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**FLORISTIC RECORDS IN THE PLATTE AND LOUP RIVER
BOTTOMLANDS OF PLATTE COUNTY, NEBRASKA**

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ABSTRACT

A recent inventory of vascular plants in the Loup and Platte riverbottoms in Platte County has greatly increased knowledge of the area's flora. Of the 542 species of vascular plants now known to grow in the county, 289 were discovered after 1977, with more than 100 of those after 1990. 425 native and 117 naturalized species are known so far. Nearly 700 native and naturalized alien species are expected to occur in the county, based upon totals from nearby counties. Thus, almost 150 years after European settlement, more than 20% of the species remain unverified; of those, many are undoubtedly non-native. The riverbottoms of the county have the best-preserved native flora and are today much richer in species than the uplands, which are more heavily impacted by agriculture.

† † †

Ecology and Background

The area of union of the Loup River system with the Platte River basin near Columbus, Nebraska, provides a collective view of the plants found in both river systems. A comprehensive floristic determination for this area could be valuable for evaluation of future land-use impacts in those large watersheds. Growing threats of climate changes could have significant effects on local plant communities. Establishing accurate lists of species is important for detecting signs of change in our local flora.

With ninety-nine percent of the original tall-grass, mixed-grass and wetland prairies plowed for agriculture or used for grazing, populations of many once-common native species are now drastically reduced. Agriculture and urbanization have significantly altered the landscape for many species. As

land-use disturbances continue at a rapid rate, bottomland floras are now more diverse, heterogeneous mixes of plants than in presettlement times. The absence of frequent prairie fires and the invasion of many exotics threaten remaining fragments of native prairie and original bottomland forests.

History of Plant Collecting in Nebraska and Platte County

Published reports of Nebraska's flora begin with explorers Lewis and Clark in 1803-6, Nuttall and Bradbury in 1808, James of the Long Expedition in 1820, the Fremont Expedition in the 1840s, and the Warren Expedition of 1857. Among the early attempts to list Nebraska's complete flora are two catalogues, those of Samuel Aughey (1876) and H. J. Webber (1890). Local studies in the state have produced numerous floristic lists for counties and other areas. A detailed list of such publications from 1804 through 1985 is presented by Kantak and Churchill (1986); others are cited by Kaul et al. (2006). The state's vegetation was mapped at 1:1,000,000 by Kaul and Rolfsmeier (1993), and some detail was shown for Platte County. Satellite imagery is depicted at 30-meter resolution by the Nebraska Gap-Analysis Project (1993).

The earliest plant collections in Platte County were by Edwin James of the Long Expedition to the Rocky Mountains in 1820, who traveled the Platte Valley across Nebraska and made many original documentations of Nebraska plant life (Goodman and Lawson 1995). The plants James documented in what is now Platte County are *Lithospermum incisum*, fringed puccoon; *Cirsium* sp., a thistle; *Vicia americana*, American purple vetch (not on our list); *Rhus glabra*, smooth sumac; *Asclepias speciosa*, showy milkweed; *Toxicodendron radicans*, poison ivy;

Apocynum cannabinum, hemp dogbane; *Helianthus petiolaris*, plains sunflower; *Amorpha fruticosa*, wild-indigo; *Gaura coccinea*, scarlet gaura; *Monarda pectinata*, a mint not on our list; *Potamogeton nodosus*, floating-leaf pondweed; *Rubus occidentalis*, black raspberry; *Sparganium eurycarpum*, bur-reed; *Callirhoe involucrata*, purple poppy-mallow; *Plantago patagonica*, woolly plantain; and *Anemone canadensis*, meadow anemone.

The junction of the Loup and Platte rivers at Columbus was a landmark for Pawnee Indians in the 1820s (Ducey 2000). Warren (1875) noted that the valley of the Loup Fork was well wooded as far up as the Pawnee villages to the west of present-day Platte County. The Platte River at Columbus was described as having a sand bottom and many sandbars, and the floodplain was said to be from two to ten miles wide, as it is today. In 1844, Carleton reached the fork of the Loup and Platte Rivers and remarked:

The bed of the river is but one wide expanse of quicksand, which is formed in bars and these are continually changing and driving about. The channels are innumerable, but are usually only a foot or so deeper than the surrounding water. The river is filled with beautiful islands. They are all well wooded, but only here and there is there any timber growing upon the main banks. Sometimes we found the channels between the islands and the shore, entirely dry, presenting to the eye a wide extent of sand, which as the wind swept over it, was blown about in clouds, as one would notice on a barren coast of the ocean. The bottomlands are what would be called high river prairie (Carleton 1844-1846 (1983)).

Curry (1950) wrote that when the city of Columbus was founded, prior to 1870, the grass "blue joint" grew thick and matted, was taller than a man's head and common in the area. It was reported to grow between twelve and fifteen feet tall along the sloughs in the area and defied any attempts by

primitive plows. (The plant called blue-joint today is *Calamagrostis canadensis*, which never grows that tall, and perhaps Curry was describing *Phragmites australis*, common reed, which reaches such height in moist habitats. *Calamagrostis canadensis* is not on our list of vouchered species, but it is known from several adjacent counties and is undoubtedly in Platte County today.)

The Loup River drains much of the Sandhills, which are less disturbed than most areas of the state, but the substitution of cattle for bison has altered grazing patterns and affected native flora there. The Platte River originates in Colorado and has numerous diversions, with significant irrigation usage and storage along the entire watercourse. Row-crop agriculture dominates its borderlands.

METHODS

Our 12-year sampling period, 1996-2007, documents species within the Platte and Loup River bottoms after 150 years of settlement by Euro-Americans in these watersheds. For completeness and comparison, we list all species ever collected in Platte County, as documented by specimens deposited in various university herbaria, especially that of the University of Nebraska-Lincoln, which houses many specimens we collected. The list was assembled from *Atlas of the Flora of the Great Plains* (Great Plains Flora Association 1977), *The Flora of Nebraska* (Kaul et al. 2006), and our own observations and collecting. It consists almost entirely of plants collected in the bottomlands of Platte County, because very little collecting has been done in the much-disturbed, heavily agricultural uplands north of those bottomlands, most of whose species also occur in the bottomlands. This congregation of plants of river bottoms appears to be common in the lower reaches of the Platte River.

Apocynum cannabinum, hemp dogbane; *Helianthus petiolaris*, plains sunflower; *Amorpha fruticosa*, wild-indigo; *Gaura coccinea*, scarlet gaura; *Monarda pectinata*, a mint not on our list; *Potamogeton nodosus*, floating-leaf pondweed; *Rubus occidentalis*, black raspberry; *Sparganium eurycarpum*, bur-reed; *Callirhoe involucrata*, purple poppy-mallow; *Plantago patagonica*, woolly plantain; and *Anemone canadensis*, meadow anemone.

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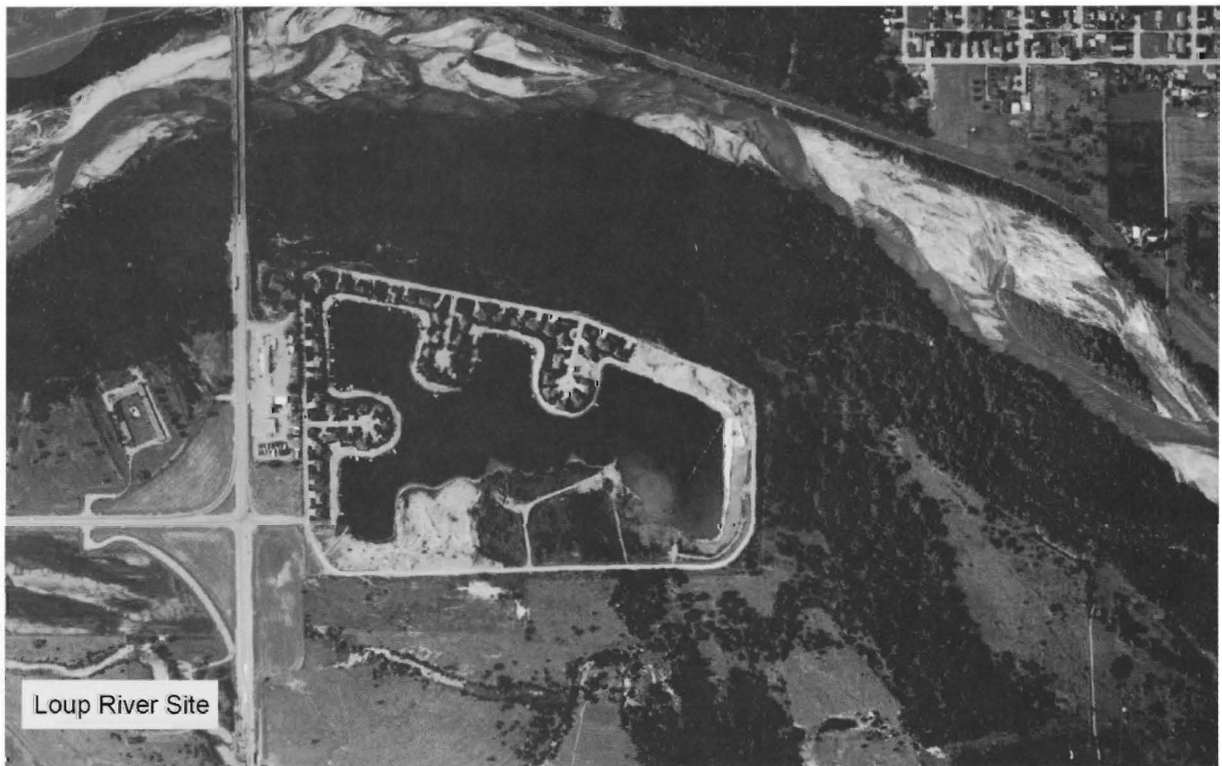
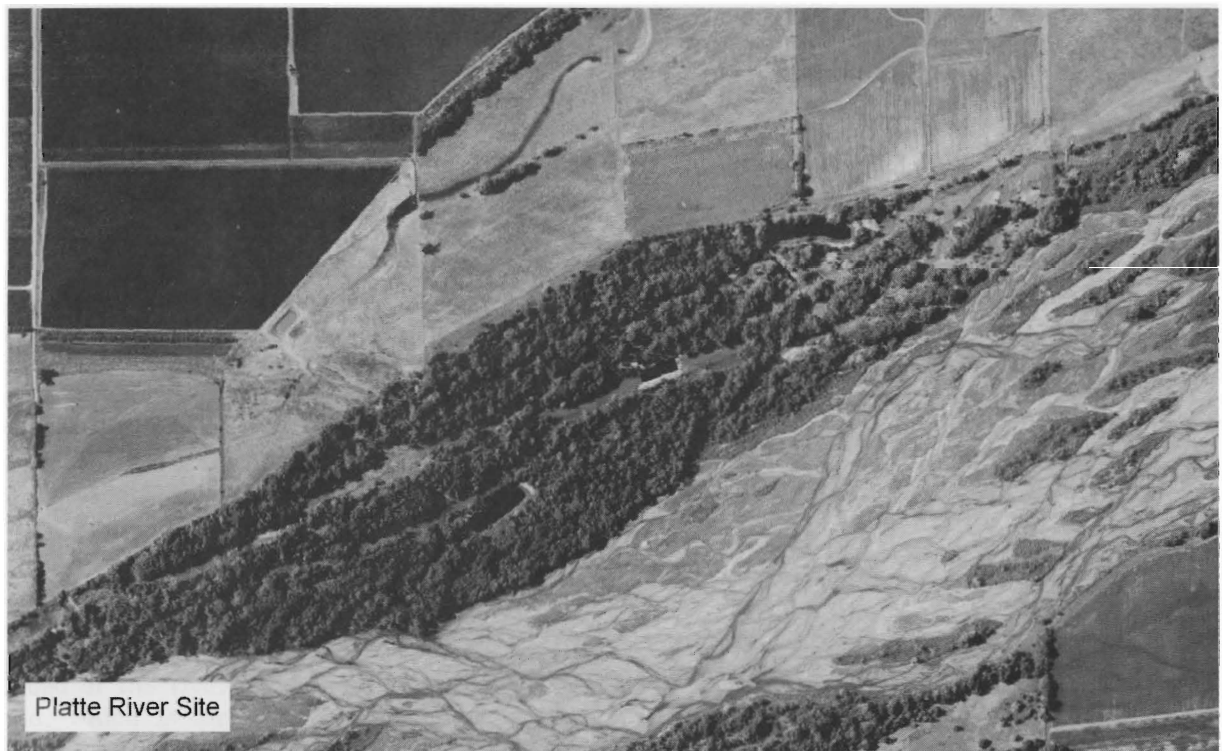


Figure 2. Aerial view of sites. Top: Witchey's Island Site, by the Platte River. North is at the top. The river was dry when the photograph was taken, and its braided bed is evident in the lower half of the picture. Bottom: Loup River Site. North is at the top, and Columbus is just out of range to the north. 1 inch = .17 mile

The focus for observations and collection were two primary sites on the Platte and Loup Rivers, where two of the largest watersheds in Nebraska unite (Fig. 1). The Platte River site is Witchey's Island (Fig. 2), a heavily wooded area (but not now a true island) on the north bank of the Platte River, equidistant between Duncan and Columbus on a parcel of property almost a mile in length. Witchey's Island has been grazed only minimally by livestock and natural deer populations, has not had fire for over 100

years, and has never been cultivated or farmed. It was homesteaded in 1864 by John Witchey, and according to historical record he maintained only a small garden and orchard. The Loup River site (Fig. 2) is on the south bank of the river and includes dense bottomland forest with open prairies, all on sandy soil.

The coordinates for most plants collected are as follows:

Witchey's Island-Platte River Site (Fig. 2 Top)

NW corner of site	NE corner of site
Latitude 41.3809542	Latitude 41.3834823
Longitude -97.445221	Longitude -97.430938

SW corner of site	SE corner of site
Latitude 41.37656772	Latitude 41.3779800
Longitude -97.444935	Longitude -97.430747

Loup River Site (Fig. 2 Bottom)

NW corner of the site	NE corner of site
Latitude 41.4162131	Latitude 41.4139801
Longitude -97.367379	Longitude -97.354334

SW corner of the site	SE corner of site
Latitude 41.4079510	Latitude 41.4083231
Longitude -97.366522	Longitude -97.354334

Lake Babcock, three miles northwest of Columbus, was another sampling location, as was Buck Island on the Loup River southeast of the city. But most collecting was at the established Loup and Platte River study sites because of their ease of access

and the intact nature of their flora. The sampling locations were walked during the spring, summer and fall growing seasons, typically on a weekly basis, to identify species not previously vouchered.

Table 1. Species of native and naturalized trees, shrubs, woody vines, and herbs

	Trees	Shrubs	Lianas	Herbs	<i>totals</i>
Native	13	20	7	385	425
Introduced	8	10	1	98	117
<i>totals</i>	21	30	8	483	542

RESULTS AND DISCUSSION

The native and naturalized species known so far are summarized in Table 1 above, and the full list of those species follows the text, as Table 2.

The Witchey's Island site is representative of an eastern Nebraska riparian forest with a mixed-hardwood community, where the tree canopy is *Celtis occidentalis*, hackberry; *Fraxinus pennsylvanica*, green ash; *Morus alba*, white mulberry; *Quercus macrocarpa*, bur oak; and *Ulmus americana*, American elm. Cottonwoods, *Populus deltoides*, are present, but not to the large size of those in the Loup River site. The representative shrubs for this community are *Cornus drummondii*, rough-leaf dogwood; *Ribes missouriense*, Missouri gooseberry; *Symphoricarpos occidentalis* and *S. orbiculatus*, wolfberry and coralberry; and *Zanthoxylum americanum*, prickly-ash. Abundant woody vines (lianas) form jungle-like tangles: *Parthenocissus quinquefolia*, Virginia creeper, and *P. vitacea*, woodbine; *Smilax hispida*, green briar; *Toxicodendron radicans*, poison ivy; *Menispermum canadense*, moonseed; and *Vitis riparia*, riverbank grape. The herbaceous plants in this community include *Carex* spp., sedges; *Elymus canadensis*, Canada wild rye; *Ageratina altissima*, white snakeroot; *Muhlenbergia* spp., muhly grasses; *Sanicula canadensis*, Canada sanicle; and *Viola sororia*, sister violet. This community occurs in the floodplains of rivers and streams in the eastern fourth of the state and extends only slightly westward into central Nebraska, along the Loup and Platte River systems. Western wild rose, *Rosa woodsii*, is more typical of central and western Nebraska, but it is abundant and robust here.

The Loup River site is also representative of eastern-Nebraska riparian woodland, where the tree canopy is represented by cottonwood, many of them 10-30 m in height. The subcanopy contains *Acer negundo*, boxelder; *Gleditsia triacanthos*, honey locust; *Fraxinus pennsylvanica*, green ash; *Ulmus americana*, American elm; and *Morus alba*, white mulberry — all common at this site. Shrubs include *Cornus drummondii*, *Ribes missouriense*, *Sambucus canadensis* (elderberry), and *Symphoricarpos orbiculatus*. *Parthenocissus quinquefolia*, *Toxicodendron radicans* and *Vitis riparia* are also common. Representative herbaceous plants include *Ageratina altissima*, white snakeroot; *Galium aparine*, bedstraw; *Geum canadense*, white avens; *Poa pratensis*, Kentucky bluegrass; *Rudbeckia laciniata*,

cutleaf coneflower; and *Viola sororia*, sister violet—all common to abundant.

Recent intrusions of exotic, invasive species are evident: *Lythrum salicaria*, purple loosestrife; *Euphorbia esula*, leafy spurge; and introduced genotypes of *Phragmites australis*, common reed. We witnessed their rapid proliferation, but *Tamarix ramosissima* (salt-cedar) is not yet known in the study area, although it is rampant to the west, along the Platte. Some species apparently are moving upriver, east to west, such as *Robinia pseudoacacia*, black locust; *Catalpa speciosa*, northern catalpa; and *Lonicera tatarica*, Tatarian honeysuckle. The invasive exotics Amur honeysuckle (*Lonicera maackii*) and autumn-olive (*Elaeagnus umbellata*) were not present in or near our study sites, but their currently aggressive westward spread across Nebraska assures eventual arrival in Platte County.

The Loup River site has naturalized species such as *Rhamnus cathartica*, buckthorn; *Convallaria majalis*, lily-of-the-valley; and *Lonicera tatarica*, which are common there but not at the Witchey's Island site. The latter site harbors such natives as *Hibiscus laevis*, halberd-leaf rosemallow; *Mimulus glabratus*, roundleaf monkey flower; *Quercus macrocarpa*, bur oak, and the introduced *Lysimachia nummularia*, moneywort — all rare or absent at the Loup River site. Prickly-ash, *Zanthoxylum americanum*, and rough-leaf dogwood, *Cornus drummondii*, both native to the area, are increasingly abundant in the understory at Witchey's Island, especially in heavily grazed places because livestock do not eat them. Black locust, *Robinia pseudoacacia*, and northern catalpa, *Catalpa speciosa*, both native to southeastern North America, are invading the forests near the confluence of the rivers. Siberian elm, *Ulmus pumila*, and white mulberry, *Morus alba*, both introduced to North America from Asia long ago, are established and abundant. A native invasive tree, red-cedar (*Juniperus virginiana*), is abundant in fields and even in deep forests, and here as almost everywhere across the state, it overwhelms native ecosystems.

Some species reach their western limits in or near these sites, e.g., *Arisaema triphyllum* (jack-in-the-pulpit), *Zanthoxylum americanum* (prickly-ash), *Erythronium albidum* (prairie fawnlily), *Viola pubescens* (smooth yellow violet), and *Parthenocissus quinquefolia* (Virginia creeper). Others reach their eastern limits in the same area, e.g., *Opuntia fragilis*, little prickly-pear.

Table 2. Platte County families and species of vascular plants documented. New records (boldface) are as compared to mapped records in *Atlas of the Flora of the Great Plains* (Great Plains Flora Assn. 1977). Some of these new records are mapped in *The Flora of Nebraska* (Kaul et al. 2006), whose nomenclature is used below. Introduced, naturalized species are indicated by an asterisk (*). Most of the vouchering specimens are in the Bessey Herbarium of the University of Nebraska State Museum, Lincoln.

ACERACEAE

- Acer ginnala*, Amur maple*
Acer negundo, boxelder
Acer saccharinum, silver maple, soft maple

ADOXACEAE

- Viburnum opulus*, highbush-cranberry*

AGAVACEAE

- Yucca glauca*, yucca

ALISMATACEAE

- Sagittaria cuneata*, arrowhead, duck-potato
Sagittaria latifolia, arrowhead

AMARANTHACEAE

- Amaranthus albus*, pale amaranth
Amaranthus retroflexus, redroot pigweed
Amaranthus tuberculatus, water-hemp
Froelichia floridana, snake-cotton
Froelichia gracilis, slender snake-cotton

ANACARDIACEAE

- Rhus aromatica*, fragrant sumac*
Rhus glabra, smooth sumac
Rhus typhina "*Laciniata*", staghorn sumac*
Toxicodendron radicans negundo, poison ivy
Toxicodendron radicans rydbergii, poison ivy

APIACEAE

- Berula erecta*, water-parsnip
Cicuta maculata, common water-hemlock
Conium maculatum, poison-hemlock*
Osmorhiza longistylis, long-styled sweet cicely
Polytaenia nuttallii, prairie-parsley
Sanicula canadensis, Canada sanicle
Sanicula odorata, cluster sanicle
Spermolepis inermis, scaleseed

APOCYNACEAE

- Apocynum cannabinum*, hemp dogbane
Asclepias arenaria, sand milkweed

- Asclepias engelmanniana*, slender-leaf milkweed

- Asclepias incarnata*, swamp milkweed
Asclepias speciosa, showy milkweed
Asclepias speciosa x syriaca, hybrid milkweed
Asclepias syriaca, common milkweed
Asclepias verticillata, whorled milkweed
Asclepias viridiflora, green milkweed

ARACEAE

- Arisamea triphyllum*, jack-in-the-pulpit

ASTERACEAE

- Achillea millefolium*, yarrow
Ageratina altissima, white snakeroot
Ambrosia artemisiifolia, common ragweed
Ambrosia psilostachya, western ragweed
Ambrosia trifida, giant ragweed
Antennaria neglecta, pussytoes
Antennaria parvifolia, pussytoes
Arctium minus, burdock*
Artemisia dracunculus, silky wormwood
Artemisia ludoviciana, Louisiana sage
Aster novae-angliae, New England aster
Aster oblongifolius, aromatic aster
Aster praealtus nebraskensis, willowleaf aster
Bidens bipinnatus, Spanish needles
Bidens cernuus, bur-marigold
Bidens comosus, beggarticks
Bidens connatus (both varieties), beggarticks
Bidens frondosus, beggarticks
Bidens trichosperma, tickseed sunflower
Bidens vulgatus, beggarticks
Brickellia eupatorioides corymbulosa, false boneset
Carduus nutans, musk thistle*
Cirsium altissimum, tall thistle
Cirsium canescens, Platte thistle
Conyza canadensis, horseweed, marestalk
Coreopsis lanceolata, lanceleaf tickseed*
Coreopsis tinctoria, plains coreopsis
Dyssodia papposa, fetid marigold
Echinacea angustifolia, narrow-leaf purple coneflower

Eclipta prostrata, yerba de tajo
Erechtites hieraciifolia, fireweed
Erigeron annuus, annual fleabane
Erigeron philadelphicus, marsh fleabane
Erigeron strigosus, daisy fleabane
Eupatorium altissimum, tall boneset
Eupatorium maculatum v. *bruneri*,
 spotted Joe Pye weed
Eupatorium perfoliatum, boneset
Euthamia gymnospermoides, goldentop
Gnaphalium obtusifolium, fragrant
 cudweed
Grindelia squarrosa, curly-cup gumweed
Helenium autumnale, sneezeweed
Helianthus annuus, common sunflower
Helianthus grosseserratus, sawtooth
 sunflower
Helianthus petiolaris, plains sunflower
Helianthus tuberosus, Jerusalem artichoke
Heliopsis helianthoides, false sunflower
Heterotheca latifolia, camphor-weed
Heterotheca villosa, golden-aster
Hymenopappus tenuifolius
Iva annua, marsh-elder
Lactuca serriola, prickly lettuce*
Leucanthemum vulgare, oxeye daisy*
Liatris punctata, gayfeather
Liatris squarrosa glabrata, gayfeather
Matricaria matricarioides, pineapple weed*
Nothocalais cuspidata, false dandelion
Ratibida columnifera, prairie coneflower
Ratibida pinnata, grayhead coneflower
Rudbeckia hirta, black-eyed Susan
Rudbeckia laciniata, cutleaf coneflower
Senecio plattensis, prairie ragwort
Silphium integrifolium v. *laeve*,
 rosinweed
Silphium laciniatum, compass plant
Silphium perfoliatum, cup plant
Solidago canadensis, Canada goldenrod
Solidago gigantea, tall goldenrod
Solidago mollis, soft goldenrod
Solidago nemoralis, gray goldenrod
Taraxacum officinale, dandelion*
Thelesperma megapotamicum, greenthread
Tragopogon dubius, goat's-beard*
Vernonia baldwinii, interior, western
 ironweed
Xanthium strumarium, spiny cocklebur

BALSAMINACEAE

Impatiens capensis, touch-me-not

BERBERIDACEAE

Berberis vulgaris, European barberry*

BIGNONIACEAE

Catalpa speciosa, northern catalpa*

BORAGINACEAE

Hackelia virginiana, stickseed
Lithospermum carolinense, plains puccoon
Lithospermum incisum, fringed puccoon
Onosmodium molle occidentale, false
 gromwell

BRASSICACEAE

Arabis hirsuta pycnocarpa, rock cress
Barbarea vulgaris, winter cress*
Capsella bursa-pastoris, shepherd's-purse*
Cardamine pensylvanica, bitter cress
Chorispora tenella, blue mustard*
Descurainia pinnata, tansy mustard
Descurainia sophia, tansy mustard*
Erysimum repandum, bushy wallflower*
Hesperis matronalis, damie's rocket*
Lepidium densiflorum, pepper-grass
Physaria ludoviciana, bladderpod
Rorippa palustris glabra, bog yellow-cress
Rorippa sessiliflora, yellow-cress
Sisymbrium loeselii, tall hedge-mustard*
Thlaspi arvense, field penny-cress*

CACTACEAE

Opuntia fragilis, little prickly-pear
Opuntia humifusa, eastern prickly-pear

CAESALPINIACEAE

Chamaecrista fasciculata, showy partidge-
 pea
Gleditsia triacanthos, honey-locust
Gymnocladus dioica, Kentucky coffee
 tree

CAMPANULACEAE

Lobelia siphilitica, great blue lobelia
Lobelia spicata, palespike lobelia
Triodanis perfoliata, Venus's looking-glass

CANNABACEAE

Cannabis sativa, marijuana*
Humulus lupulus, hop

CAPRIFOLIACEAE

Lonicera japonica, Japanese
 honeysuckle*

Lonicera morrowii, Morrow's honeysuckle*
Lonicera tatarica, Tatarian honeysuckle*
Sambucus canadensis, elderberry
Symphoricarpos occidentalis, wolfberry
Symphoricarpos orbiculatus, coralberry

CARYOPHYLLACEAE

Agrostemma githago, corn-cockle*
Arenaria serpyllifolia, thyme-leaf sandwort*
Cerastium brachypodum, chickweed
Cerastium fontanum vulgare, chickweed*
Dianthus armeria, Deptford pink*
Holosteum umbellatum, jagged chickweed*
Saponaria officinalis, soapweed, bouncing Bet*
Stellaria media, common chickweed*

CELASTRACEAE

Celastrus scandens, American bittersweet
Euonymus atropurpureus, wahoo

CELTIDACEAE

Celtis occidentalis, hackberry

CERATOPHYLLACEAE

Ceratophyllum demersum, coontail

CHENOPODIACEAE

Chenopodium glaucum, oakleaf goosefoot*
Chenopodium simplex, maple-leaf goosefoot
Chenopodium standleyanum, Standley's goosefoot
Chenopodium strictum, goosefoot
Corispermum americanum, American bugseed
Cycloloma atriplicifolium, winged pigweed
Kochia scoparia kochia, summer cypress*
Salsola tragus = *S. iberica*, Russian thistle*

CISTACEAE

Lechea mucronata, pinweed

CLEOMACEAE

Polanisia jamesii, James's clammyweed

CLUSIACEAE

Hypericum perforatum, common St. John's-wort*

COMMELINACEAE

Commelina communis, dayflower*
Tradescantia occidentalis, spiderwort

CONVOLVULACEAE

Calystegia macounii, Macoun's bindweed
Calystegia sepium angulata, hedge bindweed
Convolvulus arvensis, field bindweed*
Ipomoea hederacea, ivyleaf morning-glory*
Ipomoea purpurea, common morning-glory*

CORNACEAE

Cornus drummondii, rough-leaf dogwood
Cornus sericea, red-osier dogwood

CRASSULACEAE

Penthorum sedoides, ditch stonecrop

CUCURBITACEAE

Echinocystis lobata, wild-cucumber
Sicyos angulatus, bur-cucumber

CUPRESSACEAE

Juniperus virginiana, eastern red-cedar

CYPERACEAE

Bolboschoenus fluviatilis, river bulrush
Carex bebbii, sedge
Carex blanda, sedge
Carex brevior, sedge
Carex comosa, sedge
Carex crawei, sedge
Carex davisii, sedge
Carex eleocharis, sedge
Carex emoryi, sedge
Carex granularis haleana, sedge
Carex gravida, sedge
Carex heliophila, sunsedge
Carex hystericina, sedge
Carex laeviconica, sedge
Carex meadii, sedge
Carex molesta, sedge
Carex pellita, sedge
Carex praegracilis, sedge
Carex sartwellii, sedge
Carex scoparia, sedge
Carex stipata, sedge

Carex tetanica, sedge
Carex vulpinoidea, sedge
Cyperus acuminatus, flatsedge
Cyperus bipartitus, brook flatsedge
Cyperus erythrorhizos, redroot flatsedge
Cyperus lupulinus lupulinus, flatsedge
Cyperus lupulinus x *schweinitzii*,
 flatsedge
Cyperus odoratus, rusty flatsedge
Cyperus schweinitzii, Schweinitz's
 flatsedge
Cyperus squarrosus, flatsedge
Cyperus strigosus, false nutsedge, umbrella
 sedge
Eleocharis compressa, spikerush
Eleocharis erythropoda, redstem spikerush
Schoenoplectus pungens, common
 threesquare
Schoenoplectus tabernaemontani,
 softstem bulrush
Scirpus pallidus, bulrush
Scirpus pendulus, bulrush

DRYOPTERIDACEAE

Onoclea sensibilis, sensitive fern

ELAEAGNACEAE

Elaeagnus angustifolia, Russian olive*

EQUISETACEAE

Equisetum arvense, field horsetail
Equisetum hyemale v. *affine*, scouring-rush
Equisetum laevigatum, scouring-rush

EUPHORBIACEAE

Acalypha rhomboidea, three-seeded
 mercury
Croton texensis, Texas croton
Euphorbia davidii, western toothed spurge
Euphorbia esula esula, leafy spurge*
Euphorbia geyeri, Geyer's spurge
Euphorbia glyptosperma, spurge
Euphorbia hexagona, six-angle spurge
Euphorbia marginata, snow-on-the-
 mountain
Euphorbia missurica intermedia, Missouri
 spurge
Euphorbia nutans, eyebane
Euphorbia stictospora, spurge

FABACEAE

Amorpha canescens, leadplant
Amorpha fruticosa, wild-indigo
Apios americana, ground-nut

Astragalus canadensis, Canadian
 milkvetch
Astragalus crassicaarpus, ground-plum
Crotalaria sagittalis, rattlebox
Dalea leporina, hare's-foot dalea
Dalea purpurea purpurea, purple prairie-
 clover
Dalea villosa, silky prairie-clover
Desmodium glutinosum, large-flowered
 tick-clover
Glycyrrhiza lepidota, wild licorice
Lathyrus polymorphus, hoary vetch
Lespedeza capitata, round-head
 lespedeza
Lotus corniculatus, bird's-foot trefoil*
Lotus purshianus, prairie trefoil
Medicago lupulina, black medick*
Medicago sativa sativa, alfalfa*
Melilotus albus, white sweet-clover*
Melilotus officinalis, yellow sweet-clover*
Oxytropis lambertii, purple locoweed
Pedimelum argophyllum, silver-leaf
 scurfpea
Pedimelum digitatum, palmleaf scurfpea
Psoralidium lanceolatum, lemon scurfpea
Robinia pseudoacacia, black-locust*
Strophostyles helvula, wild bean
Strophostyles leiosperma, slickseed wild
 bean
Trifolium hybridum, Alsike clover*
Trifolium pratense, red clover*
Trifolium repens, white clover*
Vicia villosa, hairy vetch*

FAGACEAE

Quercus macrocarpa, bur oak

GENTIANACEAE

Gentiana andrewsii dakotica, bottle
 gentian
Gentiana puberulenta, downy gentian

GROSSULARIACEAE

Ribes missouriense, Missouri gooseberry

HYDROCHARITACEAE

Elodea nuttallii, elodea
Naias guadalupensis, naiad

HYDROPHYLLACEAE

Ellisia nyctelea, waterpod

IRIDACEAE

Belamcanda chinensis, blackberry lily*

Iris germanica, bearded iris*
Iris pseudacorus, yellow iris, yellow flag*
Sisyrinchium campestre, blue-eyed grass
Sisyrinchium montanum, blue-eyed
 grass

JUGLANDACEAE

Juglans nigra, black walnut

JUNCACEAE

Juncus arcticus balticus, Baltic rush
Juncus brachyphyllus, shortleaf rush
Juncus dudleyi, Dudley's rush
Juncus interior, inland rush
Juncus torreyi, Torrey's rush

LAMIACEAE

Hedeoma hispida, rough false pennyroyal
Leonurus cardiaca, motherwort*
Lycopus americanus, American water-
 horehound
Lycopus asper, western water-horehound
Mentha arvensis, field mint
Monarda fistulosa, wild-bergamot
Monarda punctata occidentalis,
 horsemint*
Nepeta cataria, catnip*
Prunella vulgaris lanceolata, American
 heal-all
Prunella vulgaris vulgaris, European
 heal-all
Pycnanthemum virginianum, Virginia
 mountain-mint
Salvia reflexa, Rocky Mountain salvia
Scutellaria galericulata, marsh skullcap
Scutellaria lateriflora, mad-dog skullcap
Scutellaria parvula missouriensis, little
 skullcap
Teucrium canadense canadense, American
 germander
Teucrium canadense occidentale,
 American germander

LEMNACEAE

Lemna spp., duckweed
Spirodela polyrrhiza, greater duckweed
Wolffia columbiana, Columbian
 watermeal

LILIACEAE

Allium canadense canadense, wild onion
Allium canadense fraseri, wild onion
Allium canadense lavendulare, wild onion
Allium perdulce, fragrant onion

Asparagus officinalis, asparagus*
Convallaria majalis, lily-of-the-valley*
Erythronium albidum, prairie fawnlily
Hemerocallis fulva, daylily*
Hypoxis hirsuta, yellow star-grass
Polygonatum biflorum, Solomon's seal
Smilacina stellata, starry false Solomon's
 seal

LINACEAE

Linum rigidum simulans, stiff flax
Linum sulcatum, grooved flax

LYTHRACEAE

Ammannia robusta, toothcup
Lythrum alatum, winged loosestrife
Lythrum salicaria, purple loosestrife*

MALVACEAE

Abutilon theophrasti, velvet leaf*
Callirhoe alcaeoides, pink poppy-mallow
Callirhoe involucrata, purple poppy-mallow
Hibiscus laevis, halberd-leaf rose-mallow

MARSILEACEAE

Marsilea vestita, pepperwort, water-clover

MENISPERMACEAE

Menispermum canadense, moonseed

MIMOSACEAE

Desmanthus illinoensis, Illinois tick-
 clover

MOLLUGINACEAE

Mollugo verticillata, carpet-weed

MORACEAE

Morus alba, white mulberry*

NELUMBONACEAE

Nelumbo lutea, American lotus, chinkapin

NYCTAGINACEAE

Mirabilis hirsuta, hairy four-o'clock
Mirabilis nyctaginea, wild four-o'clock

NYMPHAEACEAE

Nymphaea odorata s.l., white waterlily

OLEACEAE

Fraxinus pennsylvanica, green ash

ONAGRACEAE

Calylophus serrulatus, plains evening-primrose

Gaura coccinea, scarlet gaura

Oenothera biennis, common evening-primrose

Oenothera rhombipetala, fourpoint evening-primrose

ORCHIDACEAE

Cypripedium candidum, white lady's-slipper

OXALIDACEAE

Oxalis dillenii, gray oxalis

PAPAVERACEAE

Argemone polyanthemus, prickly poppy

PHRYMACEAE

Phryma leptostachya, lopseed

PLANTAGINACEAE

Plantago lanceolata, English plantain*

Plantago patagonica patagonica, woolly plantain

Plantago rugelii, American plantain

Plantago virginica, plantain

POACEAE

Agropyron cristatum, crested wheatgrass*

Agrostis hyemalis, tickle-grass

Agrostis stolonifera, redtop*

Andropogon gerardii gerardii, big bluestem

Andropogon gerardii hallii, sand bluestem

Aristida basiramea, forktip three-awn

Aristida oligantha, oldfield three-awn

Bouteloua curtipendula, sideoats grama

Bouteloua gracilis, blue grama

Bouteloua hirsuta, hairy grama

Bromus inermis, smooth brome*

Bromus japonicus, hairy chess, Japanese brome*

Bromus pubescens, Canada brome

Bromus tectorum, cheatgrass*

Buchloe dactyloides, buffalo grass

Calamovilfa longifolia, prairie sandreed

Cenchrus longispinus, sandbur

Chloris verticillata, windmill grass

Dactylis glomerata, orchard grass*

Digitaria cognata, fall witchgrass

Digitaria ischaemum, smooth crabgrass*

Digitaria sanguinalis, hairy crabgrass*

Echinochloa crusgalli, barnyard grass*

Echinochloa muricata microstachya, barnyard grass

Eleusine indica, goosegrass*

Elymus canadensis, Canada wild rye

Elymus elongatus, tall wheatgrass*

Elymus hispidus, intermediate wheatgrass

Elymus repens, quackgrass*

Elymus smithii, western wheatgrass

Elymus trachycaulus trachycaulus, slender wheatgrass

Elymus villosus, hairy wild-rye

Elymus virginicus, Virginia wild-rye

Eragrostis cilianensis, stinkgrass*

Eragrostis pectinacea, Carolina lovegrass

Eragrostis spectabilis, purple lovegrass

Eragrostis trichodes, sand lovegrass

Eriochloa contracta, prairie cupgrass

Glyceria grandis, tall manna-grass

Glyceria striata, fowl manna-grass

Hordeum jubatum, foxtail barley

Hordeum pusillum, little barley

Koeleria macrantha, Junegrass

Leersia virginica, Virginian cutgrass

Lolium arundinaceum, tall-fescue

Lolium perenne, perennial ryegrass*

Miscanthus saccharifolius, silver grass, miscanthus*

Muhlenbergia frondosa, wirestem muhly

Muhlenbergia glomerata, muhly

Muhlenbergia mexicana, wirestem muhly

Muhlenbergia pungens, blowout

Muhlenbergia racemosa, marsh muhly

Panicum acuminatum, panic grass

Panicum capillare, common witchgrass

Panicum dichotomiflorum, fall panicum

Panicum leibergii, Leiberg panicum

Panicum oligosanthes scribnerianum, Scribner's panicum

Panicum virgatum, switchgrass

Paspalum setaceum stramineum, paspalum

Phalaris arundinacea, reed canary-grass*

Phleum pratense, timothy*

Phragmites australis, common reed

Poa annua, annual bluegrass*

Poa compressa, Canada bluegrass

Poa pratensis, Kentucky bluegrass (*?)

Polypogon monspeliensis, rabbitfoot grass*

Redfieldia flexuosa, blowout grass

Schedonnardus paniculatus, tumblegrass

Schizachyrium scoparium, little bluestem

Secale cereale, rye*

Setaria italica, foxtail millet*
Setaria pumila, yellow foxtail*
Setaria verticillata, bristly foxtail*
Setaria viridis, green foxtail*
Sorghastrum nutans, switchgrass
Sorghum bicolor, sorghum, milo*
Spartina pectinata, prairie cordgrass
Sphenopholis obtusata major, wedgegrass
Sphenopholis obtusata obtusata,
 wedgegrass
Sporobolus cryptandrus, sand dropseed
Sporobolus vaginiflorus, poverty grass
Stipa spartea, porcupine grass
Tridens flavus, purpletop grass
Triplasis purpurea, purple sandgrass
Tripsacum dactyloides, eastern
 gamagrass
Triticum aestivum, wheat*
Vulpia octoflora, six-weeks fescue
Zizania palustris interior, interior wild-
 rice

POLEMONIACEAE

Phlox paniculata, summer phlox*

POLYGONACEAE

Eriogonum annuum, annual wild-
 buckwheat
Polygonum achoreum, knotweed
Polygonum aviculare, knotweed,
 wireweed*
Polygonum bicorne, pink smartweed
Polygonum coccineum, scarlet
 smartweed
Polygonum convolvulus, black-bindweed*
Polygonum lapathifolium, nodding
 smartweed
Polygonum pensylvanicum,
 Pennsylvania smartweed
Polygonum persicaria, smartweed*
Polygonum punctatum, water
 smartweed
Polygonum ramosissimum (all vars.), bushy
 knotweed
Polygonum scandens, climbing false-
 buckwheat
Polygonum tenue, slender knotweed
Rumex acetosella, sheep sorrel*
Rumex altissimus, pale dock, tall dock
Rumex patientia orientalis, patience
 dock*
Rumex stenophyllus, narrowleaf dock*

PONTEDERIACEAE

Heteranthera limosa, mud-plantain

PORTULACACEAE

Phemeranthus parviflorus, prairie fame-
 flower
Phemeranthus rugospermus, sand fame-
 flower

POTAMOGETONACEAE

Potamogeton foliosus, leafy pondweed
Potamogeton illinoensis, Illinois
 pondweed
Potamogeton nodosus, floating-leaf
 pondweed
Potamogeton pectinatus, sago pondweed
Potamogeton pusillus, small pondweed

PRIMULACEAE

Androsace occidentalis, western rock-
 jasmine
Lysimachia nummularia, moneywort*

RANUNCULACEAE

Anemone canadensis, meadow anemone
Anemone caroliniana, Carolina anemone
Aquilegia canadensis, columbine
Delphinium virescens, prairie larkspur
Ranunculus abortivus, kidney-leaf
 buttercup
Ranunculus flabellaris, yellow water-
 crowfoot
Ranunculus longirostris, white water-
 crowfoot
Ranunculus sceleratus, cursed crowfoot
Thalictrum dasycarpum, purple
 meadow-rue

RHAMNACEAE

Rhamnus cathartica, buckthorn*

ROSACEAE

Agrimonia gryposepala, agrimony
Geum canadense, white avens
Potentilla recta, sulfur cinquefoil
Prunus americana, American plum
Prunus pumila besseyi, sand cherry
Prunus tomentosa, Nanking cherry, bush
 cherry*
Prunus virginiana, chokecherry
Rosa arkansana, dwarf prairie-rose
Rosa multiflora, multiflora rose*
Rosa woodsii, western wild rose
Rubus occidentalis, black raspberry

RUBIACEAE

Galium aparine, cleavers
Galium circaezans, woods bedstraw
Galium obtusum, bluntleaf bedstraw

RUTACEAE

Zanthoxylum americanum, prickly -ash

SALICACEAE

Populus alba, silver poplar*
Populus deltoides occidentalis, Plains
cottonwood
Salix amygdaloides, peach-leaf willow
Salix eriocephala famelica, diamond
willow
Salix exigua interior, sandbar willow

SANTALACEAE

Comandra umbellata umbellata, comandra,
bastard toadflax

SCROPHULARIACEAE

Agalinis tenuifolia parvifolia, gerardia
Bacopa rotundifolia, water-hyssop
Gratiola neglecta, hedge-hyssop
Leucospora multifida, leucospora
Lindernia dubia, false pimpernel
Mimulus glabratus, roundleaf monkey-
flower
Mimulus ringens, Allegheny monkey-
flower
Penstemon albidus, white beardtongue
Penstemon angustifolius angustifolius,
narrowleaf beardtongue
Penstemon buckleyi, Buckley's
penstemon
Penstemon grandiflorus, large beardtongue
Scrophularia marilandica, eastern
figwort
Verbascum blattaria, moth mullein*
Verbascum thapsus, common mullein*
Veronica anagallis-aquatica, water
speedwell*
Veronica catenata, water speedwell*
Veronica peregrina peregrina, purslane
speedwell*
Veronica peregrina xalapensis, purslane
speedwell*
Veronica polita, veronica*

SIMAROUBACEAE

Ailanthus altissima, tree-of-heaven*

SMILACACEAE

Smilax hispida, greenbriar, prickly
catbriar

SOLANACEAE

Datura wrightii, angel's trumpet*
Physalis heterophylla, ivyleaf ground-
cherry
Physalis longifolia, common ground-cherry
Solanum carolinense, horse-nettle
Solanum interius, Plains black nightshade
Solanum ptycanthum, black nightshade
Solanum rostratum, buffalo bur

SPARGANIACEAE

Sparganium eurycarpum, bur-reed

TYPHACEAE

Typha angustifolia, narrowleaf cattail
Typha latifolia, broadleaf cattail

ULMACEAE

Ulmus americana, American elm
Ulmus pumila, Siberian elm*
Ulmus rubra, red elm, slippery elm

URTICACEAE

Boehmeria cylindrica, false nettle
Parietaria pensylvanica, pellitory
Urtica dioica, stinging nettle

VERBENACEAE

Lippia lanceolata, northern fogfruit
Verbena bracteata, prostrate vervain
Verbena hastata, common vervain
Verbena stricta, hoary vervain
Verbena urticifolia, white vervain

VIOLACEAE

Viola pubescens eriocarpa, smooth
yellow violet
Viola sororia, sister violet

VITACEAE

Parthenocissus quinquefolia, Virginia
creeper
Parthenocissus vitacea, woodbine
Vitis riparia, riverbank grape

ZANNICHELLIACEAE

Zannichellia palustris, horned pondweed

ZYGOPHYLLACEAE

Tribulus terrestris, puncture vine*

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