

# The Vascular Flora of the J.T. Nickel Family Nature and Wildlife Preserve, Cherokee County, Oklahoma

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**ABSTRACT** We report the results of an inventory of the vascular plants at the J.T. Nickel Family Nature and Wildlife Preserve in Cherokee County, Oklahoma. We collected a total of 597 taxa in 358 genera and 118 families. The greatest number of species were from Asteraceae (87), Poaceae (66), and Fabaceae (44). Ninety-one species of woody plants were present. Seventy-two non-native species were present representing 12.1% of the flora. Species present that are tracked by the Oklahoma Natural Heritage Inventory were *Brachyelytrum erectum*, *Brasenia schreberi*, *Carex cephalophora*, *C. oklahomensis*, *C. oxylepis*, *Clematis virginiana*, *Cypripedium parviflorum* var. *parviflorum*, *Impatiens pallida*, *Iris cristata*, *Phaseolus polystachios*, *Physocarpus opulifolius* var. *intermedius*, *Silene regia*, and *Tradescantia ernestiana*. This study reports the first records for *Glyceria acutiflora* and *Microstegium vimineum* (Poaceae) from Oklahoma.

**INTRODUCTION** Floristic study of the Ozark Plateau in Oklahoma began with Thomas Nuttall in 1819. One route on Nuttall's itinerary followed the Grand River, where he collected the first specimen of *Cotinus obovatus* (Pennell 1936, Little 1943). Interest in the region resumed in 1909 when Robert Bebb, namesake of the University of Oklahoma Herbarium (OKL), collected *Solanum rostratum*. But it was Charles S. Wallis who completed the most thorough botanical study of the Oklahoma Ozarks, depositing 14,048 specimens in OKL and the Herbarium at Oklahoma State University (OKLA) between 1942 and 1969, for a total of 1,674 species (Hoagland et al. 2006). During that time, he collected 2,975 specimens from Cherokee County representing 1,214 species, including *Asplenium bradleyi*, *Desmodium pauciflorum*, *Draba aprica*, and *Valerianella ozarkana*, which are considered rare in Oklahoma. The work of Wallis is summarized in Wallis (1953, 1957, 1959), Wallis and Waterfall (1953), and Waterfall and Wallis (1962, 1963).

Cherokee County lies on the western edge of the Ozark Plateau in Oklahoma. At present, 1,442 taxa have been recorded from the county (Hoagland et al. 2006). The first plant collections from the county were specimens of *Gleditsia triacanthos*, by C.W. Prier in June of 1922, and *Verbena urticifolia*, collected by E.L. Chase in August of 1922. The first significant numbers of specimens were collected by Prier from March 1924 to July 1925 (Hoagland et al. 2006). Elbert Little collected 630 plant specimens representing 194 taxa in the county from 1928 to 1981, including *Castanea pumila* var. *ozarkensis* and *Panax quinquefolius*, both rare in Oklahoma. Robert Bebb collected 134 species from the county from 1928 to 1948. Sporadic collections have made in Cherokee County since that time, but a systematic inventory has not been conducted.

The objective of this study was to complete a floristic inventory at The Nature Conservancy's John T. Nickel Family Nature and Wildlife Preserve (JTN [and 36.09°N to 35.98°N and 94.92°W to 94.78°W]) as a management aid for personnel at the site. Several rare species tracked by the Oklahoma Natural Heritage Inventory (ONHI) occur in Cherokee County and a systematic inventory might yield additional occurrence informa-

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tion. The JTN was established in 2000 and protects 6,070 hectares (Nature Conservancy 2006). The climate is Subtropical Humid (Cf) (Trewartha 1968). Summers are warm (mean July temperature = 26.9°C) and humid, and winters are relatively short and mild (mean January temperature = 2.7°C). Mean annual precipitation is 122 cm (Oklahoma Climatological Survey 2006).

Physiographically, the study area is located on the deeply dissected Ozark Plateau (Hunt 1974, Curtis and Ham 1979). Elevation ranges from 184 m to 381 m above sea-level. The surface geology is predominantly Mississippian limestone and chert (Branson and Johnson 1979). Soils at the site belong to either the Sallisaw-Elsah-Staser Association (deep, gravelly or loamy, nearly level to sloping soils on floodplains and benches) or the Clark-Baxter-Locust Association (deep, stony and cherty, very gently sloping to steeply sloping on timbered uplands (Everett 1970). Potential natural vegetation at JTN is oak-hickory-pine forest (Duck and Fletcher 1943). Previous landowners had converted the broad valley bottoms and level uplands to pastures of *Schedonorus phoenix* which were cut for hay. Since acquisition, The Nature Conservancy initiated a program to eradicate *S. phoenix* and replant with native tallgrass prairie species. A fire regime has also been reintroduced to create a mosaic of grassland, woodland and forest vegetation as described for the Ozark Plateau by authors such as Beilman and Brenner (1951).

**METHODS** Ten collection sites were regularly visited for floristic sampling. Additional collections were also made opportunistically throughout the JTN. Collecting began in March and continued through October 1999. Sites were selected following a review of United States Geological Survey 1:24,000 topographic maps and field reconnaissance. The predominant vegetation association at these sites was classified according to Hoagland (2000). Vouchers for non-native species were made from naturalized populations only, thus excluding cultivated and ornamental plants. Specimens were processed following standard procedures and deposited at the Robert Bebb Herbarium at the University of Oklahoma (OKL). Manuals used for specimen identification included Waterfall (1973), Diggs et al. (1999), and Yatskievych (1999).

**Table 1. Summary of floristic collections at the John T. Nickel Family Nature and Wildlife Preserve, Cherokee County, Oklahoma. Format follows Palmer et al. (1995)**

Taxonomic Group	Taxa	Native	Non-native
Pteridophyta	12	12	0
Coniferophyta	2	2	0
Magnoliophyta	583	510	73
Magnoliopsida	448	393	55
Liliopsida	135	117	18
Total	597	524	73

Origin, either native or introduced to North America, was determined using the USDA-NRCS (2007). Nomenclature follows the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS 2007).

**RESULTS AND DISCUSSION** A total of 597 taxa of vascular plants in 118 families and 358 genera were collected at the JTN (Appendix). Of the angiosperms, 135 species were Liliopsida and 448 were Magnoliopsida (Table 1). Ninety-one species were trees, shrubs, and woody vines. In addition, there were twelve Pteridophyta and two Coniferophyta. *Physalis pubescens* and *Dichanthelium acuminatum* both had two varieties. The Asteraceae (87), Poaceae (66), and Fabaceae (44) had the greatest number of species. The largest genus was *Carex* with 17 species. One hundred and seventy-two species were annuals, 5 were biennials and 418 were perennials. In addition, the flora included two hybrids, *Baptisia* × *sulphurea* and *Mentha* × *piperita*. If one were to subtract the two varieties and hybrids, the total number of species at JNT would equal 591. Fifty species previously unreported for Cherokee County were collected. *Glyceria acutiflora* and *Microstegium vimineum* were collected for the first time in Oklahoma. *Glyceria acutiflora* is an obligate wetland species that is listed as rare, threatened or of special concern by the States of Indiana, Kentucky, Maine, Maryland, Michigan, New Hampshire, Ohio, Tennessee, and Vermont (USDA-NRCS 2007). Approximately 200 stems of *G. acutiflora* occurred in a large pond at JNT. *Microstegium vimineum* is a non-native, invasive annual grass that occupies disturbed lowland sites (Gibson et al. 2002). Unlike *G. acutiflora*, *M. vimineum* occurred at numerous locations throughout JNT.

Seventy-two species (12.1% of the flora) in 25 families were non-native to Oklahoma. The families with the greatest number of introduced species were Poaceae (15), Fabaceae (10), and Asteraceae (9). The genus *Trifolium* had the most non-native species (4). Floristic surveys from throughout Oklahoma report that non-native species constitute 9–15% of the flora (Hoagland and Buthod 2004, Hoagland and Johnson 2005), with the exception of two sites in McCurtain County, where 6.6% of the flora consisted of non-native species (Hoagland and Johnson 2004).

Sixteen species tracked by the Oklahoma Natural Heritage Inventory (2006) were encountered (Table 2). Species are ranked according to level of imperilment at the state (S) and global (G) levels on a scale of 1–5, where 1 represents a species that is imperiled and 5 a species that it is secure (Groves et al. 1995). *Castanea pumila* var. *ozarkensis* and *Silene regia* were candidates for listing under the Endangered Species Act. *Physocarpus opulifolius* var. *intermedius* was last collected by Wallis in 1953. *Clematis virginiana* was last collected by Wallis in 1958, and only four records exist in the Oklahoma Vascular Plants Database, all from Cherokee County (Hoagland et al. 2006).

Collection sites selected at JTN occurred within seven vegetation associations. Several of the upland forest types intergrade, a problem confounded by the broad distribution of *Pinus echinata* at JTN. At sites where *P. echinata* was absent, it was noticed that the broadleaf canopy species and associated woody species were the same as those in stands dominated by *P. echinata*. Quantitative studies are necessary to clarify this observation. Nevertheless, for this study forest associations were merged into the broad categories of xeric and mesic forest. A description of each vegetation category follows:

#### 1. Xeric Forests [XF]

This category subsumes the *Pinus echinata-Quercus stellata-Quercus marilandica*, *Quercus stellata-Quercus marilandica-Carya (glabra, texana)/Vaccinium arboreum* and *Quercus alba-Quercus falcata* forest associations. Xeric forests predominate on south-facing and exposed slopes. Associated species include *Ame-lanchier arborea*, *Baptisia bracteata*, *Carex albicans*, *Clitoria mariana*, *Coreopsis tripteris*, *Danthonia spicata*, *Echinacea pallida*, *Erythro-*

**Table 2.** Species tracked by the Oklahoma Natural Heritage Inventory (2006) that occurred at The Nature Conservancy's John T. Nickel Family Wildlife and Nature Preserve\*

Species	G Rank	S Rank
<i>Brachyelytrum erectum</i>	G5	S1
<i>Brasenia schreberi</i>	G5	S1
<i>Carex cephalophora</i>	G5	S2
<i>Carex oklahomensis</i>	G3?	S?
<i>Carex oxylepis</i>	G5?	S2
<i>Clematis virginiana</i>	G5	S1S2
<i>Cypripedium parviflorum</i> var. <i>parviflorum</i>	G5	S2
<i>Impatiens pallida</i>	G5	S2
<i>Iris cristata</i>	G5	S2
<i>Phaseolus polystachios</i>	G4	S1
<i>Physocarpus opulifolius</i> var. <i>intermedius</i>	G5	S1S3
<i>Silene regia</i>	G3	S1
<i>Tradescantia ernestiana</i>	G3?Q	S?
<i>Tradescantia ozarkana</i>	G3	S1S2
<i>Urtica chamaedryoides</i>	G4G5	S?
<i>Uvularia grandiflora</i>	G5	S2S3

\*The conservation rank provided for each species is the level of imperilment at the state (S) and global (G) scales.

*nium mesochoreum*, *Gamochaeta purpurea*, *Parthenium integrifolium*, *Rhododendron prinophyllum*, *Rudbeckia hirta*, *Tephrosia virginiana*, *Vaccinium arboreum*, and *V. pallidum*.

#### 2. Mesic Forests [MF]

The *Pinus echinata-Quercus alba* and *Quercus alba-Carya alba* forest associations are merged into this category. Mesic forests are prevalent on north-facing and low slope positions. Associated species include *Adiantum pedatum*, *Amsonia tabernaemontana*, *Asclepias quadrifolia*, *Bromus pubescens*, *Enemion biternatum*, *Desmodium glutinosum*, *Dichanthelium boscii*, *Elephantopus carolinianus*, *Galium aparine*, *Geranium maculatum*, *Hypericum hypericoides*, *Myosotis verna*, *Nyssa sylvatica*, *Ostrya virginiana*, *Pedicularis canadensis*, *Pteridium aquilinum*, *Rudbeckia laciniata*, *Sanicula canadensis*, *Silene virginica*, *Smallanthus uvedalius*, *Symphotrichum patens*, *Viburnum rufidulum*, and *Woodsia obtusa*.

#### 3. *Platanus occidentalis-Acer negundo* forest association [POAN]

This association is restricted to the floodplains of high order streams. Associated species include *Arundinaria gigantea*, *Betula nigra*, *Elymus hystrix*, *Ilex decidua*, *Impatiens capensis*, *Leersia virginica*, *Ruellia strepens*, *Rudbeckia triloba*, *Sambucus nigra*, and *Zizia aurea*.

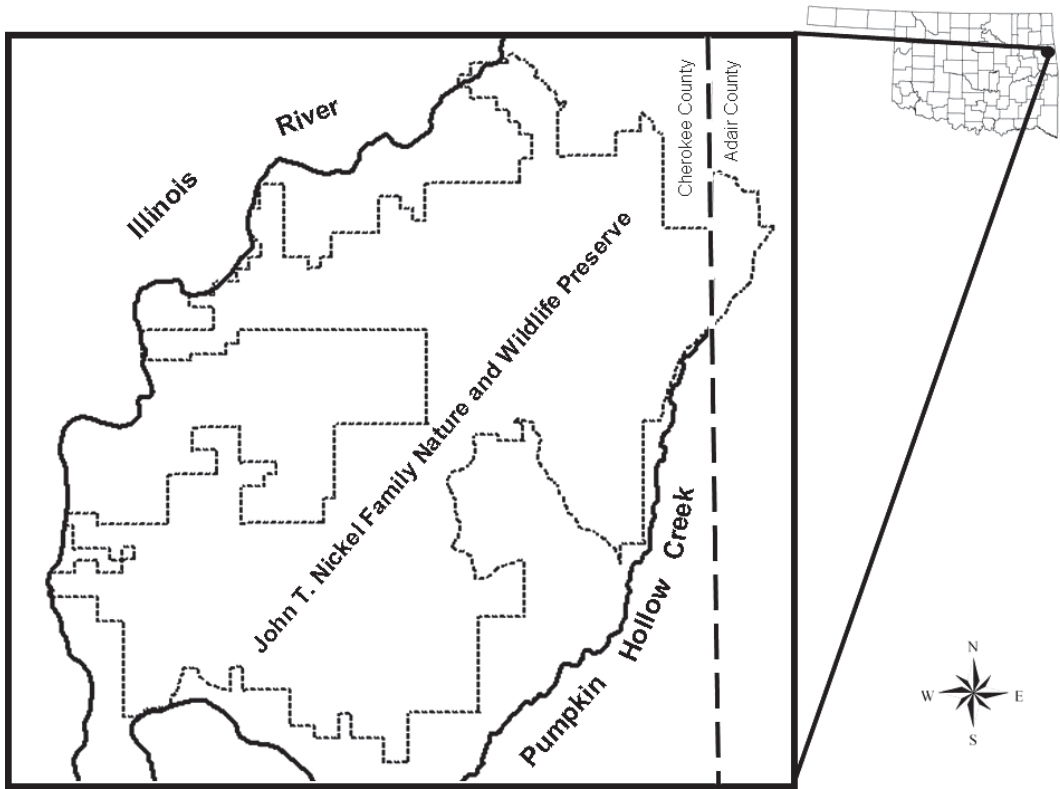


Figure 1. Location of The Nature Conservancy's J.T. Nickel Family Nature and Wildlife Preserve in the Ozark Plateau of Oklahoma.

4. *Sedum nuttallianum-Plantago virginica* herbaceous association [SNPV]

This association represents limestone glade habitats at JTN. Although limited in extent, this vegetation type contributes several species to the flora of JTN, including *Arabis canadensis*, *Croton willdenowii*, *Draba cuneifolia*, *Hedeoma hispida*, *Lechea mucronata*, *Minuartia patula*, *Phemeranthus parviflorus*, *Polygala verticillata*, *Scutellaria ovata*, and *Sedum pulchellum*.

5. *Schizachyrium scoparium-Bouteloua curtipendula* herbaceous association [SSBC]

This association represents grassy openings on more well-developed soils than the glades. They commonly occur on south-facing toeslopes. Associated species include *Ceanothus americanus*, *Collinsia violacea*, *Cyperus echinatus*, *Dalea candida*, *Euphorbia corollata*, *Hymenopappus scabiosaeus*, *Lespedeza stuevei*, *Lithospermum canescens*, *Manfreda virginica*, *Mimosa nuttallii*, *Monarda fistulosa*, *Nothoscordum bivalve*, *Opuntia humifusa*, *Penstemon tubiflorus*, *Rhynchosia latifolia*, *Salvia azurea*, and *Solidago petiolaris*.

6. Wetland Vegetation [WETL]

Although relatively distinct wetland vegetation associations occur at JTN, many share species. Therefore, we decided to merge wetlands into one category. Notes on the more distinctive wetland types follow. The *Nasturtium officinale* herbaceous association is associated with the numerous springs at JTN. The *Brasenia schreberi* herbaceous association typically occurs in the many small ponds at JTN. *Utricularia gibba* and *Potamogeton diversifolius* are associates in open water and pond margins are lined with *Eleocharis quadrangulata*. The *Nelumbo lutea* herbaceous association occurs in only one large pond, but it was in this habitat that *Glyceria acutiflora* was encountered. Wetland species that occur in these include *Agrostis hyemalis*, *Bidens cernua*, *Carex frankii*, *Eclipta prostrata*, *Glyceria striata*, *Hydrocotyle verticillata*, *Justicia americana*, *Leersia oryzoides*, *Lindernia dubia*, *Lobelia cardinalis*, *Ludwigia palustris*, *Mimulus alatus*, *Polygonum lapathifolium*, *P. persicaria*, *Sagittaria graminea*, and *Typha latifolia*.



7. Disturbed areas and old-field vegetation [DAOFF]

Disturbed areas were designated as sites used by visitors, mowed lawns, roadsides, and other sites exhibiting signs of denudation and soil disturbance. Common plants in disturbed areas include *Cynodon dactylon*, *Daucus pusillus*, *Digitaria sanguinalis*, *Lespedeza cuneata*, *Kummerowia stipulacea*, *Melilotus officinalis*, *Mollugo verticillata*, *Rhus glabra*, and *Trifolium dubium*. Old-fields are characterized by *Ambrosia artemisiifolia*, *Andropogon virginicus*, *Aristida oligantha*, *Coryza canadensis*, and *Descurainia pinnata*. Non-native, invasive species such as *Sorghum halepense* covers extensive areas of retired crop land, roadsides, and drainage ditches. *Microstegium vimineum*, also an invasive species, occurs along roads traversing mesic forests.

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**APPENDIX** Annotated species list for The Nature Conservancy's J.T. Nickel Family Nature and Wildlife Preserve, Cherokee County, Oklahoma. The first entry is vegetation association, the second is life history (A = annual, B = biennial, P = perennial), and the third is collection number. Non-native species are denoted with an asterisk. Voucher specimens were deposited at OKL.

PTERIDOPHYTA  
ASPLENIACEAE

*Asplenium platyneuron* (L.) B.S.P. - MF, XF; P; NICK668

DENNSTAEDTIACEAE

*Pteridium aquilinum* (L.) Kuhn var. *pseudocaudatum* (Clute) Heller - MF, XF; P; NICK307

DRYOPTERIDACEAE

*Cystopteris tennesseensis* Shaver - MF; P; NICK394

*Dryopteris marginalis* (L.) Gray - MF; P; NICK666

*Polystichum acrostichoides* (Michx.) Schott - MF; P; NICK654

*Woodsia obtusa* (Spreng.) Torr. - MF; P; NICK641

OPHIOGLOSSACEAE

*Botrychium dissectum* Spreng. - MF, XF; P; NICK547

*Botrychium virginianum* (L.) Sw. - MF, XF; P; NICK020

POLYPODIACEAE

*Pleopeltis polypodioides* (L.) Andrews & Windham - MF; P; NICK683

PTERIDACEAE

*Adiantum pedatum* L. - MF, POAN; P; NICK662

*Cheilanthes lanosa* (Michx.) D.C. Eat. - MF, SSBC; P; NICK026

THELYPTERIDACEAE

*Phlegopteris hexagonoptera* (Michx.) Fée - MF; P; NICK665

CONIFEROPHYTA  
CUPRESSACEAE

*Juniperus virginiana* L. - DAOF, XF; P; NICK033

PINACEAE

*Pinus echinata* P. Mill. - MF, XF; P; NICK577

MAGNOLIOPHYTA  
MAGNOLIOPSIDA  
ACANTHACEAE

*Dicliptera brachiata* (Pursh) Spreng. - MF, POAN; A; NICK481

*Justicia americana* (L.) Vahl - WEIL; P; NICK091

*Ruellia humilis* Nutt. - DAOF; P; NICK254

*Ruellia strepens* L. - MF, POAN; P; NICK267

## ACERACEAE

- Acer negundo* L. - POAN; P; NICK645  
*Acer rubrum* L. - MF, POAN; P; NICK389  
*Acer saccharinum* L. - POAN; P; NICK686  
*Acer saccharum* Marsh. - MF; P; NICK644

## AMARANTHACEAE

- Amaranthus palmeri* S. Wats. - DAOF; A; NICK670  
 \**Amaranthus spinosus* L. - DAOF; A; NICK325

## ANACARDIACEAE

- Rhus glabra* L. - DAOF; P; NICK249  
*Toxicodendron radicans* (L.) Kuntze - DOAF, MF, POAN; P;  
 NICK748

## APIACEAE

- Angelica venenosa* (Greenway) Fern. - MF; A;  
 NICK532  
*Chaerophyllum tainturieri* Hook. - DAOF; A; NICK019  
 \**Daucus carota* L. - DAOF; P; NICK181  
*Daucus pusillus* Michx. - DAOF; A; NICK224  
*Eryngium yuccifolium* Michx. - DAOF, XF; P; NICK436  
*Hydrocotyle verticillata* Thunb. - WETL; P; NICK643  
*Osmorhiza longistylis* (Torr.) DC. - MF; P; NICK115  
*Ptilimnium nuttallii* (DC.) Britt. - SSBC; A; NICK174  
*Sanicula canadensis* L. - MF, POAN; P; NICK235  
*Taenidia integerrima* (L.) Drude - MF; P; NICK560  
*Thaspium barbinode* (Michx.) Nutt. - MF; P; NICK177  
*Zizia aurea* (L.) W. D. J. Koch - MF, POAN; P; NICK561

## APOCYNACEAE

- Amsonia tabernaemontana* Walt. - MF; P; NICK302

## AQUIFOLIACEAE

- Ilex decidua* Walt. - MF, POAN; P; NICK135

## ARISTOLOCHIACEAE

- Asarum canadense* L. - MF; P; NICK045

## ASCLEPIADACEAE

- Asclepias hirtella* (Pennell) Woods. - DAOF, SSBC; P;  
 NICK483  
*Asclepias quadrifolia* Jacq. - MF; P; NICK075  
*Asclepias tuberosa* L. - DAOF, SSBC; P; NICK208  
*Asclepias verticillata* L. - SSBC; P; NICK268  
*Asclepias viridis* Walt. - DAOF, SSBC; P; NICK124  
*Matelea baldwyniana* (Sweet) Woods. - DAOF; P; NICK119  
*Matelea gonocarpos* (Walt.) Shinnery - MF; P; NICK485

## ASTERACEAE

- Ageratina altissima* (L.) King & H. E. Robins. - MF; P;  
 NICK473  
*Ambrosia artemisiifolia* L. - DAOF; A; NICK600  
*Ambrosia bidentata* Michx. - DAOF; A; NICK582  
*Ambrosia trifida* L. - DAOF; A; NICK753  
*Amphichyris dracunculoides* (DC.) Nutt. - DAOF; A;  
 NICK583  
*Antennaria parlinii* Fern. - DAOF; P; NICK355  
 \**Arctium minus* (Michx.) Britt. - DAOF; A; NICK211  
*Arnoglossum atriplicifolium* (L.) H.E. Robins. - XF, SSBC; P;  
 NICK147  
 \**Artemisia annua* L. - DAOF; A; NICK761  
*Astranthium integrifolium* (Michx.) Nutt. - DAOF, SNPV; A;  
 NICK542  
*Bidens aristosa* (Michx.) Britt. - WETL; A; NICK704

- Bidens bipinnata* L. - DAOF, MF; A; NICK493  
*Bidens cernua* L. - WETL; A; NICK708  
*Bidens frondosa* L. - WETL; A; NICK757  
 \**Carduus nutans* L. - DAOF; B; NICK230  
*Chrysopsis pilosa* Nutt. - DAOF, SSBC; A; NICK452  
 \**Cichorium intybus* L. - DAOF; P; NICK410  
*Cirsium altissimum* (L.) Hill - DAOF, MF; P; NICK413  
 \**Cirsium vulgare* (Savi) Ten. - DAOF; A; NICK410  
*Conoclinium coelestinum* (L.) DC. - WETL; P; 1713-bwh  
*Conyza canadensis* (L.) Cronq. - DAOF; A; NICK585  
*Coreopsis grandiflora* Hogg ex Sweet - DAOF, SSBC, XF; P;  
 NICK512  
*Coreopsis lanceolata* L. - DAOF, SSBC, XF; P; NICK161  
*Coreopsis palmata* Nutt. - DAOF, SSBC, XF; P; NICK156  
*Coreopsis pubescens* Ell. - DAOF, SSBC, XF; P; NICK706  
*Coreopsis tinctoria* Nutt. - DAOF, WETL; A; NICK143  
*Coreopsis tripteris* L. - DAOF, SSBC, XF; P; NICK424  
*Dracopis amplexicaulis* (Vahl.) Cass - DAOF, WETL; A;  
 NICK707  
*Echinacea pallida* (Nutt.) Nutt. - SSBC, XF; P; NICK239  
*Echinacea purpurea* (L.) Moench - MF; P; NICK261  
*Eclipta prostrata* (L.) L. - WETL; A; NICK576  
*Elephantopus carolinianus* Rausch. - MF, POAN; P;  
 NICK624  
*Erechtites hieraciifolia* (L.) Raf. ex DC. - WETL, MF; A;  
 NICK489  
*Erigeron annuus* (L.) Pers. - DAOF; A; NICK472  
*Erigeron pulchellus* Michx. - MF; P; NICK567  
*Erigeron strigosus* Muhl. ex Willd. - DAOF, MF; A; NICK200  
*Erigeron tenuis* Torr. & Gray - DAOF; P; NICK568  
*Eupatorium altissimum* L. - MF; P; NICK494  
*Eupatorium fistulosum* Barratt - MF, POAN; P; NICK463  
*Eupatorium hyssopifolium* L. - MF; P; NICK625  
*Eupatorium perfoliatum* L. - WETL; P; NICK430  
*Eupatorium purpureum* L. - MF; P; 1713-bwh  
*Eurybia hemispherica* (Alexander) Nesom - SSBC, XF; P;  
 NICK613  
*Fleischmannia incarnata* (Walt.) King & H.E. Robins. - MF,  
 POAN; P; NICK599  
*Gamochaeta purpurea* (L.) Cabrera - DAOF; P; NICK538  
*Helenium amarum* (Raf.) H. Rock - DAOF; A; NICK142  
*Helenium flexuosum* Raf. - WETL; P; NICK347  
*Helianthus mollis* Lam. - SSBC; P; NICK281  
*Helianthus petiolaris* Nutt. - DAOF; A; NICK769  
*Helianthus tuberosus* L. - DAOF; P; NICK417  
*Heliopsis helianthoides* (L.) Sweet - MF; P; NICK129  
*Hieracium gronovii* L. - XF; P; NICK112  
*Hymenopappus scabiosaeus* L'Her - SSBC; P; NICK172  
*Iva annua* L. - DAOF, WETL; A; NICK754  
*Krigia biflora* (Walt.) Blake - MF; P; NICK513  
*Krigia occidentalis* Nutt. - MF; A; NICK383  
*Lactuca canadensis* L. - DAOF; A; NICK528  
 \**Lactuca serriola* L. - DAOF; A; NICK285  
 \**Leucanthemum vulgare* Lam. - DAOF; P; NICK255  
*Liatris aspera* Michx. - SSBC; P; 1736-bwh  
*Liatris squarrosa* (L.) Michx. - SSBC; P; NICK457  
*Packera glabella* (Poir.) C. Jeffrey - MF, POAN; A;  
 NICK397  
*Packera plattensis* (Nutt.) W.A. Weber & A. Love - MF; B;  
 NICK367  
*Parthenium integrifolium* L. - XF; P; NICK223  
*Pseudognaphalium obtusifolium* (L.) Hilliard & Burt - DAOF;  
 A; NICK598  
*Ratibida columnifera* (Nutt.) Woot. & Standl. - DAOF, SSBC;  
 P; NICK232  
*Rudbeckia hirta* L. - DAOF, SSBC; P; NICK258  
*Rudbeckia laciniata* L. - MF; P; NICK734

*Rudbeckia triloba* L. - WETL; P; NICK303  
*Silphium asteriscus* L. - SSBC; P; NICK171  
*Silphium perfoliatum* L. - DAOF; P; NICK752  
*Smallanthus uvedalius* (L.) Mackenzie ex Small - MF; P; NICK407  
*Solidago caesia* L. - MF; P; NICK711  
*Solidago hispida* Muhl. ex Willd. - MF; P; NICK633  
*Solidago petiolaris* Ait. - XF, SSBC; P; NICK709  
*Solidago ulmifolia* Muhl. ex Willd. - MF, XF; P; NICK426  
*Symphytotrichum anomalum* (Engelm.) Nesom - MF; P; NICK597  
*Symphytotrichum drummondii* (Lindl.) Nesom - MF; P; NICK705  
*Symphytotrichum lanceolatum* (Willd.) Nesom - MF, WETL; P; NICK663  
*Symphytotrichum ontarionis* (Wieg.) Nesom - MF; P; NICK710  
*Symphytotrichum oolentangiense* (Riddell) Nesom - DAOF, MF; P; NICK712  
*Symphytotrichum patens* (Ait.) Nesom - MF; P; NICK441  
*\*Taraxacum officinale* G. H. Weber ex Wiggers - DAOF; P; NICK038  
*Verbesina alternifolia* (L.) Britt. ex Kearney - DAOF, MF; P; NICK590  
*Verbesina helianthoides* Michx. - MF; P; NICK132  
*Verbesina virginica* L. - MF; P; NICK442  
*Vernonia baldwinii* Torr. - DAOF, SSBC; P; NICK342

## BALSAMINACEAE

*Impatiens capensis* Merrb. - POAN, WETL; P; NICK446  
*Impatiens pallida* Nutt. - PONA, WETL; P; NICK212

## BERBERIDACEAE

*Podophyllum peltatum* L. - MF, POAN; P; NICK004

## BETULACEAE

*Betula nigra* L. - POAN; P; NICK490  
*Corylus americana* Walt. - MF; P; NICK273  
*Ostrya virginiana* (P. Mill.) K. Koch - MF; P; NICK402

## BIGNONIACEAE

*Campsis radicans* (L.) Seem. ex Bureau - WETL; P; NICK329

## BORAGINACEAE

*\*Heliotropium indicum* L. - WETL; A; NICK524  
*Lithospermum canescens* (Michx.) Lehm. - MF, SSBC; P; NICK393  
*Myosotis verna* Nutt. - MF; A; NICK676

## BRASSICACEAE

*Arabis canadensis* L. - MF; B; NICK695  
*Arabis laevigata* (Muhl. ex Willd.) Poir. - MF; B; NICK659  
*Arabis missouriensis* Greene - MF; A; NICK376  
*Barbarea vulgaris* Ait. f. - DAOF; P; NICK380  
*\*Capsella bursa-pastoris* (L.) Medik. - DAOF; A; NICK039  
*Cardamine hirsuta* L. - MF; A; NICK361  
*Cardamine parviflora* L. - DAOF; A; NICK037  
*Draba brachycarpa* Nutt. ex Torr. & Gray - DAOF; A; NICK384  
*Draba cuneifolia* Nutt. ex Torr. & Gray - DAOF; A; NICK036  
*Lepidium densiflorum* Schrad. - DAOF; A; NICK130  
*Lepidium virginicum* L. - DAOF; A; NICK390  
*\*Nasturtium officinale* Ait. f. - WETL; P; NICK375  
*Rorippa palustris* (L.) Bess. - WETL; A; NICK158  
*Sibara virginica* (L.) Rollins - DAOF; A; NICK035  
*\*Sisymbrium officinale* (L.) Scop. - DAOF; A; NICK193

## CABOMBACEAE

*Brasenia schreberi* J.F. Gmel. - WETL; P; NICK140

## CACTACEAE

*Opuntia humifusa* (Raf.) Raf. - SSBC; P; NICK202

## CAMPANULACEAE

*Campanulastrum americanum* (L.) Small - MF; P; NICK328  
*Lobelia appendiculata* A. DC. - MF; P; NICK187  
*Lobelia cardinalis* L. - WETL; P; NICK608  
*Triodanis biflora* (Ruiz & Pavón) Greene - DAOF, MF; A; NICK188  
*Triodanis perfoliata* (L.) Nieuwl. - DAOF; A; NICK550

## CAPPARACEAE

*Cleome serrulata* Pursh - DAOF, POAN; A; 1717-bwh  
*Polanisia dodecandra* (L.) DC. - DAOF, WETL; A; NICK274

## CAPRIFOLIACEAE

*Lonicera flava* Sims - MF; P; NICK687  
*\*Lonicera japonica* Thunb. - DAOF, MF; P; NICK434  
*Sambucus nigra* L. ssp. *canadensis* (L.) R. Bolli - WETL; P; NICK217  
*Symphoricarpos orbiculatus* Moench - MF, XF; P; NICK443  
*Viburnum rufidulum* Raf. - XF; P; NICK260

## CARYOPHYLLACEAE

*\*Arenaria serpyllifolia* L. - DAOF; A; NICK692  
*\*Cerastium glomeratum* Thuill. - DAOF; A; NICK358  
*\*Cerastium pumilum* W. Curtis - DAOF; A; NICK150  
*\*Dianthus armeria* L. - DAOF; A; NICK256  
*Minuartia patula* (Michx.) Mattf. - SNPV; A; NICK372  
*\*Saponaria officinalis* L. - DAOF; P; NICK435  
*Silene stellata* (L.) Ait. f. - MF; P; NICK095  
*Silene regia* Sims - MF; P; 1657-bwh  
*Silene virginica* L. - MF; P; NICK057  
*\*Stellaria media* (L.) Vill. - DAOF, MF; A; NICK034

## CELASTRACEAE

*Celastrus scandens* L. - MF; P; 1738-bwh

## CHENOPODIACEAE

*\*Chenopodium ambrosioides* L. - DAOF; A; NICK669  
*\*Chenopodium pumilio* R. Br. - DAOF; A; NICK125

## CISTACEAE

*Lechea mucronata* Raf. - SSBC, XF; P; NICK629  
*Lechea tenuifolia* Michx. - SNPV, XF; P; NICK186

## CLUSIACEAE

*Hypericum hypericoides* (L.) Crantz - MF, XF; P; NICK326  
*Hypericum mutilum* L. - SNPV; P; NICK337  
*\*Hypericum perforatum* L. - DAOF; P; NICK340  
*Hypericum prolificum* L. - MF; P; 1696-bwh  
*Hypericum punctatum* Lam. - SSBC; P; NICK477  
*Hypericum sphaerocarpum* Michx. - DAOF, SSBC; P; NICK339

## CONVOLVULACEAE

*\*Ipomoea coccinea* L. - DAOF; A; NICK610  
*Ipomoea pandurata* (L.) G.F.W. Mey. - DAOF; P; NICK534

## CORNACEAE

*Cornus drummondii* C.A. Mey. - DAOF, MF; P; NICK467  
*Cornus florida* L. - MF; P; NICK573



## CRASSULACEAE

- Sedum nuttallianum* Raf. - SNPW; A; NICK213  
*Sedum pulchellum* Michx. - SNPW; A; NICK215

## CUCURBITACEAE

- Melothria pendula* L. - DAOF; P; NICK312  
*Sicyos angulatus* L. - DAOF; A; NICK482

## CUSCUTACEAE

- Cuscuta gronovii* Willd. ex J. A. Schultes - DAOF; A; NICK637  
*Cuscuta indecora* Choisy - DAOF; A; NICK658

## DIPSACACEAE

- \**Dipsacus fullonum* L. - DAOF; B; NICK093

## EBENACEAE

- Diospyros virginiana* L. - DAOF, MF, XF; P; NICK588

## ERICACEAE

- Rhododendron prinophyllum* (Small) Millais - XF; P; NICK084  
*Vaccinium arboreum* Marsh. - XF; P; NICK554  
*Vaccinium pallidum* Ait. - XF; P; NICK012  
*Vaccinium stamineum* L. - MF, XF; P; NICK062

## EUPHORBIACEAE

- Acalypha monococca* (Engelm. ex Gray) L. Mill. & Gandhi - DAOF, MF; A; NICK612  
*Acalypha rhomboidea* Raf. - DAOF, MF; A; NICK352  
*Acalypha virginica* L. - DAOF, MF; A; 1730-bwh  
*Chamaesyce maculata* (L.) Small - DAOF; A; NICK458  
*Chamaesyce nutans* (Lag.) Small - DAOF; A; NICK657  
*Croton capitatus* Michx. - DAOF; A; NICK630  
*Croton glandulosus* L. - DAOF, SNPW; A; NICK454  
*Croton willdenowii* G.L. Webster - SNPW; A; NICK284  
*Euphorbia corollata* L. - DAOF; P; NICK207  
*Euphorbia dentata* Michx. - DAOF; A; NICK246

## FABACEAE

- \**Albizia julibrissin* Durazz. - DAOF; P; NICK649  
*Amorpha canescens* Pursh - SSBC, XF; P; 1686-bwh  
*Amphicarpea bracteata* (L.) Fern. - XF; A; NICK615  
*Baptisia alba* (L.) Vent var. *macrophylla* (Larisey) Isely - SSBC; P; NICK346  
*Baptisia bracteata* Muhl. ex Ell. var. *leucophaea* (Nutt.) Kartesz & Gandhi - MF, SSBC, XF; P; NICK507  
*Baptisia* × *sulphurea* (pro. sp.) - XF; P; NICK509  
*Cercis canadensis* L. - DOAF, MF; P; NICK059  
*Chamaecrista fasciculata* (Michx.) Greene - DOAF, MF; A; NICK448  
*Chamaecrista nictitans* (L.) Moench - DAOF, SSBC; A; NICK602  
*Clitoria mariana* L. - MF, XF; P; NICK136  
*Dalea candida* Michx. ex Willd. - SSBC; P; NICK516  
*Dalea purpurea* Vent. - SSBC; P; NICK237  
*Desmodium ciliare* (Muhl. ex Willd.) DC. - MF; P; NICK635  
*Desmodium cuspidatum* (Muhl. ex Willd.) DC. ex Loud. - MF; P; NICK592  
*Desmodium glutinosum* (Muhl. ex Willd.) Wood - MF; P; NICK341  
*Desmodium nudiflorum* (L.) DC. - MF; P; NICK486  
*Desmodium paniculatum* (L.) DC. - DAOF, SSBC, XF; P; NICK471  
*Desmodium rotundifolium* DC. - XF; P; NICK594  
*Galactia volubilis* (L.) Britt. - MF; P; AB-4046

- \**Kummerowia stipulacea* (Maxim.) Makino - DAOF; A; NICK578

- \**Kummerowia striata* (Thunb.) Schindl. - DAOF; A; NICK563  
 \**Lespedeza cuneata* (Dum.-Cours.) G. Don - DAOF; P; NICK437

- Lespedeza hirta* (L.) Hornem. - SSBC; P; NICK606  
*Lespedeza procumbens* Michx. - MF, XF; P; NICK456  
*Lespedeza stuevei* Nutt. - SSBC; P; NICK596  
*Lespedeza violacea* (L.) Pers. - MF, XF; P; NICK648  
*Lespedeza virginica* (L.) Britt. - SSBC; P; NICK595  
*Mimosa nuttallii* (DC.) B.L. Turner - DAOF, SSBC; P; NICK310  
*Phaseolus polystachios* (L.) B.S.P. - MF, XF; P; NICK620  
*Rhynchosia latifolia* Nutt. ex Torr. & Gray - XF; P; NICK241  
*Robinia pseudoacacia* L. - DAOF; P, T; NICK099  
*Senna marilandica* (L.) Link - DAOF, WETL; P; NICK336  
*Sesbania herbacea* (P. Mill.) McVaugh - DAOF, WETL; A; NICK758

- Strophostyles helvula* (L.) Ell. - DAOF; P; NICK501  
*Stylosanthes biflora* (L.) B.S.P. - DAOF, SSBC, SNPV; P; NICK242  
*Tephrosia virginiana* (L.) Pers. - SSBC, XF; P; NICK159  
 \**Trifolium arvense* L. - DAOF; A; NICK257  
 \**Trifolium dubium* Sibthorp - DAOF; A; NICK131  
 \**Trifolium pratense* L. - DAOF; A; NICK548  
 \**Trifolium reflexum* L. - DAOF; P; NICK128  
*Vicia caroliniana* Walt. - MF; P; NICK102  
*Vicia minutiflora* F.G. Dietr. - MF; A; NICK378  
 \**Vicia sativa* L. - DAOF; A; NICK377  
 \**Vicia villosa* Roth - DAOF; A; NICK031

## FAGACEAE

- Castanea pumila* (L.) P. Mill. var. *ozarkensis* (Ashe) Tucker - XF; P; AB-4022  
*Quercus alba* L. - MF, XF; P; NICK604  
*Quercus macrocarpa* Michx. - MF; P; NICK356  
*Quercus marilandica* Muenchh. - XF; P; NICK651  
*Quercus muehlenbergii* Engelm. - MF; P; NICK050  
*Quercus palustris* Muenchh. - MF, POAN; P; NICK661  
*Quercus rubra* L. - MF; P; NICK141  
*Quercus shumardii* Buckl. - MF, POAN; P; NICK101  
*Quercus stellata* Wangenh. - MF, XF; P; NICK587  
*Quercus velutina* Lam. - XF; P; NICK199

## FUMARIACEAE

- Corydalis flavula* (Raf.) DC. - MF; A; NICK007

## GENTIANACEAE

- Sabatia angularis* (L.) Pursh - DAOF, WETL; A; NICK408

## GERANIACEAE

- Geranium carolinianum* L. - DAOF; A; NICK195  
*Geranium maculatum* L. - MF; P; NICK685

## HIPPOCASTANACEAE

- Aesculus glabra* Willd. - MF; P; NICK060

## HYDRANGEACEAE

- Hydrangea arborescens* L. - MF; P; NICK114

## HYDROCHARITACEAE

- Elodea canadensis* Michx. - WETL; P; 1697-bwh

## HYDROPHYLLACEAE

- Ellisia nyctelea* (L.) L. - DAOF; P; NICK690  
*Hydrophyllum virginianum* L. - MF; P; NICK546  
*Phacelia hirsuta* Nutt. - MF; A; NICK544

## JUGLANDACEAE

- Carya alba* (L.) Nutt. ex Ell. - MF; P; NICK703  
*Carya cordiformis* (Wangenh.) K. Koch - MF; P; NICK591  
*Carya texana* Buckl. - XF; P; NICK495  
*Juglans nigra* L. - MF; P; NICK318

## LAMIACEAE

- Agastache scrophulariifolia* (Willd.) Kuntze - MF; P; NICK650  
*Cunila origanoides* (L.) Britt. - MF, XF; P; NICK603  
*Hedeoma hispida* Pursh - SSBC, SNPV; A; NICK552  
*\*Lamium amplexicaule* L. - DAOF; A; NICK680  
*\*Lamium purpureum* L. - DAOF; A; NICK046  
*\*Mentha* × *piperita* L. (pro. sp.) - WETL; P; NICK453  
*Monarda fistulosa* L. - SSBC, XF; P; NICK330  
*Monarda russeliana* Nutt. ex Sims - MF; P; NICK557  
*\*Perilla frutescens* (L.) Britt. - DAOF, MF; A; NICK580  
*Physostegia angustifolia* Fern. - DAOF, SSBC; P; NICK138  
*Prunella vulgaris* L. - DAOF, MF, POAN; P; NICK227  
*Pycnanthemum albescens* Torr. & Gray - XF; P; NICK462  
*Pycnanthemum tenuifolium* Schrad. - DAOF, MF; P; NICK462  
*Pycnanthemum verticillatum* (Michx.) Pers. var. *pilosum*  
 (Nutt.) Cooperrider - DAOF; P; NICK484  
*Salvia azurea* Michx. ex Lam. - DAOF, SSBC; P; NICK579  
*Salvia lyrata* L. - MF; P; NICK072  
*Scutellaria ovata* Hill - SSBC, SNPV; P; NICK259

## LAURACEAE

- Lindera benzoin* (L.) Blume - MF; P; NICK040  
*Sassafras albidum* (Nutt.) Nees - MF; P; NICK607

## LENTIBULARIACEAE

- Utricularia gibba* L. - WETL; P; NICK659

## LINACEAE

- Linum medium* (Planch.) Britt. var. *texanum* (Planch.) Fern. -  
 SSBC, SNPV; A; NICK415

## LYTHRACEAE

- Cuphea viscosissima* Jacq. - WETL; A; NICK464

## MALVACEAE

- Callirhoe digitata* Nutt. - SSBC; P; NICK279  
*Hibiscus moscheutos* L. - WETL; P; NICK412  
*\*Hibiscus syriacus* L. - DAOF; P; NICK466  
*Sida spinosa* L. - DAOF; A; NICK627

## MENISPERMACEAE

- Cocculus carolinus* (L.) DC. - DAOF, MF; P; NICK314  
*Menispermum canadense* L. - MF; P; NICK439

## MOLLUGINACEAE

- Mollugo verticillata* L. - DAOF; A; NICK233

## MORACEAE

- Morus rubra* L. - MF; P; NICK266

## NELUMBONACEAE

- Nelumbo lutea* Willd. - WETL; P; NICK321

## NYCTAGINACEAE

- Mirabilis albidia* (Walt.) Heimerl - DAOF, SSBC; P; NICK474

## NYSSACEAE

- Nyssia sylvatica* Marsh. - MF; P; NICK619

## OLEACEAE

- Fraxinus americana* L. - MF; P; NICK514  
*Fraxinus pennsylvanica* Marsh. - MF, POAN; P; NICK196  
*\*Ligustrum sinense* Lour. - DAOF, MF; P; NICK432

## ONAGRACEAE

- Gaura longiflora* Spach - SSBC; A; NICK500  
*Ludwigia alternifolia* L. - WETL; P; NICK351  
*Ludwigia decurrens* Walt. - WETL; P; NICK759  
*Ludwigia palustris* (L.) Ell. - WETL; P; NICK166  
*Oenothera biennis* L. - DAOF; P; NICK460  
*Oenothera laciniata* Hill - DAOF; P; NICK108  
*Oenothera linifolia* Nutt. - SNPV; A; NICK283

## OXALIDACEAE

- Oxalis stricta* L. - DAOF; P; NICK682  
*Oxalis violacea* L. - XF; P; NICK061

## PAPAVERACEAE

- \*Papaver dubium* L. - DAOF; A; NICK536  
*Sanguinaria canadensis* L. - MF; P; NICK001

## PASSIFLORACEAE

- Passiflora incarnata* L. - DAOF; P; NICK221  
*Passiflora lutea* L. - MF, XF; P; NICK315

## PHYTOLACCACEAE

- Phytolacca americana* L. - DAOF; P; NICK231

## PLANTAGINACEAE

- Plantago aristata* Michx. - DAOF, SNPW; A; NICK090  
*Plantago rugelii* Dcne. - DAOF; P; NICK525  
*Plantago virginica* L. - SNPV; A; NICK558

## PLATANACEAE

- Platanus occidentalis* L. - POAN; P; NICK601

## POLEMONIACEAE

- Phlox divaricata* L. - MF; P; NICK363  
*Polemonium reptans* L. - MF; P; NICK054

## POLYGALACEAE

- Polygala sanguinea* L. - SSBC; A; 1691-bwh  
*Polygala verticillata* L. - SSBC, XF; A; NICK170

## POLYGONACEAE

- \*Fagopyrum esculentum* Moench - DAOF; A; NICK308  
*\*Polygonum hydropiper* L. - WETL; A; NICK178  
*Polygonum hydropiperoides* Michx. - WETL; P; NICK631  
*Polygonum lapathifolium* L. - WETL; A; NICK440  
*Polygonum persicaria* L. - WETL; A; NICK111  
*Polygonum scandens* L. - DAOF; P; NICK263  
*Polygonum virginianum* L. - MF, POAN; P; NICK574  
*Rumex crispus* L. - DAOF, WETL; P; NICK451  
*Rumex hastatulus* Baldw. - DAOF; A; NICK052  
*\*Rumex obtusifolius* L. - DAOF; P; NICK269

## PORTULACACEAE

- Claytonia virginica* L. - DAOF; P; NICK027  
*Phemeranthus parviflorus* (Nutt.) Kiger - SNPV; P; NICK077  
*Portulaca oleracea* L. - DAOF, SNPV; A; NICK621

## PRIMULACEAE

- Lysimachia lanceolata* Walt. - WETL; P; NICK745

## RANUNCULACEAE

- Anemone virginiana* L. - DAOF; P; NICK203  
*Clematis versicolor* Small ex Rydb. - DAOF, MF; P; NICK191  
*Clematis virginiana* L. - DAOF, MF; P; NICK475  
*Delphinium carolinianum* Walt. - DAOF, SSBC; P; NICK081  
*Enemion biternatum* Raf. - MF; P; NICK025  
*Ranunculus fascicularis* Muhl. ex Bigelow - MF; P; NICK382  
*Ranunculus harveyi* (Gray) Britt. - MF; A; NICK369  
*Ranunculus hispidus* Michx. - DAOF; P; NICK017  
*Ranunculus micranthus* Nutt. - MF; A; NICK354

## RHAMNACEAE

- Ceanothus americanus* L. - SSBC, XF; P; NICK155  
*Frangula caroliniana* (Walt.) Gray - MF; P; NICK572

## ROSACEAE

- Agrimonia rostellata* Wallr. - MF; P; NICK277  
*Amelanchier arborea* (Michx. f.) Fern. - MF, XF; P; NICK220  
*Crataegus crus-galli* L. - XF; P; NICK406  
*Crataegus pruinosa* (Wendl. f.) K. Koch - MF; P; 1678-bwh  
*Crataegus punctata* Jacq. - MF; P; 1679-bwh  
*Crataegus viridis* L. - MF; P; NICK418  
*Geum canadense* Jacq. - MF; P; NICK264  
*Geum vernum* (Raf.) Torr. & Gray - MF; P; NICK566  
*Physocarpus opulifolius* (L.) Maxim. var. *intermedius* (Rydb.) B.L. Robins. - POAN; P; NICK774  
 \**Potentilla recta* L. - DAOF; P; NICK071  
*Potentilla simplex* Michx. - MF; P; NICK461  
*Prunus americana* Marsh. - DAOF; P; NICK152  
*Prunus mexicana* S. Wats. - DAOF, XF; P; NICK134  
*Prunus serotina* Ehrh. - MF, XF; P; NICK368  
 \**Pyrus calleryana* Dcne. - DAOF; P; NICK345  
 \**Rosa multiflora* Thunb. ex Murr. - DAOF; P; NICK074  
*Rosa setigera* Michx. - SSBC, MF; P; NICK540  
*Rubus bushii* Bailey - MF; P; NICK120  
*Rubus occidentalis* L. - DAOF; P; NICK673

## RUBIACEAE

- Cephalanthus occidentalis* L. - WETL; P; NICK747  
*Diodia virginiana* L. - WETL; P; NICK324  
*Galium aparine* L. - DAOF; A; NICK083  
*Galium circaezans* Michx. - MF; P; NICK118  
*Galium obtusum* Bigelow - MF; P; NICK103  
*Galium pilosum* Ait. - MF; P; 1729-bwh  
*Galium virgatum* Nutt. - DAOF; A; NICK044  
*Houstonia longifolia* Gaertn. - DAOF, SNPV; P; NICK160  
*Houstonia purpurea* L. - DAOF, SNPV; P; NICK664  
*Houstonia pusilla* Schoepf - DAOF, SNPV; A; NICK024

## RUTACEAE

- Ptelea trifoliata* L. - SSBC, XF; P; 1663-bwh

## SALICACEAE

- \**Populus alba* L. - DAOF; P, T; NICK414  
*Salix caroliniana* Michx. - POAN; P; NICK605

## SANTALACEAE

- Comandra umbellata* (L.) Nutt. - SSBC; P; NICK018

## SAPOTACEAE

- Sideroxylon lanuginosum* Michx. - MF, XF; P; NICK064

## SAURURACEAE

- Saururus cernuus* L. - WETL; P; NICK431

## SAXIFRAGACEAE

- Heuchera americana* L. - MF; P; NICK688  
*Saxifraga virginiana* Michx. - MF; P; NICK023

## SCROPHULARIACEAE

- Aureolaria grandiflora* (Benth.) Pennell - MF; A; NICK270  
*Collinsia violacea* Nutt. - DAOF, MF; A; NICK379  
*Gratiola neglecta* Torr. - WETL; A; NICK113  
*Kickxia elatine* (L.) Dumort. - DAOF; A; NICK331  
*Leucospora multifida* (Michx.) Nutt. - DAOF, WETL; A; NICK526  
*Lindernia dubia* (L.) Pennell var. *anagallidea* (Michx.) Cooperrider - WETL; A; NICK469  
*Mimulus alatus* Ait. - WETL; P; 1721-bwh  
*Nuttallanthus texanus* (Scheele) D.A. Sutton - DAOF; A; NICK543  
*Pedicularis canadensis* L. - MF; P; NICK053  
*Penstemon digitalis* Nutt. ex Sims - DAOF; P; NICK551  
*Penstemon tubiflorus* Nutt. - DAOF; P; NICK133  
*Scrophularia marilandica* L. - MF; A; NICK459  
 \**Verbascum blattaria* L. - DAOF; A; NICK559  
 \**Verbascum thapsus* L. - DAOF; A; NICK229  
*Veronica peregrina* L. - DAOF; A; NICK386

## SIMAROUBACEAE

- \**Ailanthus altissima* (P. Mill.) Swingle - DAOF; P; NICK219

## SOLANACEAE

- \**Datura stramonium* L. - DAOF; A; NICK349  
*Physalis angulata* L. - DAOF; A; NICK296  
*Physalis pubescens* L. var. *pubescens* - DAOF; A; NICK628  
*Physalis pubescens* L. var. *integrifolia* (Dunal) Waterfall - DAOF; A; NICK276  
*Physalis virginiana* P. Mill. - DAOF; P; NICK299  
*Solanum americanum* P. Mill. - DAOF; A; NICK189  
*Solanum carolinense* L. - DAOF; P; NICK280  
 \**Solanum physalifolium* Rusby - DAOF; A; NICK110

## STAPHYLEACEAE

- Staphylea trifolia* L. - MF; P; NICK146

## TILIACEAE

- Tilia americana* L. - MF; P; 1667-bwh

## ULMACEAE

- Celtis laevigata* Willd. - MF; P; NICK319  
*Ulmus alata* Michx. - MF, XF; P; 1724-bwh  
*Ulmus americana* L. - MF; P; NICK320  
*Ulmus rubra* Muhl. - MF; P; NICK618

## URTICACEAE

- Boehmeria cylindrica* (L.) Sw. - MF; P; NICK327  
*Parietaria pensylvanica* Muhl. ex Willd. - DAOF, MF, POAN; A; NICK416  
*Urtica chamaedryoides* Pursh - MF, POAN; A; NICK672

## VALERIANACEAE

- Valerianella longiflora* (Torr. & Gray) Walp. - POAN; A; NICK570  
*Valerianella radiata* (L.) Dufur. - DAOF, WETL; A; NICK399

## VERBENACEAE

- Phyla lanceolata* (Michx.) Greene - DAOF, WETL; P; NICK762  
*Phryma leptostachya* L. - MF; P; NICK449

*Verbena stricta* Vent. - WETL; P; NICK226  
*Verbena urticifolia* L. - MF, POAN; A; NICK184

## VIOLACEAE

*Viola bicolor* Pursh - DAOF; A; NICK022  
*Viola palmata* L. - MF; P; NICK008  
*Viola pedata* L. - MF; P; NICK014  
*Viola pubescens* Ait. - MF; P; NICK364  
*Viola sororia* Willd. - DAOF, MF; P; NICK381  
*Viola villosa* Walt. - MF; P; NICK396

## VISCACEAE

*Phoradendron leucarpum* (Raf.) Reveal & M.C. Johnston - MF, XF; P; NICK655

## VITACEAE

*Ampelopsis arborea* (L.) Koehne - DAOF, WETL; P; NICK433  
*Ampelopsis cordata* Michx. - DAOF; P; NICK253  
*Parthenocissus quinquefolia* (L.) Planch. - DAOF; P; NICK751  
*Vitis aestivalis* Michx. - MF, XF; P; NICK529  
*Vitis cinerea* (Engelm.) Millard - MF; P; NICK192  
*Vitis palmata* Vahl - MF; P, V; NICK153  
*Vitis riparia* Michx. - MF; P; NICK689

## LILIOPSIDA

## AGAVACEAE

*Manfreda virginica* (L.) Salisb. ex Rose - SSBC, SNPV; P; NICK096

## ALISMATACEAE

*Sagittaria ambigua* J.G. Smith - WETL; P; AB-4146  
*Sagittaria graminea* Michx. - WETL; P; NICK182  
*Sagittaria latifolia* Willd. - WETL; P; NICK614

## ARACEAE

*Arisaema dracontium* (L.) Schott - MF; P; NICK079

## COMMELINACEAE

*Commelina erecta* L. - MF; P; NICK291  
*Commelina virginica* L. - MF; P; NICK638  
*Tradescantia ernestiana* E.S. Anderson & Woods. - MF; P; NICK392  
*Tradescantia ozarkana* E.S. Anderson & Woods. - MF; P; NICK691

## CYPERACEAE

*Bulbostylis capillaris* (L.) Kunth ex C.B. Clarke - SSBC, SNPV; A; NICK290  
*Carex albicans* Willd. ex Spreng. - MF, XF; P; NICK005  
*Carex blanda* Dewey - MF, POAN; P; NICK724  
*Carex brevior* (Dewey) Mackenzie - DAOF, SSBC; P; NICK728  
*Carex bushii* Mackenzie - DAOF; P; NICK716  
*Carex cephalophora* Muhl. ex Willd. - MF; P; NICK729  
*Carex digitalis* Willd. - MF; P; NICK730  
*Carex festucacea* Schkuhr ex Willd. - MF; P; NICK718  
*Carex frankii* Kunth - WETL; P; NICK287  
*Carex grvida* Bailey - MF; P; NICK715  
*Carex hirsutella* Mackenzie - MF; P; NICK722  
*Carex louisianica* Bailey - WETL; P; NICK727  
*Carex oklahomensis* Mackenzie - MF; P; NICK727  
*Carex oligocarpa* Schkuhr ex Willd. - MF; P; NICK731  
*Carex oxylepis* Torr. & Hook. - MF; P; NICK721  
*Carex retroflexa* Muhl. ex Willd. - MF, XF; P; NICK719  
*Carex squarrosa* L. - WETL; P; NICK674  
*Carex vulpinoidea* Michx. - WETL; P; NICK725

*Cyperus acuminatus* Torr. & Hook. ex Torr. - DAOF; P; NICK121

*Cyperus echinatus* (L.) Wood - DAOF; P; NICK245

\**Cyperus iria* L. - DAOF, WETL; P; NICK428

*Cyperus squarrosus* L. - WETL; A; NICK313

*Eleocharis acicularis* (L.) Roemer & J.A. Schultes - WETL; A; NICK533

*Eleocharis erythropoda* Steud. - WETL; P; NICK169

*Eleocharis lanceolata* Fern. - WETL; A; NICK420

*Eleocharis obtusa* (Willd.) J.A. Schultes - WETL; A; NICK201

*Eleocharis quadrangulata* (Michx.) Roemer & J.A. Schultes - WETL; P; NICK137

*Fimbristylis autumnalis* (L.) Roemer & J.A. Schultes - WETL; A; 1690-bwh

*Isolepis carinata* Hook. & Arn. ex Torr. - DAOF; A; NICK541

*Scirpus atrovirens* Willd. - DAOF; P; NICK700

## DIOSCOREACEAE

*Dioscorea quaternata* J.F. Gmel. - MF; P; NICK549

*Dioscorea villosa* L. - MF; P; NICK194

## IRIDACEAE

*Iris cristata* Ait. - MF, POAN; P; NICK013

## JUNCACEAE

*Juncus diffusissimus* Buckl. - WETL; P; NICK214

*Juncus dudleyi* Wieg. - WETL; P; NICK123

*Juncus marginatus* Rostk. - DAOF; P; NICK122

*Juncus tenuis* Willd. - DAOF; P; NICK127

*Juncus torreyi* Coville - DAOF; P; NICK353

*Luzula bulbosa* (Wood) Smyth & Smyth - DAOF, MF, XF; A; NICK011

## LEMNACEAE

*Spirodela polyrrhiza* (L.) Schleid. - WETL; P; s.n.

*Wolffia columbiana* Karst - WETL; A; s.n.

## LILIACEAE

*Allium canadense* L. - MF; P; NICK697

\**Allium vineale* L. - DAOF; P; NICK465

*Camassia scilloides* (Raf.) Cory - SSBC, MF; P; NICK070

*Erythronium mesochoreum* Knerr - MF; P; NICK043

*Maianthemum racemosum* (L.) Link - MF; P; NICK085

*Nothoscordum bivalve* (L.) Britt. - DAOF, SSBC; P; NICK048

*Polygonatum biflorum* (Walt.) Ell. - MF; P; NICK293

*Trillium sessile* L. - MF; P; NICK401

*Trillium viridescens* Nutt. - MF; P; NICK681

*Uvularia grandiflora* Sm. - MF; P; NICK400

## ORCHIDACEAE

*Cypripedium parviflorum* Salisb. var. *parviflorum* - MF; P; NICK702

*Spiranthes vernalis* Engelm. & Gray - DAOF; P; NICK282

## POACEAE

*Agrostis hyemalis* (Walt.) B.S.P. - WETL; P; NICK508

*Agrostis stolonifera* L. - MF; P; NICK735

\**Aira elegans* Willd. ex Kunth - DAOF; A; NICK520

*Alopecurus carolinianus* Walt. - WETL; A; NICK068

*Andropogon gerardii* Vitman - DAOF, SSBC; P; NICK316

*Andropogon virginicus* L. - DAOF; P; NICK488

*Aristida basiramea* Engelm. ex Vasey - DAOF; A; NICK502

*Arundinaria gigantea* (Walt.) Muhl. - POAN; P; NICK058

\**Arthraxon hispidus* (Thunb.) Makinl - WETL; A; 1740-bwh

*Buteloua curtipendula* (Michx.) Torr. - SSBC; P; NICK750



- Brachyelytrum erectum* (Schreb. ex Spreng.) Beauv. - MF; P; NICK427
- \**Bromus hordeaceus* L. - DAOF; A; NICK518
- Bromus pubescens* Muhl. ex Willd. - MF; P; NICK149
- \**Bromus tectorum* L. - DAOF; A; NICK049
- Chasmanthium latifolium* (Michx.) Yates - POAN; P; NICK755
- Cinna arundinacea* L. - MF, POAN; P; NICK760
- \**Cynodon dactylon* (L.) Pers. - DAOF; P; NICK234
- \**Dactylis glomerata* L. - DAOF; P; NICK076
- Danthonia spicata* (L.) Beauv. ex Roemer & J.A. Schultes - MF, XF; P; NICK740
- Dichanthelium aciculare* (Desv. ex Poir.) Gould & C.A. Clark - MF; P; NICK523
- Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark var. *fasciculatum* (Torr.) Freckmann - DAOF, MF; P; NICK204
- Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark var. *lindheimeri* (Nash) Gould & C.A. Clark - DAOF, MF; P; NICK338
- Dichanthelium boscii* (Poir.) Gould & C.A. Clark - MF; P; NICK183
- Dichanthelium clandestinum* (L.) Gould - MF; P; NICK167
- Dichanthelium dichotomum* (L.) Gould - DAOF; A; NICK522
- Dichanthelium linearifolium* (Scribn. ex Nash) Gould - MF; P; NICK515
- Dichanthelium oligosanthes* (J.A. Schultes) Gould var. *scribnerianum* (Nash) Gould - DAOF, SSBC; P; NICK639
- \**Echinochloa crus-galli* (L.) Beauv. - DAOF, WETL; A; NICK765
- \**Eleusine indica* (L.) Gaertn. - DAOF; A; NICK584
- Elymus canadensis* L. - DAOF, MF; P; NICK105
- Elymus hystrix* L. - MF, POAN; P; NICK218
- Elymus virginicus* L. - DAOF; P; NICK092
- Eragrostis capillaris* (L.) Nees - SSBC; A; NICK422
- Eragrostis hirsuta* (Michx.) Nees - SSBC; P; NICK301
- Eragrostis intermedia* A. S. Hitchc. - DAOF; P; NICK423
- Eragrostis pectinacea* (Michx.) Nees ex Steud. - DAOF; A; NICK468
- \**Eragrostis pilosa* (L.) Beauv. - DAOF; A; NICK288
- Eragrostis trichodes* (Nutt.) Wood - DAOF; P; NICK503
- Festuca paradoxa* Desv. - MF; P; NICK739
- Festuca subverticillata* (Pers.) Alexeev - MF; P; NICK738
- Glyceria acutiflora* Torr. - WETL; P; NICK746
- Glyceria striata* (Lam.) A.S. Hitchc. - WETL; P; NICK107
- Leersia oryzoides* (L.) Sw. - WETL; P; NICK616
- Leersia virginica* Willd. - MF; P; NICK617
- \**Lolium perenne* L. - DAOF; P; NICK244
- Melica nitens* (Scribn.) Nutt. ex Piper - MF; P; NICK510
- \**Microstegium vimineum* (Trin.) A. Camus - DAOF; A; NICK632
- Muhlenbergia sobolifera* (Muhl. ex Willd.) Trin. - XF; P; NICK763
- Panicum anceps* Michx. - DAOF, MF; P; NICK445
- Panicum capillare* L. - DAOF; A; NICK749
- Panicum dichotomiflorum* Michx. - DAOF; P; NICK496
- Paspalum laeve* Michx. - DAOF; P; NICK343
- \**Phleum pratense* L. - DAOF; A; NICK322
- \**Poa annua* L. - DAOF; A; NICK028
- Poa champaniana* Scribn. - MF; A; NICK678
- Poa sylvestris* Gray - MF; P; NICK564
- \**Schedonorus phoenix* (Scop.) Holub - DAOF; P; NICK701
- \**Setaria italica* (L.) Beauv. - DAOF; A; NICK297
- Setaria pumila* (Poir.) Roemer & J.A. Schultes - DAOF; A; NICK403
- Setaria viridis* (L.) Beauv. - DAOF; A; NICK487
- Sorghastrum nutans* (L.) Nash - DAOF, SSBC; P; NICK447
- \**Sorghum halepense* (L.) Pers. - DAOF; P; NICK317
- Sporobolus vaginiflorus* (Torr. ex Gray) Wood - ; A; NICK764
- Sphenopholis intermedia* (Rydb.) Rydb. - WETL; P; NICK736
- Tridens flavus* (L.) A.S. Hitchc. - DAOF, XF; P; NICK450
- Vulpia octoflora* (Walt.) Rydb. - DAOF, SSBC, SNPV; A; NICK069

## PONTEDERIACEAE

*Heteranthera limosa* (Sw.) Willd. - WETL; A; AB-4145

## POTAMOGETONACEAE

*Potamogeton diversifolius* Raf. - WETL; P; 1659-bwh

## SMILACACEAE

*Smilax bona-nox* L. - MF, XF; P; NICK693

*Smilax rotundifolia* L. - MF, XF; P; NICK067

*Smilax tamnoides* L. - MF; P; NICK647

## SPARGANIACEAE

*Sparganium americanum* Nutt. - WETL; P; NICK745

## TYPHACEAE

*Typha latifolia* L. - WETL; P; NICK098