

## A FLORISTIC INVENTORY OF THE UNIVERSITY OF OKLAHOMA'S KESSLER ATMOSPHERIC AND ECOLOGICAL FIELD STATION, MCCLAIN COUNTY, OKLAHOMA

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### ABSTRACT

This paper reports the results of a vascular plant inventory at the University of Oklahoma's Kessler Atmospheric and Ecological Field Station in McClain County in the state of Oklahoma. A total of 388 taxa in 80 families were collected. Two hundred and fifty-seven genera, 361 species, and 27 infraspecific taxa were identified. The largest families were the Poaceae with 66 taxa and the Asteraceae with 55 taxa. Fifty-seven taxa were planted or non-native to the U.S. (14.7 % of the flora). Four taxa tracked by the Oklahoma Natural Heritage Inventory were found.

### INTRODUCTION AND STUDY AREA

The Kessler Atmospheric and Ecological Field Station (KAEFS) at the University of Oklahoma was established on properties donated by Dr. Edwin Kessler from 1988 to 2011 (<http://kaefs.ou.edu/>). Located approximately 28 km southwest of the Norman campus, KAEFS promotes and facilitates collaborative research and learning. The station hosts both formal and informal courses, workshops, and numerous meteorological and biological experiments, including a long-term global warming experiment. The goal of this work was to compile a complete list of vascular plant taxa present at the site to assist current and future KAEFS researchers in species identification and documentation.

KAEFS occupies 146 ha in McClain County in central Oklahoma approximately 13 km from the town of Washington (Figure 1). Latitudinal extent ranges from

34°58'15.99"N to 34°59'10.61"N and longitudinal extent from 97°30'32.88"W to 97°31'42.63"W. Physiographically, the site is located within the Western Red-bed Plains geomorphic province, which consists of gently rolling hills of red sandstone and shale of Permian age (Curtis et al. 2008; Johnson 2008). Two soil associations predominate at KAEFS: the Nash-Lucent-Grant (deep to shallow, gently sloping to moderately steep loams over sandstone uplands) and the Port-Pulaski-Keokuk (deep, nearly level loamy soils on floodplains; Moebius and Sparwasser 1979). KAEFS is located within the subtropical humid (Cf) climate zone (Trewartha 1968), with a mean annual temperature of 16°C. Low temperatures (to 3°C) occur in January, while the warmest temperatures occur in July (to 28°C; Oklahoma Climatological Survey 2016). The month of May is typically the wettest, with an average precipitation of 13.5 cm. Mean annual precipitation is

96.7 cm (Oklahoma Climatological Survey 2016). Elevation ranges from 332 m to 343 m. The dominant potential vegetation type is tallgrass prairie (Duck and Fletcher 1943).

The KAEFS property has a long history of farming and livestock grazing. The first homestead was established in 1904, and crops such as cotton, sorghum, and wheat were grown on the property up until the early 1970s. The property has an equally long history of cattle grazing, and a small herd still roams the grasslands today (<http://kaefs.ou.edu/>). A population of the Mediterranean basin native *Carthamus lanatus* L. was discovered at the site in the mid-1970s and grew to approximately 3000 plants by 1989. It was eradicated in the early 1990s with a strict regime of hand-pulling (Kessler unpublished).

## METHODS

Vouchers of vascular plant taxa encountered at KAEFS were made throughout the growing seasons (March through October) of 2013, 2014, and 2015. Vouchers for U.S. non-native or planted taxa were only collected from naturalized populations. Specimens were processed according to standard procedures. In addition to these vouchers, collections from an earlier, unpublished study were also examined to see if additional taxa had been collected. Manuals used for identification included Diggs et al. (1999) and Tyril et al. (2015). Identifications were verified by comparison with specimens from the Robert Bebb Herbarium at the University of Oklahoma (OKL). Duration, growth habit, vegetation type, and nativity were determined using the PLANTS database (USDA-NRSC 2016) and Taylor and Taylor (1991). Classification and nomenclature follow Angiosperm Phylogeny Group III (Stevens 2001 onward) and the Integrated Taxonomic Information System (ITIS 2016). All specimens were deposited at OKL.

## RESULTS AND DISCUSSION

A total of 388 taxa in 80 families were collected (Appendix). Two hundred and fifty-seven genera, 361 species, and 27 infraspecific taxa were identified. Two hundred and fifty-two taxa were perennials; there were 133 annuals and three biennials. The largest families were the Poaceae with 66 taxa and the Asteraceae with 55 taxa. Two-hundred and fifty-one taxa were forbs, and 91 were graminoids. There were 26 trees, 12 shrubs, and eight vines. Four taxa tracked by the Oklahoma Natural Heritage Inventory were found (Table 1). Three-hundred and seventy-nine of the 388 taxa were collected by the authors. Nine additional taxa were found during an earlier survey by former KAEFS researcher Becky Sherry.

Fifty-seven taxa were planted and naturalized or non-native to the U.S. (14.7 % of the flora). Fifty-six of these were non-native. This number is high when compared to surveys from other Oklahoma grassland-dominated sites (Table 2), but it is not surprising given the land use history at KAEFS. *Taxodium distichum*, which is native to southeastern Oklahoma, was also found but was planted by the former property owner and has since naturalized. The Poaceae had the greatest number of exotic taxa with 13. The Fabaceae followed with nine exotics. *Carthamus lanatus*, reported from the property as late as 1991, was not relocated (Kessler 1987; Hoagland et al. 2012; Kessler unpublished).

The predominant vegetation type encountered at KAEFS was the *Schizachyrium scoparium-Sorghastrum nutans* association, a herbaceous vegetation type found throughout Oklahoma on uplands with well-drained soils. Associated taxa included *Amorpha canescens*, *Dichanthelium oligosanthes* var. *oligosanthes*, *Panicum virgatum*, and *Symphotrichum ericoides* var. *ericoides* (Hoagland 2000).

We encountered three community types dominated by woody plants at KAEFS. The *Populus deltoides-Ulmus americana-Celtis laevigata* forest association was found on the bottomlands surrounding the property's larger order streams. This vegetation type is found frequently throughout the state (excluding the panhandle) on moist or wet soils along riparian corridors. Associated taxa found in this association included *Carya illinoensis*, *Symphoricarpos orbiculatus*, and *Toxicodendron radicans* (Hoagland 2000). Small stands of *Quercus muehlenbergii* were encountered in mesic situations. Associated taxa included *Amphicarpaea bracteata*, *Desmodium glutinosum*, *Elephantopus carolinianus*, and *Phryma leptostachya*. Upland woodlands of the *Juniperus virginiana-Schizachyrium scoparium* association intergraded with the grasslands and the

riparian zones of low order streams. This vegetation type is common throughout Oklahoma (excluding the panhandle) and is the product of fire suppression and land-use change. Associated taxa included *Andropogon virginicus*, *Cirsium altissimum*, *Quercus marilandica*, and *Smilax bona-nox* (Hoagland 2000).

Herbaceous wetland vegetation was restricted to ponds and creek channels. Plants found in this type included *Coleataenia anceps*, *Juncus torreyi*, *Lycopus americanus*, *Teucrium canadense*, and the invasive aquatic *Myriophyllum spicatum*. Disturbed areas included an area around a barn, the parking lots, and gravel roads. Plants in these areas included *Mollugo verticillata*, *Muhlenbergia paniculata*, *Polygonum ramosissimum*, and *Solanum rostratum*.

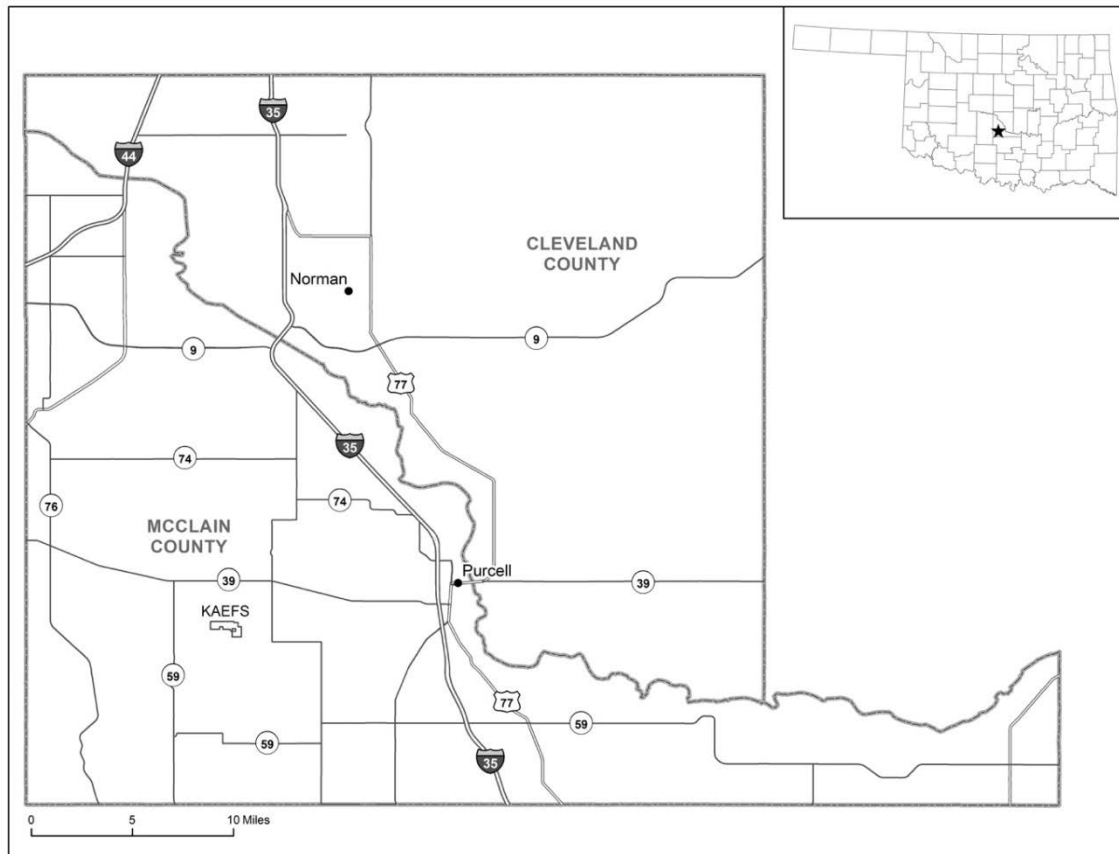


Figure 1 The Kessler Atmospheric and Ecological Field Station. Map by Todd Fagin, Oklahoma Biological Survey

Table 1 Taxa located during this study that are tracked by the Oklahoma Natural Heritage Inventory (Groves 1995; NatureServe Explorer 2016; Oklahoma Natural Heritage Inventory 2016). Status ranks are on a 1–5 scale, with a 1 indicating the taxon is critically imperiled. G ranks are at the global level, and S ranks are at the subnational or state level. Intraspecific taxa are assigned a T rank.

Family	Taxon	Rank
Convolvulaceae	<i>Ipomoea shumardiana</i> (Torr.) Shinnery	S3G2G3
Cyperaceae	<i>Eleocharis geniculata</i> (L.) Roem. & Schult.	S2G5
Fabaceae	<i>Desmodium nuttallii</i> (Schindl.) B.G. Schub.	S1G5
Plantaginaceae	<i>Plantago elongata</i> Pursh ssp. <i>elongata</i>	S3T3G4T4

Table 2 Comparison of exotic taxa from the KAEFS site with other Oklahoma grassland-dominated sites

Study site	Reference	Size of site (ha)	Number of taxa found	Percentage of non-native taxa
Kessler Atmospheric and Ecological Field Station, McClain County	This paper	146.0	388	14.7%
Pontotoc Ridge Nature Preserve, Johnston and Pontotoc Counties	Buthod et al., in preparation	848.2	616	8.8%
Tulsa Botanic Garden, Osage County	Hoagland and Buthod 2007	69.0	293	15.0%
Camp Kickapoo Boy Scout Camp, Canadian County	Hoagland and Buthod 2006	64.7	334	12.3%
Selman Living Laboratory, Woodward County	Buckallew and Caddell 2003	129.5	229	9.0%

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## APPENDIX

### List of Plant Taxa from the University of Oklahoma's Kessler Atmospheric and Ecological Field Station, McClain County, Oklahoma

Taxa list with duration, growth habit, vegetation type, and nativity. A=annual, B=biennial, P=perennial; F=forb, G=graminoid, S=shrub, T=tree, V=woody vine; DA=disturbed area, GL=*Schizachyrium scoparium*-*Sorghastrum nutans* grassland, HWV=herbaceous wetland vegetation, MF=*Quercus muehlenbergii* mesic forest, SBL=*Populus deltoides*-*Ulmus americana*-*Celtis laevigata* stream bottomland, UWL=*Juniperus virginiana*-*Schizachyrium scoparium* upland woodland. An asterisk (\*) indicates a taxon that is non-native to the United States. A tilde (~) indicates a taxon that is planted but native to Oklahoma. A dagger (†) indicates a tracked taxon. Duration and nativity were determined using the PLANTS Database (USDA-NRSC 2016); if the information from PLANTS was ambiguous, Taylor and Taylor (1991) was consulted. Common names were taken from PLANTS (USDA-NRSC 2016), and vegetation classifications were based on Hoagland (2000). All specimens were collected by the authors with the exception of those marked with the pound sign (#), which were collected by Becky Sherry. Specimens were assigned collection numbers with the prefix KES.

#### Acanthaceae

*Ruellia humilis* Nutt. (denseflowered waterwillow); P; F; GL; KES-327

#### Adoxaceae

*Viburnum rufidulum* Raf. (rusty blackhaw); P; S; UWL; KES-077

#### Amaranthaceae

\**Chenopodium album* L. (lambsquarters); A; F; DA; KES-428

*Chenopodium pratericola* Rydb. (desert goosefoot); A; F; DA; KES-066

*Iresine rhizomatosa* Standl. (Juda's bush); P; F; SBL; KES-054

#### Amaryllidaceae

*Allium canadense* L. var. *fraseri* Ownbey (Fraser meadow garlic); P; F; GL; KES-152

*Nothoscordum bivalve* (L.) Britton (crow-poison); P; F; GL; KES-153

#### Anacardiaceae

*Rhus copallinum* L. (winged sumac); P; S; GL; KES-239

*Rhus glabra* L. (smooth sumac); P; S; GL; KES-052

*Toxicodendron radicans* (L.) Kuntze (eastern poison ivy); P; V; SBL; KES-051

#### Apiaceae

*Ammoselinum butleri* (Engelm. ex S. Watson) J.M. Coult. & Rose (Butler's sandparsley); A; F; GL; KES-050

#*Ammoselinum popei* Torr. & A. Gray (plains sandparsley); A; F; GL; KES-407

*Chaerophyllum tainturieri* Hook. var. *tainturieri* (hairyfruit wild chervil); A; F; SBL; KES-087

*Daucus pusillus* Michx. (American wild carrot); A; F; GL; KES-047

*Sanicula canadensis* L. (snakeroot); B; F; MF; KES-048

*Spermolepis inermis* (Nutt. ex DC.) Mathias & Constance (Red River scaleseed); A; F; GL; KES-049

\**Torilis arvensis* (Huds.) Link (hedge parsley); A; F; DA; KES-227

**Apocynaceae**

- Apocynum cannabinum* L. (Indian hemp); P; F; GL; KES-046  
*Asclepias amplexicaulis* Sm. (clasping milkweed); P; F; GL; KES-387  
*Asclepias stenophylla* A. Gray (narrowleaf milkweed); P; F; GL; KES-041  
*Asclepias tuberosa* L. (butterfly milkweed); P; F; GL; KES-040  
*Asclepias viridiflora* Raf. (green comet milkweed); P; F; GL; KES-042  
*Asclepias viridis* Walter (green milkweed); P; F; GL; KES-043  
 \**Vinca major* L. (greater periwinkle); P; F; SBL; KES-045

**Araliaceae**

- \**Hedera helix* L. (English ivy); P; V; SBL; KES-044

**Asparagaceae**

- Androstaphyium coeruleum* (Scheele) Greene (blue funnel lily); P; F; GL; KES-154  
*Yucca glauca* Nutt. (common yucca); P; S; GL; KES-393

**Aspleniaceae**

- Asplenium platyneuron* (L.) Britton, Sterns & Poggenb. (ebony spleenwort); P; F; UWL; KES-379

**Asteraceae**

- Achillea millefolium* L. (yarrow); P; F; GL; KES-030  
*Ambrosia psilostachya* DC. (western ragweed); P; F; GL; KES-004  
*Ambrosia trifida* L. (giant ragweed); A; F; GL; KES-006  
*Amphiachyris dracunculoides* (DC.) Nutt. (broomweed); A; F; GL; KES-014  
 #*Antennaria parlinii* Fernald ssp. *fallax* (Greene) Bayer & Stebbins (Parlin's pussytoes); P; F; MF; KES-408  
*Artemisia ludoviciana* Nutt. ssp. *mexicana* (Willd. ex Spreng.) D.D. Keck (white sagebrush); P; F; GL; KES-347  
*Berlandiera x betonicifolia* (Hook.) Small (Texas greeneyes); P; F; GL; KES-008  
*Bidens bipinnata* L. (Spanish needles); A; F; SBL; KES-012  
*Bradburia pilosa* (Nutt.) Semple (golden aster); A; F; GL; KES-031  
*Cirsium altissimum* (L.) Hill (tall thistle); B; F; UWL; KES-017  
*Cirsium undulatum* (Nutt.) Spreng. (wavyleaf thistle); P; F; GL; KES-013  
*Conoclinium coelestinum* (L.) DC. (mist flower); P; F; SBL; KES-019  
*Conyza canadensis* (L.) Cronquist (horseweed); A; F; GL; KES-370  
*Conyza ramosissima* Cronquist (dwarf horseweed); A; F; DA; KES-429  
*Diaperia verna* (Raf.) Morefield (spring pygmyweed); A; F; GL; KES-035  
*Echinacea angustifolia* DC. (blacksamson); P; F; GL; KES-021  
*Eclipta prostrata* (L.) L. (false daisy); A; F; HWV; KES-374  
*Elephantopus carolinianus* Raeusch. (elephant's foot); P; F; MF; KES-376  
*Erechtites hieraciifolius* (L.) Raf. ex DC. (American burnweed); A; F; GL; KES-423  
*Erigeron philadelphicus* L.; (Philadelphia fleabane); P; F; SBL; KES-039  
*Erigeron strigosus* Muhl. ex Willd. (prairie fleabane); A; F; GL; KES-003  
*Gaillardia aestivalis* (Walter) H. Rock (summer gaillardia); P; F; GL; KES-027  
*Gamochaeta purpurea* (L.) Cabrera (purple cudweed); P; F; GL; KES-313  
*Grindelia ciliata* (Nutt.) Spreng. (wax goldenweed); A; F; GL; KES-011  
*Helianthus annuus* L. (common sunflower); A; F; GL; KES-005  
*Helianthus maximiliani* Schrad. (Maximilian sunflower); P; F; GL; KES-346



*Helianthus mollis* Lam. (ashy sunflower); P; F; GL; KES-015  
*Heterotheca subaxillaris* (Lam.) Britt. & Rusby (camphorweed); A; F; GL; KES-344  
*Hieracium longipilum* Torr. (longbeard hawkweed); P; F; GL; KES-001  
*Krigia caespitosa* (Raf.) K.L. Chambers (common dwarf dandelion); A; F; GL; KES-395  
*Lactuca canadensis* L. (Canada lettuce); A; F; SBL; KES-368  
\**Lactuca serriola* L. (prickly lettuce); A; F; DA; KES-022  
*Liatris pycnostachya* Michx. (button snakeroot); P; F; GL; KES-363  
*Liatris squarrosa* (L.) Michx. (gayfeather); P; F; GL; KES-010  
*Pseudognaphalium obtusifolium* (L.) Hilliard & B.L. Burt (rabbit-tobacco); A; F; GL; KES-009  
*Pyrrhopappus carolinianus* (Walter) DC. (Carolina desert-chicory); A; F; GL; KES-294  
*Pyrrhopappus grandiflorus* (Nutt.) Nutt. (false dandelion); P; F; GL; KES-026  
*Ratibida columnifera* (Nutt.) Woot. & Standl. (yellow coneflower); P; F; GL; KES-033  
*Rudbeckia hirta* L. (black-eyed Susan); P; F; GL; KES-028  
*Silphium asteriscus* L. (starry rosinweed); P; F; GL; KES-430  
*Solidago missouriensis* Nutt. (Missouri goldenrod); P; F; GL; KES-034  
*Solidago radula* Nutt. (rough goldenrod); P; F; GL; KES-357  
*Solidago rigida* L. (stiff prairie goldenrod); P; F; GL; KES-366  
\**Sonchus asper* (L.) Hill (spiny sowthistle); A; F; DA; KES-303  
*Symphotrichum drummondii* (Lindl.) G.L. Nesom var. *texanum* (E.S. Burgess) G.L. Nesom (blue wood aster); P; F; UWL; KES-356  
*Symphotrichum ericoides* (L.) G.L. Nesom var. *ericoides* (heath aster); P; F; GL; KES-353  
*Symphotrichum patens* (Aiton) G.L. Nesom var. *patens* (spreading aster); P; F; GL; KES-425  
*Symphotrichum subulatum* (Michx.) G.L. Nesom (salt marsh aster); P; F; HWV; KES-018  
\**Taraxacum erythrospermum* Andr. ex Besser (rock dandelion); P; F; DA; KES-394  
*Tetranneuris linearifolia* (Hook.) Greene (fineleaf fournerved daisy); A; F; GL; KES-037  
#*Thelesperma filifolium* (Hook.) A. Gray (greenthread); P; F; GL; KES-411  
\**Tragopogon dubius* Scop. (yellow salsify); A; F; GL; KES-023  
*Verbesina virginica* L. (Virginia crownbeard); P; F; SBL; KES-020  
*Vernonia baldwinii* Torr. (western ironweed); P; F; GL; KES-007  
*Xanthium strumarium* L. (cocklebur); A; F; HWV; KES-371

### Boraginaceae

*Lithospermum incisum* Lehm. (narrowleaf puccoon); P; F; GL; KES-091

### Brassicaceae

\**Camelina microcarpa* DC. (littlepod false flax); A; F; GL; KES-079  
\**Capsella bursa-pastoris* (L.) Medik. (shepherd's purse); A; F; GL; KES-083  
*Cardamine pensylvanica* Muhl. ex Willd. (Pennsylvania bittercress); A; F; SBL; KES-088  
*Descurainia pinnata* (Walter) Britton (western tansymustard); A; F; GL; KES-089  
*Draba brachycarpa* Nutt. ex Torr. & A. Gray (shortpod draba); A; F; GL; KES-080  
*Draba cuneifolia* Nutt. ex Torr. & A. Gray (wedgeleaf draba); A; F; GL; KES-081  
*Lepidium austrinum* Small (southern pepperweed); A; F; DA; KES-084  
*Lepidium oblongum* Small (veiny pepperweed); A; F; GL; KES-082  
*Lepidium virginicum* L. (Virginia peppergrass); A; F; GL; KES-078  
*Physaria ovalifolia* (Rydb.) O'Kane & Al-Shehbaz ssp. *ovalifolia* (roundleaf bladderpod); P; F; GL; KES-086  
*Rorippa palustris* (L.) Besser ssp. *palustris* (bog yellowcress); A; F; HWV; KES-297

**Cactaceae**

- Escobaria missouriensis* (Sweet) D.R. Hunt (Missouri foxtail cactus); P; F; GL; KES-250  
*Opuntia humifusa* (Raf.) Raf. (devil's tongue); P; S; GL; KES-339

**Campanulaceae**

- Triodanis perfoliata* (L.) Nieuwl. ssp. *perfoliata* (clasping Venus' looking-glass); A; F; GL; KES-388

**Cannabaceae**

- Celtis laevigata* Willd. (sugarberry); P; T; SBL; KES-245

**Caprifoliaceae**

- \**Lonicera japonica* Thunb. (Japanese honeysuckle); P; V; SBL; KES-076  
*Symphoricarpos orbiculatus* Moench (coralberry); P; S; SBL; KES-075

**Caryophyllaceae**

- \**Arenaria serpyllifolia* L. (thyme-leaved sandwort); A; F; GL; KES-072  
 \**Cerastium pumilum* W. Curtis (European chickweed); A; F; GL; KES-073  
 \**Dianthus armeria* L. (Deptford pink); A; F; GL; KES-068  
*Minuartia michauxii* (Fenzl) Farw. (rock sandwort); P; F; GL; KES-382  
*Paronychia jamesii* Torr. & A. Gray (James' nailwort); P; F; GL; KES-069  
*Sagina decumbens* (Elliott) Torr. & A. Gray (beach pearlwort); A; F; GL; KES-071  
*Silene antirrhina* L. (sleepy catchfly); A; F; GL; KES-067  
 \**Stellaria media* (L.) Vill. (common chickweed); A; F; SBL; KES-074

**Commelinaceae**

- Commelina erecta* L. (whitemouth dayflower); P; F; SBL; KES-065  
*Tradescantia occidentalis* (Britton) Smyth (prairie spiderwort); P; F; GL; KES-316

**Convolvulaceae**

- Cuscuta cuspidata* Engelm. (cusp dodder); P; F; GL; KES-055  
*Cuscuta pentagona* Engelm. (fiveangled dodder); A; F; GL; KES-056  
 †*Ipomoea shumardiana* (Torr.) Shinnars (narrowleaf morning-glory); P; F; GL; KES-064; S3G2G3

**Cornaceae**

- Cornus drummondii* C.A. Mey. (rough-leaf dogweed); P; T; SBL; KES-062

**Cucurbitaceae**

- Cucurbita foetidissima* Kunth (buffalo gourd); P; F; GL; KES-240  
*Melothria pendula* L. (Guadeloupe cucumber); P; F; DA; KES-059

**Cupressaceae**

- Juniperus virginiana* L. (eastern red cedar); P; T; UWL; KES-057  
 ~*Taxodium distichum* (L.) Rich. (bald cypress); P; T; SBL; KES-431

**Cyperaceae**

- Carex aureolensis* Steud. (goldenfruit sedge); P; G; HWV; KES-139  
*Carex blanda* Dewey (eastern woodland sedge); P; G; UWL; KES-358

*Carex brevior* (Dewey) Mack. (shortbeak sedge); P; G; GL; KES-402  
*Carex cephalophora* Muhl. ex Willd. (oval-leaf sedge); P; G; MF; KES-403  
*Carex gravida* L.H. Bailey (heavy sedge); P; G; GL; KES-321  
*Cyperus acuminatus* Torr. & Hook. ex Torr. (taperleaf flatsedge); P; G; HWV; KES-319  
*Cyperus echinatus* (L.) Alph. Wood (globe flatsedge); P; G; GL; KES-138  
\*#*Cyperus esculentus* L. (chufa flatsedge); P; G; DA; KES-406  
*Cyperus lupulinus* (Spreng.) Marcks (Great Plains flatsedge); P; G; GL; KES-134  
*Cyperus squarrosus* L. (bearded flatsedge); A; G; HWV; KES-140  
†*Eleocharis geniculata* (L.) Roem. & Schult. (Canada spikesedge); A; G; HWV; KES-335  
*Eleocharis montevidensis* Kunth (sand spikesedge); P; G; HWV; KES-320  
*Eleocharis obtusa* (Willd.) Schult. (blunt spikesedge); A; G; HWV; KES-382  
*Eleocharis palustris* (L.) Roem. & Schult. (common spikerush); P; G; HWV; KES-137  
*Fimbristylis puberula* (Michx.) Vahl var. *puberula* (hairy fimbry); P; G; GL; KES-336  
*Fuirena simplex* Vahl var. *aristulata* (Torr.) Kral (umbrella sedge); P; G; HWV; KES-331  
*Lipocarpa drummondii* (Nees) G.C. Tucker (Drummond's halfchaff sedge); A; G; HWV; KES-325  
*Schoenoplectus pungens* (Vahl) Palla var. *longispicatus* (Britton) S.G. Sm. (common threesquare); P; G; HWV; KES-136  
*Scirpus atrovirens* Willd. (darkgreen bulrush); P; G; HWV; KES-135  
*Scleria ciliata* Nees (fringed nutrush); P; G; GL; KES-301

#### Ebenaceae

*Diospyros virginiana* L. (persimmon); P; T; SBL; KES-230

#### Elaeagnaceae

\**Elaeagnus umbellata* Thunb. (oleaster); P; S; SBL; KES-169

#### Equisetaceae

*Equisetum hyemale* L. ssp. *affine* (Engelm.) Calder & Roy (scouring horsetail); P; F; SBL; KES-133

#### Euphorbiaceae

*Acalypha ostryifolia* Riddell (pineland threeseed mercury); A; F; SBL; KES-122  
*Acalypha virginica* L. (Virginia threeseeded mercury); A; F; SBL; KES-131  
*Croton capitatus* Michx. (wooly croton); A; F; GL; KES-123  
*Croton glandulosus* L. (croton); A; F; GL; KES-121  
*Croton monanthogynus* Michx. (one-seed croton); A; F; GL; KES-127  
*Euphorbia corollata* L. (flowering spurge); P; F; GL; KES-124  
*Euphorbia dentata* Michx. (toothed spurge); A; F; SBL; KES-120  
*Euphorbia maculata* L. (spotted sandmat); A; F; GL; KES-129  
*Euphorbia marginata* Pursh (snow on the mountain); A; F; GL; KES-125  
*Euphorbia nutans* Lag. (eyebane); A; F; GL; KES-373  
*Euphorbia prostrata* Aiton (prostrate sandmat); A; F; GL; KES-132  
*Stillingia sylvatica* L. (queen's delight); P; F; GL; KES-126  
*Tragia betonicifolia* Nutt. (betonyleaf noseburn); P; F; GL; KES-130

#### Fabaceae

*Amorpha canescens* Pursh (leadplant); P; F; GL; KES-098  
*Amorpha fruticosa* L. (false indigo); P; S; HWV; KES-381

*Amphicarpaea bracteata* (L.) Fernald (hog peanut); A; F; MF; KES-112  
*Astragalus lotiflorus* Hook. (lotus milkvetch); P; F; GL; KES-115  
*Baptisia australis* (L.) R. Br. (blue wild indigo); P; F; GL; KES-390  
*Baptisia leucophaea* Nutt. (plains wild indigo); P; F; GL; KES-118  
*Cercis canadensis* L. (redbud); P; T; UWL; KES-119  
*Chamaecrista fasciculata* (Michx.) Greene (partridge pea); A; F; GL; KES-097  
*Dalea aurea* Nutt. ex Fraser (golden prairie clover); P; F; GL; KES-104  
*Dalea candida* Michx. ex Willd. (white prairie clover); P; F; GL; KES-101  
*Dalea enneandra* Nutt. ex Fraser (nine-anther prairie clover); P; F; GL; KES-092  
*Dalea purpurea* Vent. (purple prairie clover); P; F; GL; KES-107  
*Desmanthus illinoensis* (Michx.) MacMill. ex B.L. Rob. & Fernald (bundleflower); P; F; GL; KES-111  
*Desmodium glutinosum* (Muhl. ex Willd.) Alph. Wood (large-flowered tickclover); P; F; MF; KES-249  
† *Desmodium nuttallii* (Schindl.) B.G. Schub. (Nuttall's ticktrefoil); P; F; GL; KES-113; S1G5  
*Desmodium sessilifolium* (Torr.) Torr. & A. Gray (sessile tickclover); P; F; GL; KES-105  
*Indigofera miniata* Ortega (coastal indigo); P; F; GL; KES-110  
\* *Kummerowia stipulacea* (Maxim.) Makino (Korean clover); A; F; GL; KES-305  
\* *Lathyrus hirsutus* L. (Caley pea); A; F; GL; KES-306  
*Lespedeza capitata* Michx. (bush clover); P; F; GL; KES-378  
\* *Lespedeza cuneata* (Dum. Cours.) G. Don (sericea lespedeza); P; F; GL; KES-103  
*Lespedeza procumbens* Michx. (trailing lespedeza); P; F; MF; KES-367  
*Lespedeza stuevei* Nutt. (Stueve's lespedeza); P; F; UWL; KES-369  
\* *Medicago minima* (L.) L. ex Bartal. (small medic); A; F; GL; KES-117  
\* *Melilotus albus* Medik. (white sweetclover); A; F; GL; KES-432  
\* *Melilotus officinalis* (L.) Lam. (yellow sweetclover); A; F; GL; KES-096  
*Mimosa nuttallii* (DC. ex Britton & Rose) B.L. Turner (sensitive briar); P; F; GL; KES-094  
*Oxytropis lambertii* Pursh (purple locoweed); P; F; GL; KES-386  
*Psoraleidum tenuiflorum* (Pursh) Rydb. (wild alfalfa); P; F; GL; KES-100  
*Robinia pseudoacacia* L. (black locust); P; T; UWL; KES-114  
\* *Securigera varia* (L.) Lassen (crownvetch); P; F; GL; KES-109  
*Strophostyles helvola* (L.) Elliott (wild bean); A; F; GL; KES-106  
*Strophostyles leiosperma* (Torr. & A. Gray) Piper (smoothseed wild bean); A; F; GL; KES-377  
\* *Vicia sativa* L. (common vetch); A; F; GL; KES-116  
\* *Vicia villosa* Roth (winter vetch); A; F; GL; KES-396

### Fagaceae

*Quercus macrocarpa* Michx. (bur oak); P; T; MF; KES-235  
*Quercus marilandica* Münchh. (blackjack oak); P; T; UWL; KES-231  
*Quercus muehlenbergii* Engelm. (chinquapin oak); P; T; MF; KES-234

### Gentianaceae

*Eustoma exaltatum* (L.) Salisb. ex G. Don ssp. *russellianum* (Hook.) Kartesz (showy prairie gentian); A; F; GL; KES-375  
*Sabatia campestris* Nutt. (pink gentian); A; F; GL; KES-150

### Geraniaceae

\* *Erodium cicutarium* (L.) L'Hér. ex Aiton (redstem stork's bill); A; F; DA; KES-149  
*Geranium texanum* (Trel.) A. Heller (Texas geranium); A; F; GL; KES-148

### Haloragaceae

\**Myriophyllum spicatum* L. (Eurasian water-milfoil); P; F; HWV; KES-341

### Heliotropiaceae

*Heliotropium tenellum* (Nutt.) Torr. (pasture heliotrope); A; F; GL; KES-090

### Hydrocharitaceae

*Najas guadalupensis* (Spreng.) Magnus (southern waternymph); A; F; HWV; KES-311

### Hypericaceae

*Hypericum drummondii* (Grev. & Hook.) Torr. & A. Gray (nits-and-lice); A; F; GL; KES-380

### Iridaceae

\**Iris germanica* L. (German iris); P; F; SBL; KES-439

*Sisyrinchium angustifolium* Mill. (blue-eyed grass); P; F; GL; KES-146

### Juglandaceae

*Carya illinoensis* (Wangenh.) K. Koch; (pecan); P; T; SBL; KES-323

### Juncaceae

*Juncus brachyphyllus* Wiegand (tuftedstem rush); P; G; HWV; KES-145

*Juncus dudleyi* Wiegand (Dudley's rush); P; G; GL; KES-398

*Juncus interior* Wiegand (inland rush); P; G; GL; KES-397

*Juncus marginatus* Rostk. (grassleaf rush); P; G; HWV; KES-144

*Juncus torreyi* Coville (Torrey's rush); P; G; HWV; KES-143

### Krameriaceae

*Krameria lanceolata* Torr. (trailing ratany); P; F; GL; KES-164

### Lamiaceae

*Hedeoma drummondii* Benth. (false pennyroyal); P; F; GL; KES-161

*Hedeoma hispida* Pursh (rough pennyroyal); A; F; GL; KES-159

\**Lamium amplexicaule* L. (henbit deadnettle); A; F; GL; KES-162

\**Lamium purpureum* L. (purple deadnettle); A; F; SBL; KES-163

*Lycopus americanus* Muhl. ex W.P.C. Bartram (American bugleweed); P; F; HWV; KES-158

*Monarda clinopodioides* A. Gray (basil beebalm); A; F; GL; KES-160

*Monarda fistulosa* L. (wild bergamot); P; F; GL; KES-156

*Salvia azurea* Michx. ex Lam. (blue sage); P; F; GL; KE-157

*Teucrium canadense* L. (American germander); P; F; HWV; KES-155

### Linaceae

*Linum sulcatum* Riddell (grooved flax); A; F; GL; KES-151

### Lythraceae

*Ammannia coccinea* Rottb. (valley redstem); A; F; HWV; KES-364

**Malvaceae***Callirhoe involucrata* (Torr. & A. Gray) A. Gray (winecup); P; F; GL; KES-168**Menispermaceae***Cocculus carolinus* (L.) DC. (Carolina snailseed); P; F; UWL; KES-233**Molluginaceae***Mollugo verticillata* L. (green carpetweed); A; F; DA; KES-167**Montiaceae***Claytonia virginica* L. (springbeauty); P; F; GL; KES-282*Phemeranthus parviflorus* (Nutt.) Kiger (sunbright); P; F; GL; KES-317**Moraceae***Maclura pomifera* (Raf.) C.K. Schneid. (bois d'arc); P; T; SBL; KES-248\**Morus alba* L. (white mulberry); P; T; DA; KES-166*Morus rubra* L. (red mulberry); P; T; SBL; KES-165**Nyctaginaceae***Mirabilis albida* (Walter) Heimerl (white four o'clock); P; F; GL; KES-361*Mirabilis linearis* (Pursh) Heimerl (narrowleaf four o'clock); P; F; GL; KES-383**Oleaceae***Fraxinus pennsylvanica* Marsh. (green ash); P; T; SBL; KES-379**Onagraceae***Oenothera berlandieri* (Spach) Steud. ssp. *berlandieri* (Spach) Steud. (Berlandier's sundrops); P; F; GL; KES-218*Oenothera curtiflora* W.L. Wagner & Hoch (velvety gaura); A; F; GL; KES-217*Oenothera glaucifolia* W.L. Wagner & Hoch (false gaura); P; F; GL; KES-221*Oenothera laciniata* Hill (cut-leaf evening primrose); P; F; GL; KES-220*Oenothera macrocarpa* Nutt. (large-fruited evening primrose); P; F; GL; KES-219*Oenothera rhombipetala* Nutt. ex Torr. & A. Gray (fourpoint evening primrose); P; F; GL; KES-222*Oenothera sinuosa* W.L. Wagner & Hoch (wavyleaf gaura); P; F; GL; KES-223*Oenothera triangulata* (Buckley) W.L. Wagner & Hoch (prairie beeblossom); A; F; GL; KES-391**Ophioglossaceae***Ophioglossum engelmannii* Prantl (limestone adder's tongue); P; F; GL; KES-216**Orchidaceae***Spiranthes cernua* (L.) Rich. (nodding lady's tresses); P; F; GL; KES-385**Orobanchaceae***Agalinis heterophylla* (Nutt.) Small (prairie false foxglove); A; F; GL; KES-381*Buchnera americana* L. (American blue hearts); P; F; GL; KES-266*Castilleja indivisa* Engelm. (Indian paintbrush); A; F; GL; KES-267

### Oxalidaceae

*Oxalis corniculata* L. (yellow wood-sorrel); P; F; GL; KES-215

*Oxalis violacea* L. (violet wood-sorrel); P; F; GL; KES-384

### Penthoraceae

*Penthorum sedoides* L. (ditch stonecrop); P; F; HWV; KES-061

### Phymaceae

*Phryma leptostachya* L. (American lopseed); P; F; MF; KES-293

### Phytolaccaceae

*Phytolacca americana* L. (pokeweed); P; F; DA; KES-334

### Plantaginaceae

*Leucospora multifida* (Michx.) Nutt. (narrowleaf paleseed); A; F; HWV; KES-265

*Nuttallanthus texanus* (Scheele) D.A. Sutton (Texas toadflax); B; F; GL; KES-392

*Penstemon cobaea* Nutt. (large beardtongue); P; F; GL; KES-385

*Plantago aristata* Michx. (bottlebrush plantain); A; F; GL; KES-289

† *Plantago elongata* Pursh ssp. *elongata* (prairie plantain); A; F; GL; KES-290; S3T3G4T4

*Plantago patagonica* Jacq. (wooly plantain); A; F; GL; KES-309

*Plantago rhodosperma* Decne. (redseed plantain); A; F; GL; KES-291

*Plantago rugelii* Decne. (blackseed plantain); P; F; SBL; KES-433

\* *Veronica arvensis* L. (common speedwell); A; F; GL; KES-268

\*# *Veronica peregrina* L. (purslane speedwell); A; F; GL; KES-410

### Platanaceae

*Platanus occidentalis* L. (American sycamore); P; T; SBL; KES-389

### Poaceae

\* *Aegilops cylindrica* Host (jointed goatgrass); A; G; GL; KES-170

*Agrostis hyemalis* (Walter) Britton, Sterns & Poggenb. (ticklegrass); P; G; GL; KES-214

*Andropogon gerardii* Vitman (big bluestem); P; G; GL; KES-213

*Andropogon ternarius* Michx. (splitbeard bluestem); P; G; GL; KES-351

*Andropogon virginicus* L. (broomsedge); P; G; GL; KES-424

*Aristida longespica* Poir. (slimspike threeawn); A; G; GL; KES-178

*Aristida purpurea* Nutt. var. *longiseta* (Steud.) Vasey (Fendler threeawn); P; G; GL; KES-211

*Aristida purpurea* Nutt. var. *purpurea* (purple threeawn); P; G; GL; KES-175

\* *Bothriochloa ischaemum* (L.) Keng (yellow bluestem); P; G; GL; KES-210

*Bothriochloa laguroides* (DC.) Herter var. *torreyana* (Steud.) M. Marchi & Longhi-Wagner (silver beardgrass); P; G; GL; KES-209

*Bouteloua curtipendula* (Michx.) Torr. (sideoats grama); P; G; GL; KES-208

*Bouteloua dactyloides* (Nutt.) Columbus (buffalo grass); P; G; GL; KES-376

*Bouteloua gracilis* (Kunth) Lag. ex Griffiths (blue grama); P; G; GL; KES-207

*Bouteloua hirsuta* Lag. (hairy grama); P; G; GL; KES-206

*Bouteloua rigidiseta* (Steud.) Hitchc. (Texas grama); P; G; GL; KES-205

\* *Bromus arvensis* L. (field brome); A; G; GL; KES-204

\* *Bromus catharticus* Vahl (rescue grass); A; G; GL; KES-173

- Bromus pubescens* Muhl. ex Willd. (Canada brome); P; G; UWL; KES-203  
 \**Bromus tectorum* L. (cheatgrass); A; G; GL; KES-174  
*Cenchrus spinifex* Cav. (coastal sandbur); P; G; GL; KES-383  
*Chasmanthium latifolium* (Michx.) H.O. Yates (inland sea oats); P; G; SBL; KES-202  
*Chloris verticillata* Nutt. (windmill grass); P; G; GL; KES-201  
*Chloris virgata* Sw. (feather fingergrass); A; G; GL; KES-434  
*Coleataenia anceps* (Michx.) Soreng (beaked panicgrass); P; G; HWV; KES-187  
 \**Cynodon dactylon* (L.) Pers. (Bermuda grass); P; G; GL; KES-228  
*Dichantherium acuminatum* (Sw.) Gould & C.A. Clark var. *lindheimeri* (Nash) Gould & C.A. Clark  
 (Lindheimer panicgrass); P; G; GL; KES-296  
*Dichantherium malacophyllum* (Nash) Gould (softleaf rosette grass); P; G; UWL; KES-194  
*Dichantherium oligosanthes* (Schult.) Gould var. *oligosanthes* (Heller's rosette grass); P; G; GL; KES-193  
*Dichantherium sphaerocarpon* (Elliott) Gould (roundseed panicgrass); P; G; GL; KES-426  
*Digitaria ciliaris* (Retz.) Pers. (southern crabgrass); A; G; GL; KES-435  
*Digitaria cognata* (Schult.) Pilg. (fall witchgrass); P; G; GL; KES-198  
*Distichlis spicata* (L.) Greene (saltgrass); P; G; GL; KES-378  
*Echinochloa muricata* (P. Beauv.) Fernald (rough barnyard grass); A; G; HWV; KES-298  
*Elymus canadensis* L. (Canada wildrye); P; G; GL; KES-197  
*Elymus virginicus* L. (Virginia wild rye); P; G; UWL; KES-196  
 \**Eragrostis cilianensis* (Bellardi) Vignolo ex Janch. (stinkgrass); A; G; GL; KES-384  
*Eragrostis curtipedicellata* Buckley (gummy lovegrass); P; G; GL; KES-192  
 \**Eragrostis curvula* (Schrad.) Nees (weeping lovegrass); P; G; GL; KES-329  
*Eragrostis hirsuta* (Michx.) Nees (bigtop lovegrass); P; G; GL; KES-191  
*Eragrostis secundiflora* J. Presl ssp. *oxylepis* (Torr.) S.D. Koch (red lovegrass); P; G; GL; KES-190  
*Eragrostis sessilispica* Buckley (tumble lovegrass); P; G; GL; KES-200  
 #*Eragrostis trichodes* (Nutt.) Alph. Wood (sand lovegrass); P; G; GL; KES-412  
*Hordeum pusillum* Nutt. (little barley); A; G; GL; KES-377  
*Leersia virginica* Willd. (whitegrass); P; G; HWV; KES-189  
 \**Lolium perenne* L. (perennial ryegrass); P; G; GL; KES-188  
*Mnesithea cylindrica* (Michx.) de Koning & Sosef (mousetail); P; G; GL; KES-199  
 #*Muhlenbergia capillaris* (Lam.) Trin. (hairawn muhly); P; G; GL; KES-199  
*Muhlenbergia paniculata* (Nutt.) Columbus (tumblegrass); P; G; DA; KES-330  
*Panicum capillare* L. (witchgrass); A; G; GL; KES-186  
*Panicum philadelphicum* Bernh. ex Trin. (Philadelphia witchgrass); A; G; GL; KES-345  
*Panicum virgatum* L. (switchgrass); P; G; GL; KES-185  
 \**Paspalum dilatatum* Poir. (Dallis grass); P; G; GL; KES-184  
*Paspalum distichum* Houtt. (knotgrass); P; G; GL; KES-183  
*Paspalum setaceum* Michx. (thin paspalum); P; G; GL; KES-182  
*Phalaris caroliniana* Walter (maygrass); A; G; GL; KES-386  
 \**Poa annua* L. (annual bluegrass); A; G; GL; KES-172  
*Schizachyrium scoparium* (Michx.) Nash (little bluestem); P; G; GL; KES-181  
*Setaria parviflora* (Poir.) Kerguelen (knotroot foxtail); P; G; GL; KES-326  
 \**Setaria viridis* (L.) P. Beauv. (green bristlegrass); A; G; GL; KES-315  
*Sorghastrum nutans* (L.) Nash (Indian grass); P; G; GL; KES-372  
 \**Sorghum halepense* (L.) Pers. (Johnson grass); P; G; GL; KES-180  
*Sphenopholis obtusata* (Michx.) Scribn. (prairie wedgescale); P; G; HWV; KES-176  
*Sporobolus cryptandrus* (Torr.) A. Gray (sand dropseed); P; G; GL; KES-314



*Sporobolus pyramidatus* (Lam.) Hitchc. (Madagascar dropseed); P; G; GL; KES-179  
*Tridens flavus* (L.) Hitchc. (purpletop); P; G; GL; KES-177  
*Vulpia octoflora* (Walter) Rydb. (poverty grass); A; G; GL; KES-171

### Polygalaceae

*Polygala alba* Nutt. (white milkwort); P; F; GL; KES-288  
*Polygala incarnata* L. (pink milkwort); A; F; GL; KES-287  
*Polygala verticillata* L. (whorled milkwort); A; F; GL; KES-286

### Polygonaceae

*Eriogonum annuum* Nutt. (annual buckwheat); A; F; GL; KES-355  
*Eriogonum longifolium* Nutt. (longleaf buckwheat); P; F; GL; KES-284  
\**Fallopia convolvulus* (L.) Á. Löve (black bindweed); A; F; GL; KES-312  
*Persicaria lapathifolia* (L.) Gray (pale smartweed); A; F; HWV; KES-229  
*Persicaria punctata* (Elliott) Small (dotted smartweed); A; F; HWV; KES-285  
*Polygonum ramosissimum* Michx. (bushy knotweed); A; F; DA; KES-360  
\**Rumex crispus* L. (curly dock); P; F; HWV; KES-283  
#*Rumex hastatulus* Baldwin (heartwing sorrel); P; F; GL; KES-409

### Potamogetonaceae

*Potamogeton nodosus* Poir. (longleaf pondweed); P; F; HWV; KES-322

### Primulaceae

*Samolus valerandi* L. (smallflower brookweed); P; F; HWV; KES-295

### Ranunculaceae

*Anemone berlandieri* Pritz. (ten-petal windflower); P; F; GL; KES-281  
*Delphinium carolinianum* Walter ssp. *virescens* (Nutt.) R.E. Brooks (Carolina larkspur); P; F; GL; KES-391

### Rosaceae

*Geum canadense* Jacq. (white avens); P; F; MF; KES-304  
\**Potentilla recta* L. (erect cinquefoil); P; F; GL; KES-280  
*Prunus angustifolia* Marshall (Chickasaw plum); P; S; GL; KES-226  
*Prunus mexicana* S. Watson (Mexican plum); P; T; GL; KES-241  
\**Pyrus calleryana* Decne. (Callery pear); P; T; UWL; KES-278  
*Rosa foliolosa* Nutt. ex Torr. & A. Gray (prairie rose); P; F; GL; KES-224  
\**Rosa multiflora* Thunb. (multiflora rose); P; V; SBL; KES-277  
*Rubus pensilvanicus* Poir. (Oklahoma blackberry); P; S; GL; KES-436

### Rubiaceae

*Cephalanthus occidentalis* L. (buttonbush); P; S; HWV; KES-337  
\**Cruciata pedemontana* (Bellardi) Ehrend. (piedmont bedstraw); A; F; GL; KES-275  
*Diodella teres* (Walter) Small (poor-joe); A; F; GL; KES-272  
*Galium aparine* L. (catchweed bedstraw); A; F; GL; KES-276  
*Galium virgatum* Nutt. (southwest bedstraw); A; F; GL; KES-271  
*Houstonia pusilla* Schoepf (prairie bluets); A; F; GL; KES-274  
*Stenaria nigricans* (Lam.) Terrell var. *nigricans* (diamond flowers); P; F; GL; KES-273

**Salicaceae***Populus deltoides* W. Bartram ex Marshall (cottonwood); P; T; SBL; KES-236*Salix exigua* Nutt. (narrowleaf willow); P; T; HWV; KES-270*Salix nigra* Marshall (black willow); P; T; HWV; KES-269**Sapindaceae***Acer negundo* L. (boxelder); P; T; SBL; KES-247*Sapindus saponaria* L. var. *drummondii* (Hook. & Arn.) L.D. Benson (western soapberry); P; T; UWL; KES-246**Sapotaceae***Sideroxylon lanuginosum* Michx. (chittamwood); P; T; UWL; KES-237**Smilacaceae***Smilax bona-nox* L. (greenbrier); P; F; UWL; KES-264*Smilax rotundifolia* L. (roundleaf greenbrier); P; F; UWL; KES-300*Smilax tamnoides* L. (bristly greenbrier); P; F; UWL; KES-350**Solanaceae**\*# *Lycium barbarum* L. (common matrimonyvine); P; S; unknown habitat; KES-427*Physalis cinerascens* (Dunal) Hitchc. (smallflower groundcherry); P; F; GL; KES-260*Solanum dimidiatum* Raf. (horsenettle); P; F; GL; KES-262*Solanum elaeagnifolium* Cav. (silverleaf nightshade); P; F; GL; KES-263*Solanum rostratum* Dunal (buffalo bur); A; F; DA; KES-225**Ulmaceae***Ulmus americana* L. (American elm); P; T; SBL; KES-238\* *Ulmus pumila* (Siberian elm); P; T; DA; KES-437*Ulmus rubra* Muhl. (slippery elm); P; T; SBL; KES-387**Urticaceae***Parietaria pensylvanica* Muhl. ex Willd. (Pennsylvania pellitory); A; F; SBL; KES-243**Valerianaceae***Valerianella amarella* (Lindh. ex Engelm.) Krok (hairy cornsalad); A; F; GL; KES-257*Valerianella radiata* (L.) Dufur. (beaked cornsalad); A; F; GL; KES-258**Verbenaceae***Glandularia pumila* (Rydb.) Umber (pink mock vervain); A; F; GL; KES-256*Phyla lanceolata* (Michx.) Greene (lanceleaf fogfruit); P; F; HWV; KES-254*Verbena bracteata* Cav. ex Lag. & Rodr. (bigbract verbena); A; F; GL; KES-232*Verbena halei* Small (slender verbena); P; F; GL; KES-255**Violaceae***Viola bicolor* Pursh (Johnny jump-up); A; F; GL; KES-253*Viola sororia* Willd. var. *missouriensis* (Greene) L.E. McKinney (common blue violet); P; F; MF; KES-252

### **Vitaceae**

*Ampelopsis cordata* Michx. (heartleaf peppervine); P; V; SBL; KES-388

*Parthenocissus quinquefolia* (L.) Planch. (Virginia creeper); P; V; SBL; KES-244

*Vitis cinerea* (Engelm.) Engelm. ex Millard (graybark grape); P; V; SBL; KES-251

*Vitis vulpina* L. (frost grape); P; V; SBL; KES-302

### **Xanthorrhoeaceae**

\**Hemerocallis fulva* (L.) L. (orange daylily); P; F; SBL; KES-440