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THE CHARACTERISTICS AND PHYTOGEOGRAPHIC AFFINITIES OF THE FLORA OF NINE-MILE PRAIRIE, A WESTERN TALL-GRASS PRAIRIE IN NEBRASKA

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Three hundred ninety-two species, subspecies, and varieties have been recorded at Nine Mile Prairie, a relict tall grass prairie that has been reduced from 323 to 97 ha in the past 50 years. There are 218 native and 17 introduced herbaceous perennial species, and 73 native and 24 introduced annuals. Analogous numbers for biennials are 15 and 11, for shrubs are 14 and one, for trees are ten and three, and for woody vines are six and none. One hundred twenty-one native species are of central and eastern North American phytogeographic affinity, and 109 are of transcontinental affinity. Seventy-nine of the Prairie's native species occur only in the central part of the continent, but only 27 are characteristic of the western *and* central parts. Five habitats are utilized to categorize the vegetation: wooded ravine, upland prairie, disturbed upland prairie, wet prairie, and aquatic. Data are presented on the distribution of growth habits and phytogeographic affinities for the habitats. The upland prairies have more native and introduced species than either the wet prairies or ravines. However, the relative proportions of growth habits, flowering phenologies, and phytogeographic affinities are not the same in the various habitats. The flora of the wooded ravines is mostly of eastern affinity, while that of the upland prairies has strong western and central phytogeographic elements.

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INTRODUCTION

Nine-Mile Prairie is a 240 acre (97 ha) tract of virgin prairie on the west edge of the city of Lincoln in Lancaster County, Nebraska, and is one of the largest remnants of virgin prairie in eastern Nebraska. It was the site of pioneering studies of plant ecology by J. E. Weaver and his associates from the 1910's to the 1950's, and is the longest-studied prairie in the State. The Prairie has been owned by the University of Nebraska Foundation since 1984, and is leased to the University for educational and research purposes. It has been mowed sometimes for hay and occasionally grazed lightly by cattle over the past century, but is relatively undisturbed except for a farmstead abandoned in the 1930's, which is far from being fully revegetated with native species. Since 1979 a regular program of mostly springtime burning has been undertaken to foster growth of native species and suppress the introduced elements.

The Prairie grows on moderately steep hills of loess and glacial till. The hills slope to narrow, rather steep-walled ravines, and there is no level land between them. The soils are fine-textured and water-retentive, but when they dry the surface becomes cracked and very hard. A few large glacial erratic boulders of Sioux quartzite appear at the surface.

There are several small, spring-fed streams of rather steep gradient near which most of the trees, shrubs, and associated understory plants occur, but there is no low, moist, level prairie. Two small, artificial ponds contain a few submersed aquatic species.

Steiger (1930), in a detailed paper that presaged modern quantitative ecological studies, presented much information on climate, flowering phenology, dominance, soil–water relationships of the plants, and other ecological characteristics of the Prairie. His paper is the only publication that enumerates and ecologically classifies the flora of Nine–Mile Prairie. He listed species in ravines, wet meadows, and disturbed areas, but presented ecological information mostly about species of high and low prairies. He characterized high prairie by the presence of little bluestem grass (*Andropogon scoparius*), porcupine grass (*Stipa spartea*), June–grass (*Koeleria pyramidata*), the dropseeds (*Sporobolus* spp.), and grama-grasses (*Bouteloua* spp.), and low prairie by its dense, continuous sod, mostly of big bluestem (*Andropogon gerardii*). For our purposes, we recognize these as one floristic area, the upland prairie, because they share many species and there is no apparent edaphic, topographic, or floristic boundary between them, as even Steiger noted. Both are well–drained and mostly sloping, whereas low prairie, in the modern sense, is level, poorly–drained, but not constantly saturated prairie; the latter conditions have never existed at Nine–Mile Prairie. Instead, there are narrow, marshy strips along the streams that we designate as wet prairies (but which are not Steiger's low prairie); they are characterized by plants that thrive on saturated soils.

The Prairie is usually categorized as "tall–grass prairie," but it is an example of such near its western limits, where the heights of the tallest grasses are usually less than in tall–grass prairies farther east. In wet summers some of the grasses grow to 2 m in parts of the Prairie, but in many years they do not reach such heights.

Here we present an analysis of the plants of Nine–Mile Prairie to define their phytogeographic affinities and to characterize their growth habits. We also present an up to–date floristic list to document the status of the flora 57 years after Steiger's study. Numerous species have been discovered since Steiger's list was published, but others he listed cannot be found today; their former presence is documented by herbarium specimens, many of them collected by Steiger. The Prairie has been reduced by plowing and grazing from 800 acres (323 ha) in 1930, which has undoubtedly eliminated some species.

For our purposes, the Prairie is taken to include not only the grassland species but also the plants of the narrow, often steep–sided ravines between the grassland slopes; these are wooded in some places. All native and introduced vascular plant species ever collected or credibly recorded from the Prairie are indicated in the data in Table I and the list in Table II. Nomenclature follows the *Flora of the Great Plains* (Great Plains Flora Association, 1986), in which most of the synonyms used by Steiger can be found. Most species are represented by voucher specimens in the University of Nebraska Lincoln herbarium, where there is separate collection of Nine–Mile Prairie plants, including all the extant Steiger specimens from Nine–Mile Prairie or that we believe to be from there.

TABLE I. Numbers of species in the five habitats, grouped by habit and range.

HABITATS:
D *Disturbed upland habitats*
U *Undisturbed upland habitats*
W *Wet prairies, watersides*
R *Wooded ravines and edges*
Q *Aquatic (underwater) habitats*

RANGES:
WCE *Western, Central, Eastern No. Amer.*
WC *Western, Central North America*
CE *Central, Eastern North America*
C *Central North America*

HABITS:
A *Annual*
B *Biennial*
P *Perennial (herbaceous)*
S *Shrub*
T *Tree*
V *Vine (woody)*

	HABIT: NATIVE SPECIES							RANGE: NATIVE SPECIES					HABIT: INTRODUCED SPECIES						
	A	**B**	**P**	**S**	**T**	**V**		**WCE**	**WC**	**CE**	**C**		**A**	**B**	**P**	**S**	**T**	**V**	
D	38	5	7	0	0	0	**50**	28	6	8	8	**50**	21	10	9	0	0	0	**40**
U	4	2	137	5	1	0	**149**	28	17	47	57	**149**	0	0	6	1	0	0	**7**
W	19	4	49	3	1	0	**76**	43	3	20	10	**76**	2	0	2	0	0	0	**4**
R	10	4	24	6	8	6	**58**	7	1	46	4	**58**	1	1	0	0	3	0	**5**
Q	2	0	1	-	-	-	**3**	3	0	0	0	**3**	0	0	0	-	-	-	**0**
	73	**15**	**218**	**14**	**10**	**6**	**336**	**109**	**27**	**121**	**79**	**336**	**24**	**11**	**17**	**1**	**3**	**0**	**56**

HABITATS

based upon the label data on his specimens. We have added many voucher specimens from the Prairie.

In Tables I and II, all species are designated as native (**N**) or introduced (**I**), the latter category including all species not native to eastern Nebraska. All species are also designated as annual (**A**), biennial (**B**), or perennial (**P**) herbs or, for woody plants, as shrubs (**S**), trees (**T**), or woody vines (**V**). When the literature reports a species to be either annual or biennial, we have chosen the latter designation as expressing the greatest longevity.

General habitat designations are given in the Tables using a modified version of Steiger's (1930) system. Plants of well-drained, sloping, upland prairie are designated "**U**", a category that combines Steiger's high and low prairies. Plants of distinctly wet, mostly saturated, marshy prairie are shown by "**W**", a category that also includes the plants bordering unforested margins of small streams and ponds that contain the submersed aquatic (**Q**) species. Most trees and their understory species occur in the wooded ravines (**R**). Plants of disturbed, *upland* areas such as gopher mounds, eroded places, and paths are indicated by "**D**"; plants of disturbed places in "**W**" and "**R**" areas are not indicated, but all the annuals and biennials of those areas are typical of disturbed areas, as are a few perennials. Some species occasionally appear in habitats other than those designated, but for our purposes of classification and analysis we have indicated only the most usual habitat. Some species are likely to disappear, e.g., American elm, which was not listed by Steiger but is now common in the ravines but threatened by Dutch elm disease. Other species not listed by Steiger or us will surely be found, especially introduced ones.

The typical flowering seasons are given in Table II as spring (**Sp**), summer (**Su**), or fall (**F**), indicating March–May, June–August, and September–October respectively. When two seasons are noted (**SpSu, SuF**), it is usual for flowering to peak near the end of the first season and the beginning of the second. A few species flower from spring through fall and are designated as "**SpF**". The annual species are more variable in flowering phenology than the perennials, and some spring-flowering annuals re-flower in the fall, especially if the fall weather is wet. However, flowering of the perennials can be strongly affected by the weather too. According to Steiger (1930), all areas show peak numbers of species in flower in late May and early to mid-June, followed by declines in late June or early July. The ravines, lower slopes, and wet meadows then exhibit increases, reaching higher peaks in August that are followed by steep declines in September, but the upper slopes continue a slow and steady decline in number of species in flower from their June maximum.

To assess phytogeographic affinities, the general North American range is given for each native species in Table I. Those with ranges extending across the continent are indicated as "**WCE**" (west, central, east), those of the central and eastern parts of the continent (from the eastern foot of the Rocky Mountains to the Atlantic coast) as "**CE**", and those that range from the Pacific coast, Great Basin, or Rocky Mountains through the Great Plains as "**WC**". Many of the Prairie's species are found only in the central third of the continent (from the eastern foot of the Rocky Mountains across the Great Plains to the Mississippi River or somewhat beyond) and are designated "**C**" in the list. Ranges are not given for introduced species because they are of no value in assessing phytogeographic relationships of the native flora. Information about ranges is taken from the *Atlas of the Flora of the Great Plains* (Great Plains Flora Association, 1977), the *Flora of the Great Plains* (Great Plains Flora Association, 1986), and from various regional floras of North America.

OBSERVATIONS AND DISCUSSION

Distribution of growth habits in native and introduced species

Table I shows that of the the 392 species of vascular plants discovered at Nine-Mile Prairie in the past 60 years, 336 (86%) are native species and 56 (14%) are introduced. (Many introduced species are Eurasian, but some are American.) Of the native species, 218 (65%) are perennial herbs, 73 (22%) are annuals, 15 (4.5%) are biennials, and 6 (1.8%) are woody vines. The ten native tree species and 14 native shrub species together account for about 7% of the native species.

Steiger (1930) found 345 species of native and introduced plants, and he noted 156 native species in upland prairie (his low and high prairies), 45 in wet prairie, and 132 in the ravines (these total more than 345 because he showed some species in more than one habitat). Some native species on Steiger's list, e.g. *Cypripedium candidum*, cannot be found in the Prairie today, but others, e.g. *Spiranthes vernalis* and *S. cernua*, are common but do not appear on his list. He did not list *Bromus inermis*, the introduced smooth brome grass, but today it is a common and serious weed, even in the undisturbed Prairie. He noted that the only trees in the ravines were boxelder (*Acer negundo*), cottonwood (*Populus deltoides*), and willow (*Salix* sp.). Today we find all those and American, red, and Siberian elms (*Ulmus americana*, *U. rubra*, *U. pumila*), the hybrid *Ulmus rubra* × *U. pumila*, honey locust (*Gleditsia triacanthos*), hackberry (*Celtis occidentalis*), green ash (*Fraxinus pennsylvanica*), and the introduced mulberry (*Morus alba*) and Osage orange (*Maclura pomifera*) to be present and sometimes

abundant. Siberian elm reproduces vigorously, but is confined by fires to some of the ravines. Although abundant nearby, neither black walnut (*Juglans nigra*) nor bur oak (*Quercus macrocarpa*) is known from the Prairie.

Some of Steiger's citations were based upon incorrectly identified specimens that we have re-identified; such species are included in our list under the correct names. For example, the specimen he labelled *Helianthus petiolaris* is actually *H. tuberosus*, so the latter name appears on our list; in this instance *H. petiolaris* is absent from the list because that species has not been found at the Prairie and is, in fact, rare in this part of the State.

We exclude from our list some species cited by Steiger for the Prairie because they are not documented by specimens and we have not found the species in the Prairie; many are unknown in this part of the State or, at least, in the Prairie because suitable habitat is lacking for them. Some of Steiger's citations are no doubt based upon mis-identifications, but in the absence of specimens we cannot determine what was meant by those names. The current names (from Great Plains Flora Association, 1986) of these excluded species are *Agropyron caninum*, *Alopecurus aequalis*, *Aster fendleri*, *Carex haydenii*, *C. interior*, *C. lurida*, *C. pensylvanica*, *Chenopodium gigantospermum*, *Cirsium ochrocentrum*, *Desmodium paniculatum*, *Eragrostis hypnoides*, *E. pilosa*, *Euphorbia geyeri*, *Galium lanceolatum*, *G. trifidum*, *Hieracium scabrum*, *Lithospermum arvense*, *L. carolinense*, *Muhlenbergia mexicana*, *Physalis pumila*, *Plantago aristata*, *Rubus allegheniensis*, *Salix nigra*, *Scrophularia lanceolata*, *Silene drummondii*, *Sisymbrium altissimum* (probably for *S. loeselii*), and *Viola palustris*.

Thus, because of these and other problems of synonymy, identification, and changing nomenclatural concepts, our list and Steiger's are not entirely comparable, but they are similar enough to suggest that some floristic changes have occurred since 1930. Also, we include in our list a more detailed survey of the flora of the wooded ravines, the disturbed areas, and the ponds (which latter did not exist in Steiger's time). And while Steiger studied the entire tract, he concentrated on a transect of about 0.3 mi (0.4 km), but we have studied the area rather evenly. That transect apparently was at the north end of the northwestern part of the Prairie.

Table I classifies the native and introduced species by habitat. It shows differences among habitats in the proportions of native and introduced species, in the growth habits of the species, and in the phytogeographic affinities. The aquatic, ravine, and wet-prairie habitats have the fewest introduced species (0, 5, and 4, respectively), the upland prairie has 7, and the disturbed upland areas have 40. In total numbers of species, native and introduced, the strictly aquatic habitat has the fewest (3), the ravines have 63, the wet prairies have 80, the upland prairies have 156, and the disturbed areas have 90. Table I also shows the differing proportions of growth habits among the habitats. Trees, shrubs, and woody vines collectively account for tiny fractions of the species numbers in all habitats except the ravines. Perennial species outnumber annuals in all except the disturbed and aquatic habitats.

The commonest native annuals in small disturbed places in upland prairie, such as gopher mounds and anthills, are *Ambrosia artemisiifolia*, *Erigeron strigosus*, *Hedeoma hispida*, *Triodanis perfoliata*, and *Plantago patagonica*. Other native annuals and biennials grow with introduced annuals and biennials in heavily disturbed placed, but the native *Linum sulcatum* occurs mostly in apparently undisturbed prairie sod. The musk thistle (*Carduus nutans*), an introduced biennial, also appears there too, and is a potential problem in prairie management. The introduced perennials are often found in undisturbed prairie and some, such as smooth brome (*Bromus inermis*), are vigorous competitors with the native species.

The ravines are often choked with rough-leaved dogwood (*Cornus drummondii*) in moister places, and with wild plum (*Prunus americana*) and smooth sumac (*Rhus glabra*) in drier ones; the latter two are sometimes accompanied by chokecherry (*P. virginiana*). The sumac, plum, and chokecherry tend to spread from the ravines in the absence of fire, the sumac being especially invasive.

The introduced trees (*Maclura pomifera*, *Morus alba*, *Ulmus pumila*) are mostly confined to the ravines, but sometimes get established in disturbed sites elsewhere, especially in the absence of fire and mowing. The native red cedar (*Juniperus virginiana*) is a potentially troublesome invader, but is controlled by burning and mowing; it is most abundant in the abandoned farmstead.

All six woody vines are native species (*Celastrus scandens*, *Menispermum canadense*, *Parthenocissus vitacea*, *Smilax hispida*, *Toxicodendron* sp., and *Vitis riparia*) and grow upon the trees and shrubs in the ravines, as do the herbaceous annual vines (*Echinocystis lobata*, *Polygonum convolvulus*, *Sicyos angulatus*) and the herbaceous perennial vines (*Calystegia sepium*, *Polygonum scandens*). Bindweed (*Convolvulus arvensis*), an aggressive introduced species that is abundant nearby, sometimes invades from adjacent cultivated land, but is not a serious problem in the Prairie itself.

The only bulbous plants in the upland prairies are wild onion (*Allium canadense*) and violet wood-sorrel (*Oxalis violacea*). The bulbous prairie erythronium (*Erythronium mesochoreum*) has not been found, but it grows nearby. A few species have notably thickened underground storage organs (e.g. *Cacalia plantaginea*, *Psoralea esculenta*), and *Liatris* can

develop somewhat thickened subterranean stems, but the Prairie flora is overwhelmingly rhizomatous and fibrous rooted. One species of the very wet prairie is corniculate: *Sagittaria brevirostra*.

Geographic affinities of the flora

The grasslands of central North America are young. They formed after the retreat of the Pleistocene continental glaciers and the disappearance of the boreal forests that bordered them. The modern grasslands were populated by species migrating from refugia mostly to the southeast, south, and southwest. A few are relicts of cooler, early post-Pleistocene times, when the area was forested (Kaul, Kantak, and Churchill, 1988); and some are endemics, having evolved in the grasslands. The flora is thus largely immigrant, and one method of measuring the contributions of other areas is to analyze the present geographic affinities of the native flora. The data for Nine-Mile Prairie are shown in Tables I and II.

As Table I reveals, more than two-thirds of the native flora of Nine-Mile Prairie consists of species of transcontinental affinity (**WCE**: 109 species or 32% of the native flora) and central and eastern affinity (**CE**: 121 species or 36%). The 79 species endemic to the central part of the continent (**C**) account for 24%. The smallest contribution is made by species of west and central (**WC**) distribution: 27 species (about 8%).

There are disparities in the distributions of phytogeographic affinities among the habitats, as show in Table I. Transcontinentally distributed native species in the upland (**U**), disturbed (**D**), and wet prairies (**W**) are 19%, 56%, and 57% of their native species, respectively. The native species confined to the central part of the continent (**C**) account for about 39% of the native species in the upland prairies, but only about 12% and 7% of those in the wet prairie and ravines, respectively. The ravines have 79% of their native flora with central and eastern phytogeographic affinity (**CE**), but the other habitats have less than 30% in that category. Native species of western *and* central affinity account for only 11% of the native species in upland prairies, and for about 2% in the ravines and 4% in the wet prairies.

Significant families

The Asteraceae have the most species, 68, and are mostly summer- and fall flowering. The Poaceae are represented by 61 species and flower over the entire growing season. The Fabaceae are third largest, with 23 species. The Asclepiadaceae are represented by nine milkweeds (*Asclepias*), of which *A. verticillata* is by far the most common, followed by *A. syriaca*; a single plant of *A. viridis* was found in 1987, the northernmost location known for that species. Here and there on the lower slopes are large clumps of the spectacular butterfly milkweed, *A. tuberosa*. The climbing milkweed, *Cynanchum laeve*, an eastern species apparently native as far west as the Missouri River counties in Nebraska, has recently become a somewhat serious weed in Lincoln, but has not yet been found at the Prairie.

Of the four orchid species reported for the Prairie, three can be found today. The ladies' tresses, *Spiranthes vernalis* and *S. cernua*, are locally abundant, but the white lady-slipper, *Cypripedium candidum*, is known only from an herbarium specimen more than 50 years old. The prairie fringed orchid, *Habenaria leucophaea* (sensu lato) occurs at two sites. (Sheviak and Bowles [1986] have recently recognized our specimens of the latter under the old generic and new specific names *Plantanthera praeclara*, reserving *leucophaea* for more eastern specimens. Both entities occur in eastern Nebraska, but we are unsure of the need to recognize them at the specific level.)

Floristic similarities to nearby prairies

No lists of species of nearby prairies of similar size to Nine-Mile Prairie are available, and thus it is not possible to calculate indices of similarity. However, there are notable absences from the Prairie of some species that occur at other remnant prairies nearby, *Erythronium mesochoreum*, *Phlox pilosa*, and the introduced *Dianthus armeria*, to name a few. Some nearby prairies are edaphically different from Nine-Mile Prairie, and could reveal rather different suites of species upon analysis.

The western tall-grass prairie once occupied thousands of square miles in eastern Nebraska and nearby states, but it has become rare because of agrarian disturbance. Numerous fragments of such prairie exist in Lancaster County and other glaciated counties of eastern Nebraska, but few are as large as Nine-Mile Prairie, and most are in degraded condition. Native prairies are virtually annihilated in the level, unglaciated counties west of the Big Blue River and in the hilly mixed-grass area of central Nebraska, in contrast to the sandhills and short-grass prairies of central and western Nebraska (Kaul, 1975), in which substantial areas remain in various conditions of preservation.

TABLE II. VASCULAR PLANTS OF NINE-MILE PRAIRIE

STATUS:

1. Species cited by Steiger (1930) under this name; a voucher specimen by Steiger, by us, or by someone else exists in the University of Nebraska–Lincoln herbarium.

2. Species cited by Steiger under a synonym, or a name used by him based upon a mis-identified specimen that we have re-identified; voucher specimen in the herbarium.

3. Species cited by Steiger under this name or a synonym, but not documented by a voucher specimen. We have not found this species at the Prairie, but it is present nearby, and we accept Steiger's citation.

4. Species not cited by Steiger, but we found it in the Prairie; voucher specimen in the herbarium.

PROVENANCE:

I. Introduced species, not native to eastern Nebraska.

N. Native species.

HABIT:

A. Annual plant.

B. Biennial plant.

P. Perennial, herbaceous plant.

S. Shrub.

T. Tree.

V. Woody vine.

HABITAT:

D. Disturbed areas in upland (**U**) prairie.

Q. Submersed in the artificial ponds.

R. Wooded ravines.

U. Upland, well–drained prairie of the slopes and hilltops.

W. Permanently wet, open prairie bordering the streams and ponds; includes marsh plants.

FLOWERING TIME:

F. Fall (Sep– Nov)

Sp. Spring (Mar—May)

SpF. Spring *through* fall, continuously or intermittently.

SpSu. Spring & summer, especially late spring and early summer.

Su. Summer (Jun—Aug)

SuF. Summer and fall, especially late summer and early fall.

GEOGRAPHIC RANGE:

C. Central North America, from the eastern base of the Rocky Mountains to the Mississippi River or somewhat beyond.

CE. Central and eastern North America, from the base of the Rocky Mountains to the east coast.

WC. Western and central North America, from the Pacific coast to the Mississippi River or somewhat beyond.

WC. Transcontinental.

(Nomenclature follows *Flora of the Great Plains* [Gt. Pl. Flora Assn., 1986].)

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
ACANTHACEAE						
Ruellia humilis, fringeleaf ruellia	2	N	P	U	Su	CE
ACERACEAE						
Acer negundo, boxelder	1	N	T	R	Sp	WCE
ALISMATACEAE						
Alisma triviale, water plantain	4	N	P	W	Su	WCE
Echinodorus rostratus, burhead	4	N	A	W	Su	CE
Sagittaria brevirostra, arrowhead	2	N	P	W	SuF	C
S. calycina, arrowhead	4	N	A	W	SuF	WCE
AMARANTHACEAE						
Amaranthus albus, tumbleweed	4	N	A	D	SuF	WCE
A. retroflexus, rough pigweed	3	N	A	D	SuF	WCE
A. rudis, water-hemp	4	N	A	W	Su	C

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	YEARS	NATIVITY	HABIT	HABITAT	FLOWERING TIME	RANGE
ANACARDIACEAE						
Rhus glabra, smooth sumac	1	N	S	U	Su	WCE
Toxicodendron sp., poison ivy	2	N	P	R	Su	CE
APIACEAE						
Cicuta maculata, water hemlock	1	N	P	W	Su	CE
Conium maculatum, poison hemlock	4	I	B	R	Su	
Lomatium foeniculaceum var. *daucifolium*, carrotleaf lomatium	2	N	P	U	Sp	WC
Sanicula canadensis, black snake-root	1	N	B	R	Su	CE
S. gregaria, clustered sanicle	3	N	P	R	SpSu	CE
APOCYNACEAE						
Apocynum cannabinum, hemp dogbane	1	N	P	W	Su	WCE
ASCLEPIADACEAE						
Asclepias incarnata, swamp milkweed	1	N	P	W	Su	WCE
A. lanuginosa, woolly milkweed	2	N	P	U	Su	C
A. stenophylla, narrow-leaved milkweed	2	N	P	U	Su	C
A. sullivantii, Sullivant's milkweed	1	N	P	U	Su	C
A. syriaca, common milkweed	1	N	P	U	Su	CE
A. tuberosa, butterfly milkweed	1	N	P	U	Su	CE
A. verticillata, whorled milkweed	1	N	P	U	Su	CE
A. viridiflora, green milkweed	2	N	P	U	Su	CE
A. viridis, spider milkweed	4	N	P	U	Su	CE
ASTERACEAE						
Achillea millefolium, yarrow, milfoil	1	N	P	U	Su	WCE
Ambrosia artemisiifolia, common ragweed	2	N	A	D	SuF	WCE
A. psilostachya, western ragweed	4	N	P	U	SuF	C
A. trifida, giant ragweed	1	N	A	D	SuF	WCE
Antennaria neglecta, pussy toes	2	N	P	U	SpSu	WCE
Arctium minus, burdock	4	I	B	D	SuF	
Artemisia dracunculus, silky wormwood	1	N	P	U	SuF	WC
A. ludoviciana var. *ludoviciana*, Louisiana sage	1	N	P	U	SuF	WC
Aster ericoides, heath aster	2	N	P	U	F	C
A. oblongifolius, aromatic aster	2	N	P	U	F	CE
A. sericeus, silky aster	1	N	P	U	F	C
A. simplex, panicled aster	2	N	P	U	F	CE
Bidens cernua, nodding beggar-ticks	4	N	A	W	F	WCE
B. frondosa, beggar-ticks	1	N	A	W	F	CE
B. vulgata, tall beggar-ticks	1	N	A	W	F	WCE
Cacalia plantaginea, Indian-plantain	2	N	P	U	Su	C
Carduus nutans, musk thistle	4	I	B	D	Su	
Cirsium altissimum, tall thistle	1	N	P	U	Su	CE
C. flodmanii, Flodman's thistle	4	N	B	W	SuF	C
C. undulatum, wavy leaf thistle	4	N	P	U	Su	WC
Conyza canadensis, horseweed	2	N	A	D	SuF	WCE
C. ramosissima, dwart horseweed	3	N	A	D	SuF	C
Dyssodia papposa, fetid marigold	3	N	A	D	SuF	C
Echinacea angustifolia, coneflower	2	N	P	U	Su	C
Eclipta prostrata, yerba-de-tajo	4	N	A	W	SuF	CE
Erechtites hieracifolia, fireweed	4	N	A	W	F	CE
Erigeron strigosus, daisy fleabane	2	N	A	U	Su	WCE
Eupatorium perfoliatum, boneset	1	N	P	W	SuF	CE
E. rugosum, white snake-root	2	N	P	R	SuF	CE
Euthamia gymnospermoides, viscid euthamia	1	N	P	U	SuF	C
Grindelia squarrosa, gumweed	1	N	P	D	SuF	WC
Helianthus annuus, common sunflower	1	N	A	D	SuF	WC
H. grosseserratus, sawtooth sunflower	3	N	P	U	F	CE
H. maximiliani, Maximilian's sunflower	3	N	P	R	F	CE
H. rigidus, stiff sunflower	2	N	P	U	SuF	WC
H. tuberosus, Jerusalem artichoke	2	N	P	U	SuF	CE
Heliopsis helianthoides var. *scabra*, tough heliopsis	2	N	P	U	Su	WCE
Hieracium longipilum, hawkweed	1	N	P	U	Su	C
Kuhnia eupatorioides var. *corymbulosa*	2	N	P	U	SuF	C
Lactuca canadensis, wild lettuce	1	N	B	R	SuF	CE
L. ludoviciana, western wild lettuce	1	N	B	U	SuF	C
L. oblongifolia, blue lettuce	2	N	P	U	SuF	WC
L. serriola, prickly lettuce	2	I	B	D	SuF	
Liatris aspera, rough gayfeather	2	N	P	U	SuF	CE
L. punctata, blazing star, dotted gayfeather	2	N	P	U	SuF	C
Lygodesmia juncea, skeletonweed	3	N	P	U	Su	WC
Microseris cuspidata, false dandelion	3	N	P	U	Sp	C
Prenanthes aspera, white lettuce	4	N	P	R	SuF	C
Ratibida columnifera, coneflower	1	N	P	U	Su	C
R. pinnata, tall coneflower	3	N	P	U	Su	C
Rudbeckia hirta, black-eyed susan	3	N	P	U	SuF	WCE
R. laciniata, cutleaf coneflower	3	N	P	R	SuF	CE
Senecio integerrimus, lamb's-tongue groundsel	1	N	P	U	Sp	WC
S. plattensis, prairie ragwort	1	N	B	U	Sp	C
Silphium integrifolium, rosinweed	1	N	P	U	Su	C
S. laciniatum, compass plant	1	N	P	U	Su	C
S. perfoliatum, cup plant	3	N	P	R	Su	CE
Solidago canadensis, Canada goldenrod	1	N	P	U	F	WCE
S. gigantea, late goldenrod	4	N	P	U	F	WCE
S. missouriensis, Missouri goldenrod	2	N	P	U	F	WC
S. nemoralis, gray goldenrod	3	N	P	U	F	CE
S. rigida, stiff goldenrod	1	N	P	U	F	CE
S. speciosa var. *rigidiuscula*, showy goldenrod	2	N	P	U	F	C
Taraxacum officinale, dandelion	4	I	P	D	SpF	
Tragopogon dubius, goat's beard	4	I	B	D	Su	
T. pratensis, meadow salsify	3	I	B	D	SpSu	
Vernonia baldwinii ssp. *interior*, ironweed	1	N	P	U	Su	C
Xanthium strumarium, cocklebur	2	I	A	U	SuF	

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	NATIVITY	HABIT	HABITAT	FLOWERING TIME	RANGE
BORAGINACEAE						
Hackelia virginiana, stickseed	4	N	B	R	SuF	CE
Lappula echinata, stickseed	3	I	A	S	SpF	
Lithospermum canescens, hoary puccoon	1	N	P	U	SpSu	CE
L. incisum, fringed puccoon	2	N	P	U	SpSu	C
Onosmodium molle var. *occidentale*, false gromwell	2	N	P	U	Su	C
BRASSICACEAE						
Arabis hirsuta, rock cress	4	N	B	R	Sp	WCE
Brassica kaber, charlock mustard	3	I	B	D	Su	
B. napus, turnip	3	I	B	D	SuF	
Camelina sativa, false flax	3	I	A	D	Sp	
Capsella bursa-pastoris, shepherd's purse	2	I	A	D	Sp	
Cardaria draba, hoary cress	2	I	P	D	Sp	
Draba reptans, whitlow grass	2	N	A	D	Sp	WCE
Lepidium densiflorum, peppergrass	2	N	B	D	Sp	CE
L. virginicum, peppergrass	3	N	A	D	SuF	WCE
Rorippa palustris ssp. *glabra* var. *fernaldiana*, bog yellow cress	1	N	B	W	Su	WCE
Thlaspi arvense, penny-cress	1	I	A	D	Sp	
CAESALPINIACEAE						
Cassia chamaecrista, partridge pea	2	N	A	D	SuF	CE
C. marilandica, wild senna	1	N	P	R	SuF	CE
Gleditsia triacanthos, honey locust	4	N	T	R	Sp	CE
CAMPANULACEAE						
Campanula americana, American bellflower	3	N	A	R	SuF	CE
Lobelia siphilitica, big blue lobelia	1	N	P	W	SuF	C
Triodanis leptocarpa, Venus's looking-glass	2	N	A	D	SpSu	C
T. perfoliata, clasping Venus's looking-glass	2	N	A	D	SpSu	WCE
CANNABACEAE						
Cannabis sativa, marijuana, hemp	1	I	A	D	SuF	
Humulus lupulus, hops	3	N	P	R	Su	WCE
CAPRIFOLIACEAE						
Sambucus canadensis, elderberry	1	N	S	R	Su	CE
Symphoricarpos occidentalis, wolfberry	1	N	S	U	Su	WC
S. orbiculatus, coralberry	3	N	S	R	Su	CE
CARYOPHYLLACEAE						
Cerastium brachypodum, mouse-ear chickweed	1	N	A	D	SpSu	WCE
Silene antirrhina, sleepy catchfly	4	N	A	D	SpSu	WCE
Silene stellata, starry campion	1	N	P	R	SuF	CE
CELASTRACEAE						
Celastrus scandens, bittersweet	1	N	V	R	SpSu	CE
CHENOPODIACEAE						
Chenopodium berlandieri, lamb's quarters	4	N	A	D	SuF	WCE
Kochia scoparia, kochia, fireweed	1	I	A	D	SuF	
Salsola iberica, Russian thistle	3	I	A	D	SuF	
COMMELINACEAE						
Tradescantia bracteata, spiderwort	1	N	P	U	Su	C
CONVOLVULACEAE						
Calystegia sepium, hedge bindweed	4	N	P	R	SuF	WCE
Convolvulus arvensis, field bindweed	1	I	P	D	SpF	
CORNACEAE						
Cornus drummondii, rough-leaved dogwood	4	N	S	R	SpSu	CE
CRASSULACEAE						
Penthorum sedoides, ditch stonecrop	4	N	P	W	SuF	CE
CUCURBITACEAE						
Echinocystis lobata, prickly cucumber	2	N	A	R	SuF	CE
Sicyos angulatus, bur cucumber	4	N	A	R	SuF	CE
CUPRESSACEAE						
Juniperus virginiana, red cedar	4	N	T	U	Sp	CE
CUSCUTACEAE						
Cuscuta glomerata, dodder	2	N	A	U	SuF	C
C. pentagona, dodder	3	N	A	U	Su	WCE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
CYPERACEAE						
Carex amphibola var. *turgida*	4	N	P	W	SpSu	CE
C. bicknellii	4	N	P	W	SpSu	CE
C. brevior, straw sedge	2	N	P	U	SpSu	WCE
C. gravida	4	N	P	W	SpSu	CE
C. heliophila, sun sedge	1	N	P	U	SpSu	C
C. hystericina	4	N	P	W	SpSu	WCE
C. laeviconica	3	N	P	W	SpSu	C
C. lanuginosa, woolly sedge	1	N	P	W	SpSu	CE
C. meadii, Mead's sedge	1	N	P	U	SpSu	CE
C. molesta	2	N	P	U	SpSu	C
C. stipata, sawbeak sedge	1	N	P	W	SpSu	WCE
C. stricta	3	N	P	W	SpSu	C
C. vulpinoidea	4	N	P	W	SpSu	WCE
Cyperus lupulinus, fern flatsedge	2	N	P	U	SuF	CE
C. lupulinus X *C. schweinitzii*	4	N	P	D	Su	
C. odoratus	2	N	A	W	SuF	WC
Eleocharis erythropoda	4	N	P	W	Su	CE
E. macrostachya, common spike rush	3	N	P	W	Su	WCE
Scirpus americanus, American bulrush	3	N	P	W	Su	WCE
S. atrovirens, green bulrush	3	N	P	W	Su	WCE
S. pallidus, dark green bulrush	4	N	P	W	SuF	WC
S. validus, soft stem bulrush	1	N	P	W	Su	WCE
EQUISETACEAE						
Equisetum arvense, field horsetail	1	N	P	W	Sp	WCE
E. hyemale, tall scouring-rush	3	N	P	W	Su	WCE
E. laevigatum, Kansas horsetail	1	N	P	R	SpSu	WC
EUPHORBIACEAE						
Acalypha rhomboidea, 3-seeded mercury	4	N	A	R	SuF	CE
A. virginica, three-seeded mercury	3	N	A	R	SuF	CE
Euphorbia corollata, flowering spurge	2	N	P	U	SuF	CE
E. dentata, toothed spurge	2	N	A	D	SuF	C
E. maculata, spotted spurge	2	N	A	D	SuF	CE
E. marginata, snow on the mountain	2	N	A	D	SuF	WC
E. nutans, eyebane	4	N	A	D	SuF	CE
FABACEAE						
Amorpha canescens, lead plant	1	N	S	U	Su	C
A. fruticosa, false indigo	3	N	S	W	Su	C
Amphicarpaea bracteata, hog peanut	2	N	A	R	SuF	CE
Astragalus canadensis, Canada milk-vetch	2	N	P	U	Sp	WCE
A. crassicarpus var. *crassicarpus*, ground-plum	2	N	P	U	Sp	CE
A. plattensis, Platte River milk-vetch	4	N	P	U	SpSu	C
Baptisia bracteata var. *glabrescens*, plains indigo	1	N	P	U	Sp	C
Dalea candida var. *candida*, white prairie clover	2	N	P	U	Su	C
D. purpurea var. *purpurea*, purple prairie clover	2	N	P	U	Su	C
Desmodium canadense, Canada tick clover	3	N	P	U	Su	CE
D. illinoense, Illinois tick-clover	2	N	P	U	Su	C
Glycyrrhiza lepidota, American licorice	1	N	P	U	Su	WC
Lespedeza capitata, bush-clover	1	N	P	U	SuF	CE
Medicago lupulina, black medic	4	I	A	D	SuF	
M. sativa, alfalfa	3	I	P	D	SpF	
Melilotus alba, white sweet-clover	1	I	B	D	SpF	
M. officinalis, yellow sweet-clover	1	I	B	D	SpF	
Psoralea argophylla, silver scurf-pea	1	N	P	U	Su	C
P. esculenta, breadroot scurf-pea	3	N	P	U	Su	C
P. tenuiflora var. *floribunda*, many-flowered scurf-pea	2	N	P	U	Su	C
Trifolium pratense, red clover	1	I	P	D	SpF	
T. repens, white clover	4	I	P	D	SpF	
Vicia americana var. *minor*, American vetch	2	N	P	U	SpSu	WCE
FUMARIACEAE						
Corydalis micrantha, golden corydalis	2	N	A	U	SpSu	WCE
GENTIANACEAE						
Gentiana puberulenta, downy gentian	4	N	P	U	F	C
GROSSULARIACEAE						
Ribes missouriense, Missouri gooseberry	2	N	S	R	Sp	C
HYDROPHYLLACEAE						
Ellisia nyctelea, ellisia	2	N	A	R	Sp	C
IRIDACEAE						
Sisyrinchium campestre, blue-eyed grass	1	N	P	U	Sp	C
JUNCACEAE						
Juncus dudleyi, Dudley's rush	1	N	P	W	Su	WCE
J. interior, inland rush	1	N	P	W	Su	C
J. torreyi, Torrey's rush	2	N	P	W	SuF	WCE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
LAMIACEAE						
Hedeoma hispida, rough false penny-royal	1	N	A	D	Su	CE
Lycopus americanus, American bugleweed	1	N	P	W	SuF	WCE
Mentha arvensis, field mint	2	N	P	W	SuF	WCE
Monarda fistulosa var. *fistulosa*, bergamot, beebalm	2	N	P	U	Su	CE
Nepeta cataria, catnip	I	I	P	D	SuF	
Salvia azurea, Pitcher's sage	2	N	P	U	F	C
S. reflexa, lance-leaved sage	3	N	A	D	Su	C
Scutellaria lateriflora, side-flowering skullcap	1	N	P	W	Su	WCE
S. parvula var. *leonardii*, small skullcap	1	N	P	U	Su	CE
Stachys palustris ssp. *pilosa*, marsh betony, hedge nettle	3	N	P	W	Su	WCE
Teucrium canadense var. *canadense*, American germander, wood-sage	1	N	P	R	Su	WCE
LEMNACEAE						
Lemna minor, duckweed	4	N	A	Q	Su	WCE
LILIACEAE						
Allium canadense var. *canadense*, wild onion	1	N	P	U	Su	CE
A. canadense var. *lavandulare*, wild onion	1	N	P	U	Su	CE
Asparagus officinalis, asparagus	4	I	P	U	Sp	
Polygonatum biflorum, Solomon's seal	3	N	P	R	Su	CE
Smilacina stellata, false Solomon's seal	2	N	P	R	SpSu	WCE
LINACEAE						
Linum sulcatum, yellow flax	2	N	A	U	Su	C
LYTHRACEAE						
Ammannia robusta, toothcup	4	N	A	W	SuF	C
Lythrum alatum var. *alatum*, loosestrife	3	N	P	W	SuF	C
MALVACEAE						
Abutilon theophrasti, velvet leaf	2	I	A	D	SuF	
Callirhoe alceoides, plains poppy-mallow	3	N	P	U	Su	C
C. involucrata, purple poppy-mallow	4	N	P	U	SpSu	WC
MENISPERMACEAE						
Menispermum canadense, moonseed	3	N	V	R	Su	CE
MIMOSACEAE						
Desmanthus illinoensis, prairie mimosa	2	N	P	U	Su	C
MORACEAE						
Maclura pomifera, Osage orange	4	I	T	R	Sp	
Morus alba, white mulberry	4	I	T	U	Sp	
NAJADACEAE						
Najas guadalupensis, naiad	4	N	A	Q	SuF	WCE
NYCTAGINACEAE						
Mirabilis hirsuta, hairy four-o'clock	3	N	P	U	Su	C
M. linearis, narrow-leaved four-o'clock	2	N	P	U	Su	C
M. nyctaginea, wild four-o'clock	3	N	P	D	Su	C
OLEACEAE						
Fraxinus pennsylvanica, green ash	4	N	T	R	Sp	CE
ONAGRACEAE						
Calylophus serrulatus, yellow evening primrose	2	N	P	U	Su	C
Epilobium coloratum, willow-herb	1	N	P	W	SuF	CE
Gaura longiflora, large-flowered gaura	4	N	B	D	SuF	CE
G. parviflora, small-flowered gaura	1	N	B	D	SpSu	WC
Oenothera villosa, yellow evening primrose	1	N	B	D	SuF	WCE
ORCHIDACEAE						
Cypripedium candidum, white lady-slipper	1	N	P	W	SpSu	CE
Habenaria leucophaea, prairie fringed orchid	2	N	P	W	Su	C
Spiranthes cernua, ladies' tresses orchid	4	N	P	U	F	CE
S. vernalis, early ladies' tresses orchid	4	N	P	U	Su	CE
OROBANCHACEAE						
Orobanche uniflora, cancer root	2	N	P	U	Su	WCE
OXALIDACEAE						
Oxalis dillenii, gray-green wood sorrel	2	N	P	U	SpF	WCE
O. stricta, yellow wood-sorrel	2	N	P	U	Su	WCE
O. violacea, violet wood sorrel	2	N	P	U	Sp	CE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
PLANTAGINACEAE						
Plantago major, common plantain	3	I	P	D	Su	
P. patagonica, woolly plantain	2	N	A	D	Su	WC
P. rugelii, blackseed plantain	1	N	P	D	Su	CE
POACEAE						
Agropyron smithii, western wheatgrass	1	N	P	U	Su	WC
Agrostis hyemalis, ticklegrass	4	N	P	D	SpSu	CE
A. stolonifera, redtop bentgrass	2	I	P	W	Su	
Andropogon gerardii, big bluestem grass	2	N	P	U	SuF	CE
A. scoparius, little bluestem grass	1	N	P	U	SuF	WCE
Aristida oligantha, prairie three–awn grass	1	N	A	D	SuF	WCE
Bouteloua curtipendula, side–oats grama	1	N	P	U	SuF	WCE
B. gracilis, blue grama grass	2	N	P	U	SuF	C
B. hirsuta, hairy grama grass	1	N	P	U	Su	WC
Bromus inermis, smooth brome grass	4	I	P	U	SpSu	
B. japonicus, Japanese brome	4	I	A	D	SpSu	
B. mollis, soft chess	3	I	A	D	Su	
B. tectorum, downy brome, cheatgrass	2	I	A	D	Sp	
Buchloe dactyloides, buffalo grass	3	N	P	U	Su	WC
Cenchrus longispinus, sandbur	2	N	P	D	SuF	WCE
Chloris verticillata, windmill grass	4	N	P	D	SuF	C
Cinna arundinacea, wood reedgrass	1	N	P	R	SuF	CE
Dichanthelium acuminatum var. *villosum*	2	N	P	U	SpF	CE
D. leibergii, Leiberg dichanthelium	2	N	P	U	SpSu	C
D. oligosanthes var. *scribnerianum*, Scribner's dichanthelium	2	N	P	U	SpF	WCE
Digitaria sanguinalis, crabgrass	3	I	A	D	SuF	
Echinochloa crusgalli, barnyard grass	1	I	A	W	SuF	
E. muricata var. *microstachya*	4	N	A	W	SuF	WCE
Eleusine indica, goose–grass	3	I	A	D	SuF	
Elymus canadensis, Canada wild rye	1	N	P	U	SuF	WCE
E. villosus, hairy wild rye	3	N	P	R	SuF	CE
E. virginicus, Virginia wild rye	2	N	P	U	Su	CE
Eragrostis cilianensis, stinkgrass	3	I	A	D	SuF	
E. pectinacea, lovegrass	3	N	A	D	SuF	WCE
E. spectabilis, purple lovegrass	4	N	P	D	SuF	WCE
Festuca octoflora, six–weeks fescue	1	N	A	D	SpSu	WCE
Glyceria striata, manna grass	3	N	P	W	SuF	WCE
Hordeum jubatum, foxtail barley	1	N	P		SpSu	WCE
H. pusillum, little barley	1	N	A	D	SpSu	WCE
Koeleria pyramidata, June grass	2	N	P	U	Su	CE
Leersia oryzoides, rice cut–grass	2	N	P	W	F	WCE
L. virginica, white–grass	2	N	P	W	F	CE
Leptochloa fascicularis, bearded sprangle–top grass	2	N	A	W	SuF	WCE
Leptoloma cognatum, fall witchgrass	4	N	P	U	SuF	CE
Muhlenbergia cuspidata, plains muhly grass	4	N	P	U	SuF	CE
M. racemosa, wirestem muhly grass	3	N	P	U	SuF	WCE
M. schreberi, nimblewill	3	N	P	R	SuF	CE
Panicum capillare, witch grass	1	N	A	D	F	WCE
P. dichotomiflorum, fall panic grass	1	N	A	W	F	CE
P. virgatum, switch grass	1	N	P	U	F	WCE
Paspalum setaceum var. *stramineum*, paspalum	4	N	P	U	SpF	C
Phalaris arundinacea, reed canary grass	1	N	P	W	Su	WCE
Phleum pratense, timothy	1	I	P	U	Su	
Poa compressa, Canada bluegrass	1	I	P	U	SpF	
P. pratensis, Kentucky bluegrass	1	I	P	U	SpF	
Schedonnardus paniculatus, tumble grass	1	N	P	D	SuF	C
Setaria glauca, yellow foxtail grass	2	I	A	D	SuF	
S. viridis, green foxtail grass	2	I	A	D	Su	
Sorghastrum nutans, Indian grass	1	N	P	U	SuF	WCE
Sorghum halepense, Johnson grass	4	I	P	D	SuF	
Spartina pectinata, cordgrass	3	N	P	W	SuF	WCE
Sphenopholis obtusata, prairie wedgescale grass	1	N	P	U	Su	CE
Sporobolus asper, tall dropseed grass	1	N	P	U	SuF	CE
S. heterolepis, prairie dropseed grass	1	N	P	U	SuF	C
Stipa spartea, porcupine grass	1	N	P	U	SpSu	WC
Tridens flavus, redtop grass	4	N	P	U	SuF	CE
POLYGALACEAE						
Polygala verticillata, whorled milkwort	3	N	P	U	SuF	CE
POLYGONACEAE						
Polygonum achoreum, knotweed	4	N	A	D	SuF	WCE
P. amphibium var. *emersum*, water smartweed	2	N	P	W	SuF	WCE
P. arenastrum, knotweed	4	I	A	D	SuF	
P. bicorne, curltop knotweed	2	N	A	D	SuF	
P. convolvulus, climbing bindweed	2	I	A	R	SuF	
P. lapathifolium, pale smartweed	4	N	A	D	SuF	WCE
P. pensylvanicum, Pennsylvania smartweed	4	N	A	D	SuF	WCE
P. persicaria, lady's thumb	4	I	A	D	SuF	
P. punctatum, dotted water smartweed	2	N	A	W	SuF	WCE
P. ramosissimum, bushy knotweed	2	N	A	D	SuF	WCE
P. scandens, climbing false buckwheat	2	N	P	R	SuF	CE
Rumex acetosella, sheep sorrel	3	I	P	U	SpSu	
R. altissimus, pale dock	1	N	P	W	Su	CE
R. crispus, curly dock	1	I	P	W	SpSu	
POTAMOGETONACEAE						
Potamogeton foliosus, leafy pondweed	4	N	P	Q	Su	WCE
PRIMULACEAE						
Androsace occidentalis, western rock jasmine	1	N	A	D	Sp	WC
Lysimachia ciliata, fringed loosestrife	2	N	P	W	Su	WCE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
RANUNCULACEAE						
Anemone caroliniana, Carolina anemone	3	N	P	U	Sp	C
A. cylindrica candle anemone	1	N	P	U	Su	WCE
Clematis virginiana, virgin's bower	1	N	P	R	F	CE
Delphinium virescens, larkspur	1	N	P	U	Su	C
Ranunculus abortivus, little-leaf buttercup	1	N	A	R	Sp	WCE
R. sceleratus, cursed crowfoot	4	N	A	W	SuF	WCE
Thalictrum dasycarpum, purple meadow rue	1	N	P	U	Su	WC
RHAMNACEAE						
Ceanothus herbaceus, New Jersey tea	2	N	S	U	SpSu	C
ROSACEAE						
Fragaria virginiana, wild strawberry	1	N	P	U	Sp	WCE
Geum canadense, white avens	1	N	P	R	SpSu	CE
Potentilla arguta, tall cinquefoil	2	N	P	U	Su	WCE
P. norvegica rough cinquefoil	2	N	B	W	Su	WCE
P. recta, sulphur cinquefoil	4	N	P	U	SpSu	WCE
P. rivalis, brook cinquefoil	3	N	B	W	SpF	WC
Prunus americana, American wild plum	1	N	S	R	Sp	CE
P. virginiana, choke-cherry	2	N	S	R	Sp	WCE
Rosa arkansana, Arkansas wild rose	2	N	S	U	Su	CE
R. multiflora, multiflora rose	4	I	S	U	Su	
Rubus occidentalis, black raspberry	1	N	P	R	SpSu	CE
RUBIACEAE						
Galium aparine, cleavers	1	N	A	R	Su	WCE
Hedyotis nigricans, bluets	2	N	P	U	Su	C
SALICACEAE						
Populus deltoides ssp. *monilifera*, cottonwood	1	N	T	R	Sp	CE
Salix amygdaloides, peach-leaved willow	1	N	T	R	Sp	WCE
S. exigua ssp. *interior*, sandbar willow	2	N	S	W	Sp	WC
S. eriocephala, diamond willow	3	N	S	W	Sp	CE
SANTALACEAE						
Comandra umbellata subsp. *umbellata*, comandra, bastard toadflax	1	N	P	U	SpSu	WCE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
SCROPHULARIACEAE						
Agalinis aspera, rough gerardia	2	N	P	U	SuF	C
Mimulus ringens, monkey flower	1	N	P	W	SuF	CE
Penstemon cobaea, beard-tongue	1	N	P	U	Sp	C
P. grandiflorus, large beardtongue	3	N	P	U	SpSu	C
Verbascum thapsus, common mullein	4	I	B	D	Su	
Veronica arvensis, corn speedwell	3	I	A	D	SuF	
Veronica peregrina, purslane speedwell	1	N	A	D	SpSu	WCE
SMILACACEAE						
Smilax herbacea var. *lasioneuron*, carrion flower	1	N	P	R	SpSu	C
S. hispida, bristly greenbriar	1	N	V	R	SpSu	CE
SOLANACEAE						
Physalis heterophylla, clammy ground cherry	1	N	P	U	Su	CE
P. longifolia, spearleaf ground-cherry	1	N	P	U	Su	CE
P. virginiana, Virginia ground cherry	4	N	P	U	SpF	CE
Solanum ptycanthum, black nightshade	4	N	A	U	SpF	CE
Solanum rostratum, buffalo bur	1	N	A	D	Su	WCE
TYPHACEAE						
Typha angustifolia, narrow-leaved cattail	3	N	P	W	Su	WCE
T. latifolia, broad-leaved cattail	3	N	P	W	Su	WCE
ULMACEAE						
Celtis occidentalis, hackberry	4	N	T	R	Sp	CE
Ulmus americana, American elm	1	N	T	R	Sp	CE
U. pumila, Siberian elm	4	I	T	R	Sp	
U. rubra, red or slippery elm	4	N	T	R	Sp	CE
U. pumila X *U. rubra*	4	N	T	R	Sp	
URTICACEAE						
Parietaria pensylvanica, pellitory	1	N	A	R	Su	WCE
Urtica dioica, stinging nettle	1	N	P	W	Su	WCE
VERBENACEAE						
Lippia lanceolata, northern fog fruit	4	N	P	W	Su	CE
Verbena bracteata, prostrate verbena	2	N	A	D	SpF	WCE
V. hastata, blue verbena	1	N	P	U	SuF	WCE
V. stricta, hoary vervain	1	N	P	R	Su	CE
V. urticifolia, white vervain	1	N	P	U	SuF	CE

PLANT FAMILY, GENUS, SPECIES, COMMON NAME	STATUS	PROVENANCE	HABIT	HABITAT	FLOWERING TIME	RANGE
VIOLACEAE						
Viola pedatifida, prairie violet	1	N	P	U	Sp	C
V. pratincola	2	N	P	U	Sp	CE
V. pubescens var. *eriocarpa*, downy yellow violet	2	N	P	R	Sp	CE
V. rafinesquii, johnny jump up	1	N	A	R	Sp	CE
V. sororia downy blue violet	2	N	P	R	SpF	CE
V. pedatifida X *V. sororia*	2	N	P	U	Sp	CE
VITACEAE						
Parthenocissus vitacea, Virginia creeper	3	N	V	R	Su	CE
Vitis riparia river-bank grape	2	N	V	R	Su	CE
ZYGOPHYLLACEAE						
Tribulus terrestris, puncture vine	3	I	A	D	SuF	

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