i>Gentianella quinquefolia</i> var. <i>occidentalis</i> , <i>Geum aleppicum</i> , <i>Helenium autumnale</i> , <i>Lactuca tatarica</i> ssp. <i>pulchella</i> , <i>Lilium michiganense</i> , <i>Liatrix pycnostachya</i> , <i>Oxypolis rigidior</i> , <i>Prenanthes racemosa</i> , <i>Senecio pseud aureus</i> , <i>Solidago missouriensis</i> , <i>Spiranthes magnicamporum</i> , <i>Symphoricarpos occidentalis</i> , <i>Tomanthera auriculata</i> , <i>Verbena × engelmannii</i>
22	Worle Creek (West)	T83N R24W sec 17 se1/4; 41°59'50"N, 93°39'50"W	Wrp; Ops	<i>Agastache scrophulariifolia</i> , <i>Carex aggregata</i> , <i>C. eburnea</i> , <i>C. leavenworthii</i> , <i>C. lupulina</i> , <i>Crataegus calpodendron</i> , <i>C. succulenta</i> , <i>Fragaria vesca</i> var. <i>americana</i>
23	Worle Creek (East)	T83N R24W sec 16 w1/2; 42°00'00"N, 93°39'20"W	Tdf, mf, wf, wd, es; Pdr	<i>Actaea rubra</i> , <i>Arisaema dracontium</i> , <i>Brachyletrum erectum</i> , <i>Coreopsis tripteris</i> , <i>Dichanthelium latifolium</i> , <i>Oryzopsis racemosa</i> , <i>Ribes cynosbati</i> , <i>Rubus idaeus</i> var. <i>strigosus</i>

Appendix C. Continued.

No.	Site Name	Location	Habitat Types	Rare and Infrequent Plant Species
24	Zumwalt Station City Park	T83N R24W sec 16; 41°59'40"N, 93°40'00"W	Tdf, mf, wd; Ops	<i>Carex hirtifolia</i> , <i>Fragaria vesca</i> var. <i>americana</i> , <i>Hypericum prolificum</i> , <i>Monotropa uniflora</i> , <i>Ribes cynosbati</i>
25	Black's Prairie	T83N R24W sec 28 nw1/4 nw1/4 sw1/4; 41°58'20"N, 93°39'30"W	Pwt	<i>Asclepias sullivantii</i> , <i>Carex tetanica</i> , <i>Dichanthelium leibergii</i> , <i>Eryngium yuccifolium</i> , <i>Hypoxis hirsuta</i> , <i>Oxalis violacea</i> , <i>Oxypolis rigidior</i>
26	Adam's Prairie	T83N R24W sec 21 ne1/4 ne1/4 ne1/4; 41°59'40"N, 93°38'20"W	Pwt	<i>Carex annectens</i> var. <i>xanthocarpa</i> , <i>C. buxbaumii</i> , <i>C. haydenii</i> , <i>C. sartwellii</i> , <i>Eryngium yuccifolium</i> , <i>Gentiana puberulenta</i> , <i>Hypoxis hirsuta</i>
B	Ames Peat Bog	T84N R24W sec 36 n1/2; 42°02'50"N, 93°35'10"W	Tdf, mf, wf	<i>Aster puniceus</i> , <i>A. umbellatus</i> , <i>Botrychium dissectum</i> f. <i>obliquum</i> , <i>Corallorhiza odontorhiza</i> , <i>Epilobium coloratum</i> , <i>Eupatorium maculatum</i> , <i>Monotropa uniflora</i> , <i>Pedicularis lanceolata</i> , <i>Populus tremuloides</i>
H	Hayden Farm	T84N R24W sec 27 e1/2 nw1/4; 42°03'40"N, 93°37'50"W	Pdr, ms, wt; Wsp; Orc	<i>Acorus calamus</i> , <i>Agalinis purpurea</i> , <i>Asclepias sullivantii</i> , <i>Astragalus crassicaarpus</i> , <i>Bouteloua hirsuta</i> , <i>Caltha palustris</i> , <i>Cypripedium candidum</i> , <i>Dichanthelium perlongum</i> , <i>Glyceria septentrionalis</i> , <i>Koeleria macrantha</i> , <i>Liatris cylindracea</i> , <i>Lilium michiganense</i> , <i>L. philadelphicum</i> var. <i>andinum</i> , <i>Lysimachia terrestris</i> , <i>Pedimelum argophylla</i> , <i>Polygala incarnata</i> , <i>Sagittaria australis</i> , <i>Sium suave</i>