

The vascular flora of the Four Canyon Nature Preserve, Ellis County, Oklahoma

A final report submitted by:

Bruce W. Hoagland^{*1,2} and Amy Buthod¹

¹Oklahoma Biological Survey, ²Department of Geography;

University of Oklahoma, Norman, OK 73019-0575

2 January 2007

ABSTRACT

This paper reports the results of an inventory of the vascular plants from The Nature Conservancy's Four Canyon Preserve in Ellis County, Oklahoma. A total of 371 taxa of vascular plants in 244 genera and 77 families were collected. The most species were collected from the families Asteraceae (69), Poaceae (64), and Fabaceae (38). One-hundred and twelve species were annuals, four were biennials, and 255 were perennials. Fifty-one species of woody plants were present. Twenty-nine exotic species were collected, representing 7.8% of the flora. Six species tracked by the Oklahoma Natural Heritage Inventory were found.

INTRODUCTION

Prior to this research project, 501 taxa of vascular plants were known to occur in Ellis County, Oklahoma (Hoagland et al. 2006). The first collections in the county were made in 1913 by G. W. Stevens, who deposited 69 specimens at the University of Oklahoma herbarium (OKL). In the following year, R. L. Clifton deposited 63 specimens at OKL. No collections from Ellis County were deposited in state herbaria between 1915 and 1927, but after that time, there was steady collection in the county. The 1970's were an active decade for botanical study of Ellis County, culminating in the deposit of 101 specimens at OKL by S. Barber, K. Pearce, and R. Thompson in 1976. From 1985 to 1986, F. B. Erteeb deposited 405 specimens from Ellis County at the Oklahoma State University herbarium (OKLA) as part of a floristic study of Northwest Oklahoma. In 1998, N. McCarty and B. Hoagland deposited 226 specimens at OKL in conjunction with a study of wetland and woody plants. Since that time there has been

little collection effort in Ellis County (Hoagland et al. 2006). The objective of this study was to provide a floristic inventory to aid Nature Conservancy personnel in the management of the Four Canyon Preserve (FCP) and to remedy gaps in our knowledge of the flora of western Oklahoma.

STUDY AREA

The study site was located in Ellis County, Oklahoma (Figure 1). The FCP was established by The Nature Conservancy in 2004 and includes 1,376 hectares. It is within the Subtropical Humid (Cf) climate zone (Trewartha 1968). Summers are warm (mean July temperature = 26.6° C) and humid, and winters are relatively short and mild (mean January temperature = 0.3° C). Mean annual precipitation is 60.4 cm (Oklahoma Climatological Survey 2006).

Physiographically, the study area is located in the Western Redbed Plains (Curtis and Ham 1979) of the Osage Plains Physiographic Province (Hunt 1974). The topography consists of gently rolling hills with deeply eroded canyons. The surface geology is comprised of Permian age sandstones and shale in the uplands and quaternary alluvial deposits on the Canadian River floodplain (Branson and Johnson 1979). The Quinlan-Woodward soil association, a reddish loamy upland soil, predominates at the site. The Lincoln-Spur Association, consisting of sandy to loamy soils, predominates on the Canadian River floodplain (Cole 1961). Duck and Fletcher (1943) classified the study area as part of the mixed-grass eroded plains, defined as having a “mixed grass composition and a definite ravine relief which is generally

wooded. It is part of an extensive area of similar vegetational conditions extending as an overlapping of tall grass species from the east, with short grass species from the west northward across the United States.” Vegetation along the Canadian River was classified as bottomland, a category that was not clearly defined by Duck and Fletcher (1943), but includes cottonwoods and riparian shrubs and herbaceous species in the study area.

METHODS

Five collection sites were regularly visited for intensive floristic sampling. Additional collections were also made randomly throughout the . Sites were selected following a review of U. S. Geological Survey 1:24,000 topographic maps and field reconnaissance. The predominant vegetation association at these sites was classified according to Hoagland (2000). Collecting began in March and continued through October, 1999. Vouchers for exotic species were made from naturalized populations only, thus excluding cultivated and ornamental plants. Specimens were processed at the Robert Bebb Herbarium of the University of Oklahoma (OKL) following standard procedures. Manuals used for specimen identification included Correll and Johnston (1970), Great Plains Flora Association (1986), and Waterfall (1973). Origin, either native or introduced, was determined using Taylor and Taylor (1991) and USDA-NRCS (2006). Nomenclature follows the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS 2006). Voucher specimens were deposited at the Robert Bebb Herbarium at the University of Oklahoma (OKL).

RESULTS AND DISCUSSION

A total of 372 taxa of vascular plants in 77 families and 244 genera were collected (Appendix 1). Among the angiosperms, 86 were monocots and 283 were dicots. In addition, there were two ferns and allies and one gymnosperm. The Asteraceae, Poaceae, and Fabaceae had the greatest number of species, with 69, 64, and 38 respectively. The genus with greatest number of species was *Asclepias* with ten species. One-hundred and ten species were annuals, four were biennials, and 258 were perennials. Fifty-one species of woody plants were collected. One-hundred and eleven species previously unreported from Ellis County were collected in this study.

Thirty taxa (8.1% of the flora) from 14 families were exotic. The families with the greatest number of introduced species were Poaceae with twelve, Asteraceae with four, and Fabaceae with two. Genera with the most exotic species were *Bromus* with three and *Vulpia* with two. The percentage of exotic species in this flora is comparable with reports from other floras in Oklahoma (7-15% exotic)(Hoagland and Johnson 2001, 2004a, 2004b; Hoagland and Buthod 2003, 2004; Hoagland and Wallick 2003, Hoagland, Buthod, and Elisens 2004, Hoagland, Crawford-Callahan et al 2004, Hoagland and Buthod 2005a, Hoagland and Buthod 2005b, Hoagland and Johnson 2005), with the exception of two sites in McCurtain County, where 6.6% of the flora consisted of exotic species (Hoagland and Johnson 2004c).

No federally listed threatened or endangered species were encountered. Five species tracked by the ONHI (2005) were present, however: *Argythamnia mercurialina* (G5,S2S3), *Echinocereus reichenbachii* (G5, S2), *Escobaria vivipara* (G5, S2S3),

Muhlenbergia bushii (G5, S1S2), *Vitis rupestris* (G3, S?) and *Zinnia grandiflora* (G4G5, S?). Species are ranked according to level of imperilment at the state (S) and global (G) levels on a scale of 1 - 5, with a 1 representing a species that is imperiled and a 5 one that it is secure. A “?” indicates a species with rank in flux (Groves et al. 1995).

The five collection sites at Four Canyons occurred within six vegetation associations. A brief description of each follows:

1. Disturbed areas and old-fields included roadsides, home sites, and other areas exhibiting signs of physical disruption. This included a portion of the Canadian River floodplain that was converted to *Cynodon dactylon* in years prior to acquisition by The Nature Conservancy. Common plants in disturbed areas included *Aegilops cylindrica*, *Bothriochloa laguroides*, *Bromus catharticus*, *Cucurbita foetidissima*, *Eragrostis cilianensis*, *Geranium carolinianum*, *Hordeum pusillum*, *Mollugo verticillata*, *Oxalis stricta*, *Phytolacca americana*, *Polygonum aviculare*, *Portulaca halimoides*, *Quincula lobata*, *Rhus glabra*, and *Tribulus terrestris*.

2. *Quercus muehlenbergii*-*Juniperus virginiana* woodland association occupied deep sandstone canyons at the FCP. This vegetation type does not appear in Hoagland (2000). Although *Q. muehlenbergii* has been reported from counties immediately south of Ellis, it does not occur as a dominant species. The co-occurrence of *J. virginiana* is likely the result of fire suppression, but additional research is necessary to characterize species composition and stand history. Associated species included *Acalypha*

ostriifolia, *Celastrus scandens*, *Cornus drummondii*, *Elymus canadensis*, *Galium aparine*, *Juglans microcarpa*, *Parietaria pensylvanica*, *Pellaea atropurpurea*, *Ribes aureum*, *Sideroxylon lanuginosum*, *Smilax tamnoides*, *Symphoricarpos orbiculatus*, and *Toxicodendron radicans*, *Tridens flavus*, and *Ulmus rubra*. *Muhlenbergia bushii*, a species tracked by ONHI, occurred in this habitat.

3. *Quercus havardii*-*Sporobolus cryptandrus*-*Schizachyrium scoparium* shrubland association was limited to the western edge of the preserve. Extensive occurrences of this vegetation association occur to the west of FCP on deep sandy soils. Associated species included *Artemisia filifolia*, *Bouteloua gracilis*, *Indigofera miniata*, *Oenothera grandis*, *Prunus gracilis*, and *Yucca glauca*.

4. *Schizachyrium scoparium*-*Bouteloua curtipendula*-*Bouteloua gracilis* herbaceous association occurred on well-drained soils and rocky slopes. It was the most abundant vegetation type at FCP. Plant cover was diminished in areas where sandstone outcropped. Associated forb species included *Amorpha canescens*, *Argemone polyanthemos*, *Astragalus gracilis*, *Calylophus hartwegii*, *Ceanothus herbaceous*, *Comandra umbellata*, *Croton texensis*, *Dalea aurea*, *Desmodium sessilifolium*, *Hedeoma drummondii*, *Hedyotis nigricans*, *Ipomoea leptophylla*, *Ipomopsis longiflora*, *Lesquerella ovalifolia*, *Krameria lanceolata*, *Monarda clinopodioides*, *Pediomelum cuspidatum*, *Ptelea trifoliata*, *Sorghastrum nutans*, *Sphaeralcea coccinea*, *Stillingia sylvatica*, *Streptanthus hyacinthoides*, and *Symphyotrichum ericoides*. Species tracked

by the ONHI that occurred in this association were *Argythamnia mercurialina*, *Escobaria vivipara*, and *Zinnia grandiflora*.

5. *Schizachyrium scoparium* - *Castilleja purpurea* var. *citrina* - *Lesquerella gordonii* herbaceous association occurred on shallow soils over gypsum. The extent of vegetation cover varied with the degree of gypsum exposure. Associates included *Bouteloua hirsuta*, *Erioneuron pilosum*, *Chaetopappa ericoides*, *Liatris punctata*, *Phacelia integrifolia*, *Psilostrophe tagetina*, and *Tetraneuris scaposa*. *Echinocereus reichenbachii*, which is tracked by the Oklahoma Natural Heritage Inventory, occurred in this habitat type.

6. Wetland and Riparian vegetation included the margins of small ponds at FCP and wet areas along the floodplain of the Canadian River. Although multiple wetland vegetation associations are present at the FCP, they are limited in aerial extent and readily intergrade. Classifying Canadian River floodplain vegetation is further confounded by land use/land conversion practices of the landowner prior to The Nature Conservancy's acquisition. Possible wetland vegetation types present included *Polygonum pennsylvanicum*-*Polygonum lapathifolium* herbaceous association, *Schoenoplectus americanus* - *Eleocharis montevidensis* herbaceous association, and the *Tamarix chinensis* shrubland association.

ACKNOWLEDGMENT

We thank Priscilla Crawford, Shannon Hall, and Lacy Brookshire for field assistance.

This project was funded by a grant from The Nature Conservancy.

LITERATURE CITED

- Branson, C. C., and K. S. Johnson. 1979. Generalized geologic map of Oklahoma. In: Johnson K.S., et al., editors. Geology and Earth resources of Oklahoma. Oklahoma Geological Survey, Norman.
- Cole, E.L., A.J. Conradi, and C.E. Rhoads. 1961. Soil survey of Ellis County, Oklahoma. Washington, DC: United States Department of Agriculture. 81 pp.
- Correll, D. S. and M. C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner.
- Curtis, N. M. and W. E. Ham. 1979. Geomorphic provinces of Oklahoma. In: Johnson, K.S., et al., eds. Geology and Earth resources of Oklahoma. Oklahoma Geological Survey, Norman.
- Duck, L.G., and J.B. Fletcher. 1943. A game type map of Oklahoma. A Survey of the Game and Furbearing Animals of Oklahoma. Oklahoma Department of Wildlife Conservation, Oklahoma City, Oklahoma.
- Great Plains Flora Association. 1986. Flora of the Great Plains. University Press of Kansas, Lawrence.

Groves, C.R., M.L. Klein, and T.F. Breden. 1995. Natural Heritage Programs: public-private partnerships for biodiversity conservation. *Wildlife Society Bulletin* 23: 784-790.

Hoagland, B. W. 2000. The vegetation of Oklahoma: a classification of landscape mapping and conservation planning. *Southwestern Naturalist* 45: 385-420.

Hoagland, B. W. and A. K. Buthod. 2003. Vascular flora of the Keystone Wildlife Management Area, Creek, Pawnee, and Osage Counties, Oklahoma. *Oklahoma Native Plant Record* 3:23-37.

Hoagland, B. W. and A. K. Buthod. 2004. Vascular flora of Hugo Lake Wildlife Management Area, Choctaw County, Oklahoma. *Southeastern Naturalist* 3:701-714.

Hoagland, B. W. and A. K. Buthod. 2005a. Vascular flora of a gypsum dominated site in Major County, Oklahoma. *Proceedings of the Oklahoma Academy Science* 85:1-8.

Hoagland, B. W. and A. K. Buthod. 2005b. Vascular flora of a site along the Arkansas River, Pawnee County, Oklahoma. *Oklahoma Native Plant Record* 5:61-72.

Hoagland, B. W. and F. L. Johnson. 2001. Vascular flora of the Chickasaw National Recreation Area, Murray County, Oklahoma. *Castanea* 66:383-400.

Hoagland, B. W. and F. L. Johnson. 2004a. Vascular flora of Chouteau Wildlife Management Area, Wagoner County, Oklahoma. *Oklahoma Native Plant Record* 4:30-39.

- Hoagland, B. W. and F. L. Johnson. 2004b. Vascular flora of Love Valley Wildlife Management Area, Love County, Oklahoma. *Proceedings of the Oklahoma Academy Science* 83:47-62.
- Hoagland, B. W. and F. L. Johnson. 2004c. Vascular flora of Red Slough and Grassy Slough Wildlife Management Areas, Gulf Coastal Plain, McCurtain County, Oklahoma. *Castanea* 69:284-296.
- Hoagland, B. W. and F. L. Johnson. 2005. Vascular flora of the Deep Fork River in Okmulgee, Creek, and Okfuskee Counties. *Publications of the Oklahoma Biological Survey* 6:15-29.
- Hoagland, B.W. and K. Wallick. 2003. Vascular flora of Oologah Wildlife Management Area in Nowata County, Oklahoma. *Proceedings of the Oklahoma Academy Science* 83:47-62.
- Hoagland, B.W., A. K. Buthod, and W. Elisens. 2004. Vascular flora of Washita Battlefield National Historic Site, Roger Mills County, Oklahoma. *Sida* 21:1187-1197.
- Hoagland, B.W., P. Crawford-Callahan, P. Crawford, and F. L. Johnson. 2004. Vascular flora of Hackberry Flat, Frederick Lake, and Suttle Creek, Tillman County, Oklahoma. *Sida* 21:429-445.
- Hoagland, B. W. and F. L. Johnson. 2001. Vascular flora of the Chickasaw National Recreation Area, Murray County, Oklahoma. *Castanea* 66: 383-400.

Hoagland, B.W., A. Buthod, I. Butler, P. Crawford, W. Elisens, A. Udasi, and R. Tyrl.

2006. Oklahoma Vascular Plants Database. (www.biosurvey.ou.edu/).

University of Oklahoma, Norman.

Oklahoma Climatological Survey. 2006. Oklahoma Climatological Data.

(www.ocs.ou.edu/). University of Oklahoma, Norman.

Oklahoma Natural Heritage Inventory (ONHI). 2006. Oklahoma Natural Heritage

Inventory working list of rare Oklahoma plants.

(www.biosurvey.ou.edu/publicat.html). University of Oklahoma, Norman.

Palmer, M. W., G. L. Wade, and Paul Neal. 1995. Standards for the writing of floras.

Bioscience 45: 339-345.

Taylor, R. J. and C. S. Taylor. 1991. An Annotated List of the Ferns, Fern Allies,

Gymnosperms, and Flowering Plants of Oklahoma. Southeastern Oklahoma

State University. Durant, OK.

Trewartha, G. T. 1968. An Introduction to Climate. McGraw-Hill, New York. USDA.

1999.

USDA-NRCS 2006. The PLANTS database. (plants.usda.gov/plants). National Plant

Data Center, Baton Rouge, LA.

Waterfall, U. T. 1973. Keys to the Flora of Oklahoma. Published by the author,

Stillwater, OK.

Figure 1: Location of The Nature Conservancy Four Canyons Preserve in Ellis County, Oklahoma.

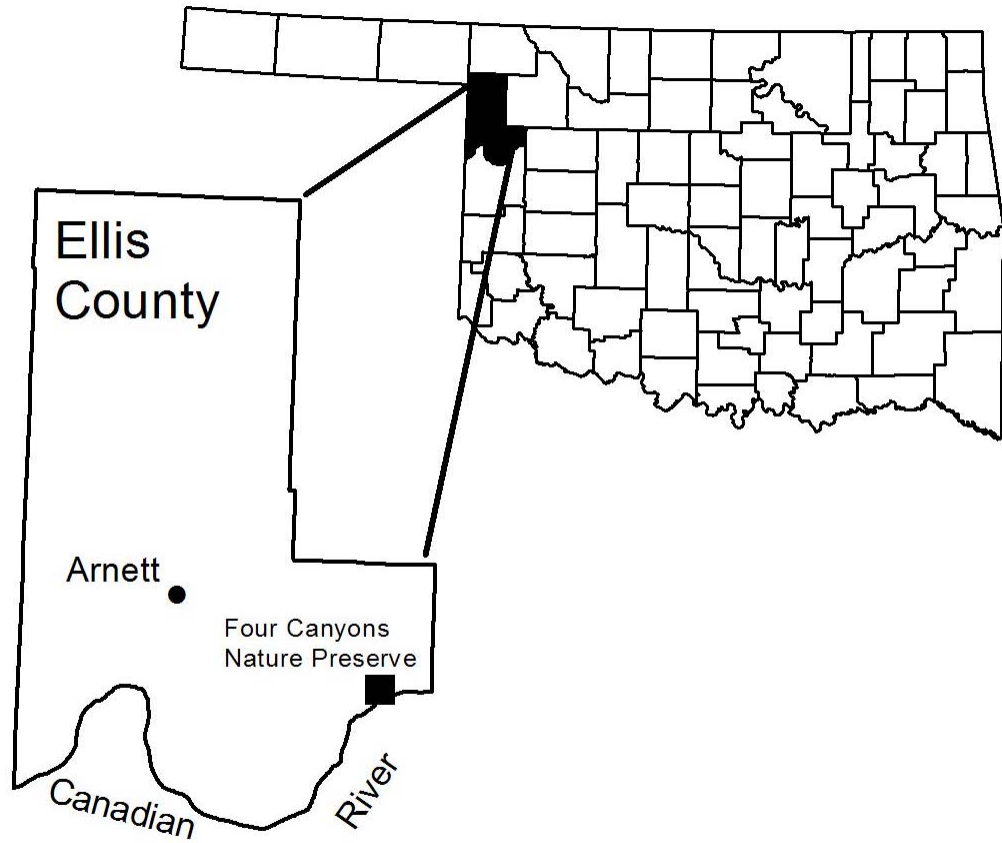


Table 1: Summary of floristic collections from the Four Canyons Preserve, Ellis County, Oklahoma.*

Taxonomic Group	Species	Native	Exotic
Pteridophyta	2	2	0
Coniferophyta	1	1	0
Magnoliophyta	369	339	30
Magnoliopsdia	283	265	18
Liliopsida	86	74	12

*Table follows the format of Palmer et al. 1995

APPENDIX 1

Annotated species list for The Nature Conservancy's Four Canyon Preserve. The first entry indicates habitat (DAOF = disturbed areas and old fields, QHSC = *Quercus havardii*-*Sporobolus cryptandrus*-*Schizachyrium scoparium* shrubland association, QMJV = *Quercus muehlenbergii*-*Juniperus virginiana* woodland association, SSBC = *Schizachyrium scoparium*-*Bouteloua curtipendula*-*Bouteloua gracilis* herbaceous association, SSCP - *Schizachyrium scoparium*-*Castilleja purpurea* var. *citrina*-*Lesquerella gordonii* herbaceous association, WETL = wetland and riparian), followed by life history (designated as A=annual, B=biennial, or P=perennial), and collection number. Introduced species are noted with an asterisk.

PTERIDOPHYTA

Equisetaceae

Equisetum laevigatum A. Braun - DAFL, WETL; P; 4C-103

Horsetail

Pteridaceae

Pellaea atropurpurea (L.) Link - QMJV; P; 4C-030

Purple cliffbrake

CONIFEROPHYTA

Cupressaceae

Juniperus virginiana L. - GMJV, DAUP, SSBC; P; 4C-019

Eastern red cedar

MAGNOLIOPHYTA

MAGNOLIOPSIDA

Acanthaceae

Ruellia humilis Nutt. - SSBC; P; 4C-330

Prairie petunia

Amaranthaceae

Amaranthus albus L. - DAUP; A; 4C-329

Prostrate pigweed

Anacardiaceae

Rhus aromatica Ait. - QHSC, SSBC; P; 4C-027

Skunkbrush

R. glabra L. - SSBC; P; 4C-214

Smooth sumac

Toxicodendron radicans (L.) Kuntze - QMJV; P; 4C-307

Poison ivy

Apiaceae

Ammoselinum popei Torr. & Gray - SSBC; A; 4C-075

Plains sandparsley

Cymopterus acaulis (Pursh) Raf. - SSBC; P; 4C-015

Plains springparsley

Eurytaenia texana Torr. & Gray - SSBC; A; 4C-288

Texas spreadwing

Spermolepis echinata (Nutt. ex DC.) Heller - DAUP, SSBC; A; 4C-121

Bristly scaleseed

Apocynaceae

Apocynum cannabinum L. - DAFL, DAUP, SSBC; P; 4C-187

Indianhemp

Asclepiadaceae

Asclepias arenaria Torr. - SSBC; P; 4C-280

Sand milkweed

A. asperula (Dcne.) Woods. - SSBC; P; 4C-078

Spider milkweed

A. engelmanniana Woods. - SSBC; P; 4C-266

Engelmann's milkweed

A. latifolia (Torr.) Raf. - SSBC; P; 4C-434

Broadleaf milkweed

A. pumila (Gray) Vail - QHSC; P; 4C-378

Plains milkweed

A. stenophylla Gray - SSBC; P; 4C-239

Slimleaf milkweed

A. syriaca L. - DAFL; P; 4C-432

Common milkweed

A. tuberosa L. - SSBC; P; 4C-164

Butterfly weed

A. verticillata L. - SSBC; P; 4C-336

Whorled milkweed

A. viridiflora Raf. - SSBC; P; 4C-345

Antelope horns

Asteraceae

Ambrosia psilostachya DC. - DAFL, DAUP, QMJV, SSBC; P; 4C-346

Plains ragweed

Amphiachyris dracunculoides (DC.) Nutt. - DAUP, SSBC; A; 4C-291

Broomweed

Aphanostephus skirrhobasis (DC.) Trel. - QHSC, SSBC; a; 4C-217

Lazy daisy

Artemisia dracunculus L. - SSBC; P; 4C-293

Tarragon

A. filifolia Torr. - QHSC, SSBC; P; 4C-292

Sandsage

A. ludoviciana Nutt. - DAUP, SSBC; P; 4C-037

White sagebrush

Baccharis salicina Torr. & Gray - DAFL; P; 4C-340

Great Plains false willow

Brickellia eupatorioides (L.) Shinnery - SSBC; P; 4C-398

False boneset

Centaurea americana Nutt. - DAUP, SSBC; A; 4C-290

Basketflower

Chaetopappa ericoides (Torr.) Nesom - SSCP; P; 4C-013

Rose heath

Chloracantha spinosa (Benth.) Nesom - DAFL; P; 4C-232

Spiny aster

Cirsium ochrocentrum Gray - DAUP, SSBC; P; 4C-180

Yellow spine thistle

C. undulatum (Nutt.) Spreng. - DAUP, SSBC; P; 4C-274

Wavyleaf thistle

Conyza canadensis (L.) Cronq. - DAUP, QMJV, SSCP; A; 4C-305

Horseweed

Croptilon hookerianum (Torr, & Gray) House - SSBC; A; 4C-326

Hooker's scratch daisy

Echinacea angustifolia DC. - SSBC; P; 4C-264

Narrowleaf coneflower

Engelmannia peristenia (Raf.) Goodman & Lawson - SSBC; P; 4C-056

Engelmann's daisy

Erigeron bellidiastrum Nutt. - QHSC; A; 4C-112

Western daisy fleabane

E. divergens Torr, & Gray - SSBC; P; 4C-419

Spreading fleabane

E. strigosus Muhl. ex Willd. - SSBC; A; 4C-165

Prairie fleabane

Euthamia gymnospermoides Greene - SSBC; P; 4C-384

Texas goldentop

Evax prolifera Nutt. ex DC. - DAUP, SSBC; A; 4C-110

Bighead pygmycudweed

Flaveria campestris J. R. Johnston - DAFL, DAUP; A; 4C-377

Alkali yellowtop

Gaillardia aestivalis (Walt.) H. Rock - QHSC, SSBC; P; 4C-385

Lanceleaf blanketflower

G. pulchella Foug. - QHSC, SSBP; A; 4C-052

Indian blanket

G. suavis (Gray & Engelm.) Britt. & Rusby - SSCP; P; 4C-060

Perfumeballs

Grindelia lanceolata Nutt. SSBC; P; 4C-366

Narrowleaf gumweed

G. nuda Wood var. *nuda* - DAUP; P; 4C-349

Curlytop gumweed

G. squarrosa (Pursh) Dunal - DAUP; A; 4C-372

Gumweed

Gutierrezia sarothrae (Pursh) Britt. & Rusby - SSBC; P; 4C-294

Snakeweed

Haploesthes greggii Gray - SSCP; P; 4C-289

False broomweed

Helenium amarum (Raf.) H. Rock - DAUP, SSBC; A; 4C-043

Yellowdicks

Helianthus annuus L. - DAFL, DAUP, WETL; A; 4C-312

Annual sunflower

H. petiolaris Nutt. - DAFL; A; 4C-352

Prairie sunflower

Heterotheca stenophylla (Gray) Shinnars var. *stenophylla* - SSBC; P; 4C-286

Stiffleaf false goldenaster

H. subaxillaris (Lam.) Britt. & Rusby - SSBC; A; 4C-296

Camphorweed

Hymenopappus flavescens Gray - SSBC; B; 4C-170

Old plainsman

H. tenuifolius Pursh - QHSC, SSBC; P; 4C-237

Chalk hill hymenopappus

Iva annua L. - DAFL; A; 4C-354

Sumpweed

Lactuca serriola L.* - DAUP; A; 4C-343

Prickly lettuce

Liatris mucronata DC. - SSBC; P; 4C-416

Cusp blazing star

L. punctata Hook. - SSBC, SSCP; P; 4C-371

Dotted blazing star

L. squarrosa (L.) Michx. - SSBC; P; 4C-331

Scaly blazing star

Lygodesmia juncea (Pursh) D. Don ex Hook. - SSBC; P; 4C-271

Skeletonweed

Machaeranthera pinnatifida (Hook.) Shinnery - SSBC; P; 4C-285

Lacy tansyaster

Packera plattensis (Nutt.) W. A. Weber & A. Love - SSBC; B; 4C-018

Prairie groundsel

Pluchea odorata (L.) Cass. - DAFL, WETL, QMJV; A; 4C-361

Sweetscent

Psilostrophe tagetina (Nutt.) Greene var. *cerifera* (A. Nels.) B. L. Turner - SSCP; B;

4C-031

Woolly paperflower

Pyrrhopappus grandiflorus (Nutt.) Nutt. - DAUP, SSBC; P; 4C-094

Tuberous desert-chicory

Ratibida columnifera (Nutt.) Woot. & Standl. - SSBC; P; 4C-303

Prairie coneflower

Senecio riddellii Torr. & Gray - DAFL; P; 4C-040

Riddell's ragwort

Solidago altissima L. - SSBC; P; 4C-415

Late goldenrod

S. canadensis L. var. *canadensis* - QMJV, SSBC; P; 4C-428

Canada goldenrod

S. gigantea Ait. - WETL, SSBC; P; 4C-419

Gaint goldenrod

S. petiolaris Ait. - SSBC; P; 4C-411

Downy ragged goldenrod

Sonchus asper (L.) Hill* - DAUP, QMJV; A; 4C-186

Sowthistle

Symphotrichum ericoides (L.) Nesom var. *ericoides* - SSBC; P; 4C-394

Heath aster

S. fendleri (Gray) Nesom - SSBC; P; 4C-414

Fendler's aster

S. oblongifolium (Nutt.) Nesom - SSBC; P; 4C-298

Aromatic aster

S. subulatum (Michx.) Nesom - DAFL, WETL; A; 4C-035

Salt marsh aster

Taraxacum officinale G. H. Weber ex Wiggers* - DAUP; P; 4C-029

Dandelion

Tetraneuris linearifolia (Hook.) Greene - SSBC; A; 4C-010

Fineleaf four-nerve daisy

T. scaposa (DC.) Greene - SSCP; P; 4C-011

Stemmy four-nerve daisy

Thelesperma megapotamicum (Spreng.) Kuntze - SSBC; P; 4C-038

Hopi tea greentread

Townsendia exscapa (Richards.) Porter - SSBC; P; 4C-003

Stemless Townsend daisy

Tragopogon dubius Scop.* - DAUP; A; 4C-105

Yellow salsify

Vernonia baldwinii Torr. - DAUP, QMJV; P; 4C-319

Baldwin's ironweed

Xanthium strumarium L. - DAFL, WETL; A; 4C-356

Cocklbur

Zinnia grandiflora Nutt. - SSCP; P; 4C-316

Plains zinnia

Boraginaceae

Cryptantha minima Rydb. - SSBC; A; 4C-084

Little cryptantha

Lappula occidentalis (S. Wats.) Greene var. *occidentalis* - DAUP; A; 4C-141

Flatspine stickseed

Lithospermum caroliniense (Walt. Ex J. F. Gmel.) MacM. - SSBC; P; 4C-144

Carolina puccoon

L. incisum Lehm. - SSCP, SSBC; P; 4C-016

Hoary puccoon

Brassicaceae

Camelina microcarpa DC.* - DAUP; A; 4C-072

Littlepod false flax

Descurainia pinnata (Walt.) Britt. - DAUP; A; 4C-020

Western tansymustard

Draba cuneifolia Nutt. ex Torr. & Gray - DAUP, SSBC; A; 4C-022

Wedgeleaf draba

Lepidium densiflorum Schrad. - DAUP, SSBC; A; 4C-093

Common pepperweed

L. oblongum Small - DAUP, SSBC; A; 4C-017

Veiny pepperweed

Lesquerella gordonii (Gray) S. Wats. - SSCP; A; 4C-024

Gordon's bladderpod

L. ovalifolia Rydb. ex Britt. - SSBC; P; 4C-118

Roundleaf bladderpod

Streptanthus hyacinthoides Hook. - SSBC; A; 4C-258

Smooth jewelflower

Cactaceae

Echinocereus reichenbachii (Terscheck ex Walp.) Haage f. - SSBC, SSCP; P; 4C-136

Hedgehog cactus

Escobaria vivipara (Nutt.) Buxbaum - SSBC; P; 4C-174

Plains pincushion

Opuntia macrorhiza Engelm. - DAUP, SSBC; P; 4C-424

Large-root prickly pear

Campanulaceae

Triodanis holzingeri McVaugh - DAUP, SSBC; A; 4C-246

Holzinger's Venus' looking-glass

T. perfoliata (L.) Nieuwl. - DAUP, SSBC; A; 4C-273

Venus' looking glass

Capparaceae

Polanisia dodecandra (L.) DC. - QHSC, SSBC; A; 4C-379

Redwhisker clammyweed

Caprifoliaceae

Symphoricarpos orbiculatus Moench - QMJV; P; 4C-147

Coralberry

Caryophyllaceae

Dianthus armeria L.* - SSBC; A; 4C-088

Depford pink

Paronychia jamesii Torr. & Gray - SSCP; P; 4C-247

Janes' nailwort

Celastraceae

Celastrus scandens L. - QMJV; P; 4C-039

Bittersweet

Chenopodiaceae

Atriplex canescens (Pursh) Nutt. - SSBC; P; 4C-104

Four-wing saltbrush

Chenopodium leptophyllum (Moq.) Nutt. ex S. Wats. - DAUP; A; 4C-268

Narrowleaf goosefoot

C. simplex (Torr.) Raf. - QMJV; A; 4C-376

Mapleleaf goosefoot

Monolepis nuttalliana (J. A. Schultes) Greene - WETL; A; 4C-143

Nuttall's povertyweed

Salsola tragus L.* - DAFL, DAUP; A; 4C-341

Russian thistle

Convolvulaceae

Convolvulus arvensis L.* - DAUP; P; 4C-210

Bindweed

Evolvulus nuttallianus J. A. Schultes - SSCP; P; 4C-051

Shaggy dwarf morning-glory

Ipomoea leptophylla Torr. - SSBC; P; 4C-218

Bush morning-glory

Cornaceae

Cornus drummondii C. A. Mey. - QMJV; P; 4C-203

Roughleaf dogwood

Cucurbitaceae

Cucurbita foetidissima Kunth - DAUP; P; 4C-178

Stink gourd

Elaeagnaceae

Elaeagnus angustifolia L.* - DAFL; P; 4C-374

Russian olive

Euphorbiaceae

Acalypha ostryifolia Riddell - DAUP, QMJV; A; 4C-185

Threeseed mercury

Argythamnia mercurialina (Nutt.) Muell.-Arg. - SSBC; P; 4C-197

Tall silverbush

Chamaesyce fendleri (Torr. & Gray) Small - DAUP, QHSC; P; 4C-099

Fendler's sandmat

C. glyptosperma (Engelm.) Small - DAUP, SSBC; A; 4C-334

Ribseed sandmat

C. missurica (Raf.) Shinnery - SSBC; A; 4C-359

Prairie sandmat

C. serpens (Kunth) Small - SSBC; A; 4C-335

Matted sandmat

Croton texensis (Klotzsch) Muell.-Arg. - QHSC; A; 4C-227

Texas croton

Euphorbia marginata Pursh - DAUP, SSBC; A; 4C-304

Snow-on-the-mountain

E. spathulata Lam. - SSCP; A; 4C-085

Warty spurge

Stillingia sylvatica Garden ex L. - SSBC; P; 4C-163

Queen's delight

Tragia ramosa Torr. - SSCP; P; 4C-355

Noseburn

Fabaceae

Amorpha canescens Pursh - SSBC; P; 4C-150

Leadplant

A. fruticosa L. - DAFL; P; 4C-160

False indigo

Astragalus gracilis Nutt. - SSBC; P; 4C-132

Slender milkvetch

A. lotiflorus Hook. - SSBC; P; 4C-007

Lotus milkvetch

A. missouriensis Nutt. - SSBC; P; 4C-008

Missouri milkvetch

A. mollissimus Torr. - SSBC; P; 4C-445

Woolly locoweed

A. plattensis Nutt. - SSBC; P; 4C-133

Platt milkvetch

Baptisia australis (L.) R. Br. ex Ait. f. - SSBC; P; 4C-044

Blue wild indigo

B. bracteata Muhl. ex Ell. - SSBC; P; 4C-106

Longbract wild indigo

Caesalpinia jamesii (Torr. & Gray) Fisher - SSBC; P; 4C-323

James' holdback

Dalea aurea Nutt. ex Pursh - SSBC; P; 4C-212

Golden prairie clover

D. candida Michx. ex Willd. - SSBC; P; 4C-265

White prairie clover

D. enneandra Nutt. - SSBC; P; 4C-220

Nine-anther dalea

D. lanata Spreng - DAFL; P; 4C-284

Wooly prairie clover

D. purpurea Vent. - SSBC; P; 4C-213

Purple prairie clover

D. villosa (Nutt.) Spreng. - DAFL; P; 4C-283

Silky prairie clover

Desmanthus illinoensis (Michx.) MacM. Ex B. L. Robins. & Fern. - DAFL; P; 4C-313

Illinois bundle flower

Desmodium sessilifolium (Torr.) Torr. & Gray - SSBC; P; 4C-369

Sessileleaf ticktrefoil

Glycyrrhiza lepidota Pursh - DAFL; P; 4C-184

Wild licorice

Gymnocladus dioicus (L.) K. Koch - QMJV; P; 4C-406

Kentucky coffee tree

Indigofera miniata Ortega - QHSC; P; 4C-444

Sand indigo

Lespedeza capitata Michx. - SSBC; P; 4C-440

Roundhead lespedeza

L. stuevei Nutt. - SSBC; P; 4C-381

Tall lespedeza

Melilotus officinalis (L.) Lam.* - DAFL, DAUP; A; 4C-309

Sweetclover

Mimosa borealis Gray - SSBC; P; 4C-161

Fragrant mimosa

M. nuttallii (DC.) B. L. Turner - SSBC; P; 4C-062

Sensitive-briar

Oxytropis lambertii Pursh var. *artculata* (Greene) Barneby - SSBC; P; 4C-426

Purple locoweed

Oxytropis lambertii Pursh var. *lambertii* - SSBC; P; 4C-134

Purple locoweed

Pediomelum cuspidatum (Pursh) Rydb. - SSBC; P; 4C-156

Largebract Indian breadroot

P. digitatum (Nutt. ex Torr. & Gray) Isely - SSBC; P; 4C-238

Palmleaf Indian breadroot

P. linearifolium (Tor. & Gray) J. Grimes - SSBC; P; 4C-250

Narrowleaf Indian breadroot

Psoraleidium tenuiflorum (Pursh) Rydb. - SSBC; P; 4C-263

Slimflower scurfpea

Robinia pseudoacacia L. - QMJV; P; 4C-504

Black locust

Senna marilandica (L.) Link - QMJV; P; 4C-342

Maryland senna

Sophora nuttalliana B. L. Turner - SSBC; P; 4C-425

Silky sophora

Strophostyles leiosperma (Torr. & Gray) Piper - SSBC; A; 4C-321

Slickseed fuzzybean

Vicia americana Muhl. ex Willd. - SSBC; P; 4C-096

American vetch

V. ludoviciana Nutt. - SSBC; A; 4C-113

Louisiana vetch

Fagaceae

Quercus havardii Rydb. - QHSC; P, 4C-046

Shinnery oak

Q. muehlenbergii Engelm. -QMJV; P; 4C-034

Chinkapin oak

Q. stellata Wangenh. - QHSC; P; 4C-446

Post oak

Fumariaceae

Corydalis micrantha (Engelm. ex Gray) Gray - SSBC; A; 4C-004

Smallflower fumewort

Gentianaceae

Eustoma exaltatum (L.) Salisb. Ex G. Don - DAFL; P; 4C-297

Prairie gentian

Geraniaceae

Geranium carolinianum L. - DAUP; A; 4C-087

Carolina geranium

Grossulariaceae

Ribes aureum Pursh var. *villosum* DC. - QMJV; P; 4C-014

Golden gooseberry

Hydrophyllaceae

Nama stevensii C. L. Hitchc. - SSCP; A; 4C-142

Stevens' fiddleleaf

Phacelia integrifolia Torr. - SSCP; A; 4C-125

Juglandaceae

Juglans microcarpa Berl. - QMJV; P; 4C-205

Little walnut

Krameriaceae

Krameria lanceolata Torr. - SSBC; P; 4C-148

Trailing krameria

Lamiaceae

Hedeoma drummondii Benth. - SSBC; P; 4C-222

Drummond's false pennyroyal

H. hispida Pursh - DAUP, SSCP; A; 4C-090

Rough false pennyroyal

Monarda clinopodioides Gray - SSCP; A; 4C-272

Basil beebalm

M. punctata L. var. *occidentalis* (Epling) Palmer & Steyermark - SSBC; A; 4C-254

Spotted beebalm

Salvia azurea Michx. ex Lam. - SSBC; P; 4C-272

Azure blue sage

Scutellaria drummondii Benth. - SSBC; P; 4C-100

Drummond's skullcap

S. resinosa Torr. - SSBC; P; 4C-102

Sticky skullcap

Teucrium canadense L. - QMJV, WETL; P; 4C-182

Wood germander

Linaceae

Linum lewisii Pursh var. *lewisii* - SSBC; A; 4C-006

Lewis flax

L. rigidum Pursh - SSBC; A; 4C-120

Stiffstem flax

Loasaceae

Mentzelia nuda (Pursh) Torr. & Gray - SSBC; P; 4C-324

Bractless blazingstar

M. oligosperma Nutt. ex Sims - SSCP; P; 4C-193

Chickthief

Malvaceae

Callirhoe involucrata (Torr. & Gray) Gray - SSBC; P; 4C-054

Purple poppymallow

Sphaeralcea coccinea (Nutt.) Rydb. - SSBC; P; 4C-079

Scarlet globemallow

Molluginaceae

Mollugo verticillata L. - DAUP, WETL; A; 4C-308

Carpetweed

Moraceae

Maclura pomifera (Raf.) Schneid. - QMJV; P; 4C-196

Bois d'arc

Morus alba L.* - QMJV; P; 4C-259

White mulberry

Nyctaginaceae

Mirabilis linearis (Pursh) Heimerl - SSBC; P; 4C-257

Narrowleaf four o'clock

M. nyctaginea (Michx.) MacM. - QMJV; P; 4C-179

Heartleaf four o'clock

Onagraceae

Calylophus berlandieri Spach - SSBC; P; 4C-041

Berlandier's sundrops

C. hartwegii (Benth.) Raven - SSBC; P; 4C-071

Hartweg's sundrops

C. serrulatus (Nutt.) Raven - SSBC; P; 4C-097

Yellow sundrops

Gaura coccinea Nutt. ex Pursh - SSBC; P; 4C-126

Scarlet beeblossom

G. longiflora Spach - DAUP; A; 4C-241

Largeflower beeblossom

G. villosa Torr. - QHSC; P; 4C-410

Woolly beeblossom

Oenothera grandis (Britt.) Smyth - DAUP, QHSC; P; 4C-089

Showy evening-primrose

O. jamesii Torr. & Gray - WETL; B; 4C-387

James' evening-primrose

O. laciniata Hill - DAUP, SSBC; A; 4C-059

Cutleaf evening-primrose

O. macrocarpa Nutt. - SSBC; P; 4C-050

Missouri evening-primrose

O. rhombipetala Nutt. ex Torr. & Gray - QHSC; A; 4C-400

Fourpoint evening-primrose

Stenosiphon linifolius (Nutt. ex James) Heynh. - SSBC; P; 4C-208

False gaura

Oxalidaceae

Oxalis stricta L. - DAUP, SSBC; P; 4C-067

Common yellow sorrel

O. violacea L. - SSBC; P; 4C-058

Violet woodsorrell

Papaveraceae

Argemone polyanthemus (Fedde) G. B. Ownbey - SSBC; A; 4C-061

Prickly poppy

Phytolaccaceae

Phytolacca americana L. - QMJV; P; 4C-198

Pokeweed

Plantaginaceae

Plantago patagonica Jacq. - DAUP, SSBC; A; 4C-111

Woolly plantain

P. rhodosperma Dcne. - DAUP, SSBC; A; 4C-114

Redseed plantain

Polemoniaceae

Ipomopsis longiflora (Torr.) V. Grant - QHSC, SSBC; A; 4C-395

Whiteflower ipomopsis

Polygalaceae

Polygala alba Nutt. - SSBC, SSCP; P; 4C-055

White milkwort

Polygonaceae

Eriogonum annuum Nutt. - SSBC; A; 4C-306

Annual buckwheat

E. longifolium Nutt. - SSBC; P; 4C-032

Longleaf buckwheat

Polygonum amphibium L. - WETL; P; 4C-262

Water knotweed

P. aviculare L.* - DAUP; A; 4C-328

Prostrate knotweed

P. lapathifolium L. - WETL; A; 4C-209

Nodding smartweed

P. pensylvanicum L. - WETL; A; 4C-360

Pennsylvania smartweed

P. ramosissimum Michx. - DAUP, WETL; A; 4C-322

Bushy knotweed

Portulacaceae

Portulaca halimoides L. - DAUP; A; 4C-436

Silkcotton purslane

P. oleracea L. - DAUP; A; 4C-358

Little hogweed

Primulaceae

Androsace occidentalis Pursh - DAUP, SSBC; A; 4C-021

Western rockjasmine

Samolus ebracteatus Kunth - DAFL; P; 4C-318

Lime brookweed

Ranunculaceae

Anemone caroliniana Walt. - SSBC; P; 4C-025

Carolina anemone

Delphinium carolinianum Walt. - SSBC; P; 4C-155

Carolina larkspur

Ranunculus sceleratus L. - WETL; A; 4C-091

Cursed buttercup

Rhamnaceae

Ceanothus herbaceus Raf. - SSBC; P; 4C-076

Jersey tea

Rosaceae

Prunus angustifolia Marsh. - QHSC, SSBC; P; 4C-005

Narrowleaf sandplum

P. gracilis Engelm. & Gray - QHSC; P; 4C-443

Oklahoma plum

Pyrus communis L.* - QMJV; P; 4C-437

Common pear

Rubiaceae

Cephalanthus occidentalis L. - WETL; P; 4C-183

Buttonbush

Galium aparine L. - DAUP, QMJV; A; 4C-190

Stickywilly

Hedyotis nigricans (Lam.) Fosberg - SSBC, SSCP; P; 4C-216

Damondflowers

Rutaceae

Ptelea trifoliata L. - SSBC; P; 4C-047

Hoptree

Salicaceae

Populus deltoides Bartr. ex Marsh. - DAFL, WETL; P; 4C-066

Eastern cottonwood

Salix exigua Nutt. - DAFL, WETL; P; 4C-108

Sandbar willow

S. nigra Marsh. - DAFL, WETL; P; 4C-107

Black willow

Santalaceae

Comandra umbellata (L.) Nutt. - SSBC; P; 4C-109

Bastard toadfax

Sapindaceae

Sapindus saponaria L. var. *drummondii* (Hook. & Arn.) L. Benson - QMJV; P; 4C-317

Soapberry

Sapotaceae

Sideroxylon lanuginosum Michx. - QMJV; P; 4C-200

Gum bully

Scrophulariaceae

Agalinis aspera (Dougl. ex Benth.) Britt. - SSBC; A; 4C-386

Tall flase foxglove

Castilleja purpurea (Nutt.) G. Don var. *citrina* (Pennell) Shinnars - SSCP; P; 4C-081

Yellow Indian paintbrush

C. sessiliflora Pursh - SSBC; P; 4C-023

Downy paintbrush

Nuttallanthus texanus (Scheele) D. A. Sutton - SSBC; A; 4C-095

Texas toadflax

Penstemon albidus Nutt. - SSCP; P; 4C-083

White beardtongue

P. buckleyi Pennell - SSBC; P; 4C-115

Buckley's beardtongue

P. cobaea Nutt. - SSBC; P; 4C-049

Large-flower beardtongue

Veronica arvensis L.* - DAUP; A; 4C-080

Corn speedwell

V. peregrina L. - SSBC; A; 4C-116

Neckweed

Solanaceae

Chamaesaracha coniodes (Moric. Ex Dunal) Britt. - DAUP, SSBC; P; 4C-009

Gray five-eyes

Datura stramonium L. - QMJV; A; 4C-423

Jimsonweed

Physalis longifolia Nutt. - DAUP; P; 4C-234

Loneleaf groundcherry

P. mollis Nutt. var. *mollis* - DAUP; P; 4C-117

Hairy groundcherry

Quincula lobata (Torr.) Raf. - DAUP, SSBC; P; 4C-234

Chinese lantern

Solanum elaeagnifolium Cav. - DAUP, QMJV, SSBC; P; 4C-045

Silver nightshade

S. dimidiatum Raf. - DAUP, SSBC; P; 4C-269

Western horsenettle

S. rostratum Dunal - DAUP; A; 4C-206

Buffalobur

Tamaricaceae

Tamarix chinensis Lour.* - DAFL; P; 4C-048

Saltcedar

Ulmaceae

Celtis laevigata Willd. Var. *reticulata* - QMJV; P; 4C-215

Netleaf hackberry

Ulmus americana L. - QMJV; P; 4C-042

American elm

U. pumila L.* - QMJV; P; 4C-442

Siberian elm

U. rubra Muhl. - QMJV; P; 4C-396

Red elm

Urticaceae

Parietaria pennsylvanica Muhl. ex Willd. - QMJV; A; 4C-202

Pennsylvania pellitory

Verbenaceae

Glandularia pumila (Rydb.) Umber - DAUP, SSBC; A; 4C-086

Pink mock vervain

Phyla nodiflora (L.) Greene - DAFL, WETL; P; 4C-221

Turkey tangle frogfruit

Verbena bracteata Lag. & Rodr. - DAUP; A; 4C-140

Bigbract verbena

V. stricta Vent. - DAUP; P; 4C-235

Hoary verbena

Vitaceae

Cissus trifoliata (L.) L. - QMJV; P; 4C-065

Sorrelvine

Parthenocissus quinquefolia (L.) Planch. - QMJV; P; 4C-057

Virginia creeper

Vitis acerifolia Raf. - QMJV; P; 4C-074

Mapleleaf grape

V. rupestris Scheele - QMJV; P; 4C-074

Sand grape

Zygophyllaceae

Tribulus terrestris L.* - DAUP, QHSC; A; 4C-367

Puncturevine

LILIOPSIDA

Agavaceae

Yucca glauca Nutt. - DAUP, QHSC, SSBC; P; 4C-146

Soapweed

Commelinaceae

Commelina erecta L. - DAUP, SSBC; P; 4C-226

Whitemouth dayflower

Tradescantia occidentalis (Britt.) Smyth - SSBC; P; 4C-137

Prairie spiderwort

T. ohioensis Raf. - SSBC; P; 4C-162

Ohio spidewort

Cyperaceae

Carex gravida Bailey - WETL; P; 4C-231

Heavy sedge

C. festucacea Schkuhr ex Willd. - WETL; P; 4C-287

Fescue sedge

Cyperus schweinitzii Torr. - SSBC; P; 4C-204

Schweinitz's flatsedge

Eleocharis erythropoda Steud. - DAFL, WETL; P; 4C-168

Bald spikerush

E. montevidensis Kunth - DAFL, WETL; P; 4C-167

Sand spikerush

E. obtusa (Willd.) J. A. Schultes - DAFL, WETL; A; 4C-223

Blunt spikerush

E. tenuis (Willd.) J. A. Schultes var. *verrucosa* (Svens.) Svens. - DAFL, WETL; P;

4C-168

Slender spikerush

Schoenoplectus pungens (Vahl) Palla - DAFL, WETL; P; 4C-101

Common threesquare

Iridaceae

Sisyrinchium angustifolium P. Mill - SSBC; P; 4C-082

Narrowleaf blue-eyed grass

Juncaceae

Juncus brachyphyllus Wieg. - DAFL, WETL; P; 4C-224

Tuftedstem rush

J. interior Wieg. - DAFL, WETL; P; 4C-169

Inland rush

J. torreyi Coville - DAFL, WETL; P; 4C-344

Torrey's rush

Liliaceae

Allium drummondii Regel - SSBC; P; 4C-012

Drummond's onion

A. perdulce S. V. Fraser - SSBC; P; 4C-077

Plains onion

Androstephium caeruleum (Scheele) Greene - SSBC; P; 4C-002

Blue funnel lily

Najadaceae

Najas guadalupensis (Spreng.) Magnus - WETL; A; 4C-350

Southern waternymph

Poaceae

Aegilops cylindrica Host* - DAUP; A; 4C-053

Jointed goatgrass

Agrostis hyemalis (Walt.) B.S.P. - WETL; P; 4C-348

Winter bentgrass

Andropogon glomeratus (Walt.) B.S P. - DAFL; P; 4C-300

Bushy bluestem

A. hallii Hack. - SSBC; G, P; 4C-311

Sand bluestem

Aristida adscensionis L. - DAUP, QHSC; A; 4C-389

Sixweeks threeawn

A. oligantha Michx. - DAUP, QHSC, SSBC; A; 4C-382

Prairie threeawn

A. purpurea Nutt. var. *longiseta* (Steud.) Vasey - DAUP, SSBC; P; 4C-252

Fendler threeawn

A. purpurea Nutt. var. *purpurea* - DAUP, SSBC; P; 4C-277

Fendler threeawn

Bothriochloa laguroides (DC.) Herter - DAUP, SSBC; P; 4C-278

Sliver beardgrass

B. saccharoides (Sw.) Rydb. - DAUP, SSBC; P; 4C-413

Silver bluestem

Bouteloua curtipendula (Michx.) Torr. SSBC; P; 4C-195

Sideoats grama

B. gracilis (Willd. ex Kunth) Lag. ex Griffiths - DAUP, QHSC, SSBC; P; 4C-333

Blue grama

B. hirsuta Lag. - SSCP; P; 4C-195

Hairy grama

Bromus catharticus Vahl* - DAUL; A; 4C-068

Rescuegrass

B. japonicus Thunb. ex Murr.* - DAUL; A; 4C-261

Japanese brome

B. tectorum L. * - DAUL, SSBC; A; 4C-064

Cheatgrass

Buchloe dactyloides (Nutt.) Engelm. - SSBC; P; 4C-070

Buffalograss

Calamovilfa gigantea (Nutt.) Scribn. & Merr. - DALF; P; 4C-302

Giant sandreed

Cenchrus spinifex Cav. - DAUP, QHSC; P; 4C-255

Sandbur

Chloris verticillata Nutt. - DAUP; P; 4C-207

Windmill grass

Cynodon dactylon (L.) Pers.* - DAUP, DAFL; P; 4C-194

Bermuda grass

Dichanthelium acuminatum (Sw.) Gould & C. A. Clark var. *fasiculatum* (Torr.)

Freckmann - SSBC; P; 4C-233

Tapered rosette grass

D. clandestinum (L.) Gould - QHSC, SSBC; P; 4C-122

Deertongue

D. villosissimum (Nash) Freckmann var. *praecocius* (A.S. Hitchc. & Chase) Freckmann

- SSBC; P; 4C-332

Whitehair rosette grass

Distichlis spicata (L.) Greene - DAFL; P; 4C-151

Saltgrass

Echinochloa muricata (Beauv.) Fern. - WETL; A; 4C-253

Rough barnyardgrass

Elymus canadensis L. - DAUP, QMJV, SSBC; P; 4C-230

Canada wildrye

E. virginicus L. - DAUP, QMJV, SSBC; P; 4C-405

Virginia wildrye

Eragrostis cilianensis (All.) Vign. Ex Janchen* - DAUP; A; 4C-390

Stinkgrass

E. secundiflora J. Presl - DAUP, SSBC; P; 4C-236

Red lovegrass

E. spectabilis (Pursh) Steud. - DAUP, SSBC; P; 4C-337

Purple lovegrass

E. trichodes (Nutt.) Wood - DAUP, QHSC; P; 4C-383

Sand lovegrass

Erioneuron pilosum (Buckl.) Nash - QHSC, SSBC; P; 4C-191

Woollygrass

Hordeum jubatum L. - DAFL, DAUP; P; 4C-175

Foxtail barley

H. pusillum Nutt. - DAUP; A; 4C-069

Little barley

Leptochloa fusca (L.) Kunth - WETL; A; 4C-431

Sprangletop

Lolium arundianceum (Schreb.) S. J. Darbyshire* - DAUP; P; 4C-427

Prennial ryegrass

Monroa squarrosa (Nutt.) Torr. - QHSC, SSBC; P; 4C-211

False buffalograss

Muhlenbergia asperifolia (Neews & Meyen ex Trin.) Parodi - DAFL; P; 4C-408

Scratchgrass

M. bushii Pohl - QMJV; P; 4C-202

Nodding muhly

M. racemosa (Michx.) B.S.P. - QMJV; P; 4C-420

Marsh muhly

Panicum capillare L. - DAUP, SSBC; A; 4C-314

Witchgrass

P. hallii Vasey - SSBC; P; 4C-392

Hall's panicgrass

P. obtusum Kunth - DAFL, SSBC; P; 4C-199

Vine mesquite

P. virgatum L. - DAFL, SSBC; P; 4C-325

Switchgrass

Pascopyrum smithii (Rydb.) A. Love - DAUP; P; 4C-171

Western wheatgrass

Paspalum setaceum Michx. - QHSC, SSBC; P; 4C-225

Thin paspalum

Phalaris caroliniana Walt. - -WETL; A; 4C-138

Carolina reedgrass

Phragmites australis (Cav.) Trin. ex Steud. - DAFL; P; 4C-438

Common reed

Poa arachnifera Torr. - DAUP, SSBC; P; 4C-135

Texas bluegrass

Polypogon monspeliensis (L.) Desf.* - DAFL, WETL; G, A; 4C-139

Rabbit-foot grass

Saccharum ravennae (L.) L.* DAFL, WETL; G, P; 4C-301

Ravennagrass

Schizachyrium scoparium (Michx.) Nash - QHSC, SSBC; P; 4C-363

Little bluestem

Setaria parviflora (Poir.) Kerguelen - DAFL, DAUP; P; 4C-338

Marsh bristlegrass

Sorghastrum nutans (L.) Nash - SSBC; P; 4C-357

Indiangrass

Sorghum halepense (L.) Pers.* - DAUP; P; 4C-177

Johnson grass

Spartina pectinata Bosc ex Link - DAFL; P; 4C-315

Prairie cordgrass

Sphenopholis obtusata (Michx.) Scribn. - WETL; A; 4C-153

Prairie wedgescale

Sporobolus cryptandrus (Torr.) Gray - QHSC, SSBC; P; 4C-391

Sand dropseed

S. neglectus Nash - DAUP, QHSC; A; 4C-399

Puffsheath dropseed

Tridens albescens (Vasey) Woot. & Standl. - SSBC, QHSC; P; 4C-380

White tridens

T. flavus (L.) A. S. Hitchc. - QMJV, SSBC; P; 4C-310

Purpletop

Vulpia octoflora (Walt.) Rydb. - DAUP; A; 4C-130

Sixweeks fescue

V. sciurea (Nutt.) Henr. - DAUP; G, A; 4C-131

Squirreltail fescue

Smilacaceae

Smilax tamnoides L. - QMJV; P; 4C-201

Bristly greenbriar

Typhaceae

Typha domingensis Pers. - DAFL, WETL; P; 4C-249

Southern cattail

ADDENDUM: additional plant species observed at the Four Canyon Preserve by staff of The Nature Conservancy, not listed in Hoagland and Buthod report.

Chris Hise
The Nature Conservancy
9/17/07

MAGNOLIOPHYTA

LILIOPSIDA

Orchidaceae

Spiranthes cernua

Nodding lady's tresses

Poaceae

Bothriochloa ischaemum

Old World Bluestem

MAGNOLIOPSIDA

Asteraceae

Achillea millefolium

Common yarrow

Verbesina encelioides

Golden crownbeard

Fabaceae

Astragalus crassicaarpus

Groundplum milkvetch

Prosopis glandulosa

Honey mesquite

Pedaliaceae

Proboscidea louisianica

Ram's horn