

**VASCULAR PLANT SURVEY
OF THE NEOSHO BOTTOMS MANAGEMENT AREA
(GRAND RIVER DAM AUTHORITY)
IN OTTAWA COUNTY, OKLAHOMA**

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ABSTRACT

The vascular plant diversity of the Neosho Bottomlands Management Area of the Grand River Dam Authority in northeast Oklahoma, west of Miami (Ottawa County), was documented between October 2014 and November 2016. 937 specimens were obtained from an area of 1021.5 hectares. We documented 460 unique taxa (species, subspecies, varieties) representing 80 families, 254 genera, 450 species, and 10 non-nominal infraspecific taxa. The 78 species and infraspecific taxa exotic to North America represent 16.9% of the total taxa. Twelve species are considered “noxious” by various sources. Five state records were found for Oklahoma, including *Arenaria serpyllifolia* var. *tenuior*, *Carex sparganioides*, *Cerastium semidecandrum*, *Crataegus phaneropyrum*, and *Trifolium aureum* — of these, only the two species of *Carex* are native. In addition to the new state records, 100 taxa were documented for the first time in Ottawa County, 23 of which were non-native. An Annotated Checklist of the taxa is included as an Appendix. Our study increased the number of known unique taxa of vascular plants in Ottawa County by 105 to a total of 1025, representing an increase of 11.4% over its earlier total of 920 species. The large number of state and county level records justifies additional floristic studies in poorly surveyed areas and peripheral regions of states, especially when distant from active herbaria and given that modern distributional data of plants are useful to others besides taxonomists, such as by land use managers.

The Grand River Dam Authority (GRDA) in Oklahoma is a state agency established by the Oklahoma legislature in 1935. Headquartered in Vinita, Oklahoma, it maintains the Grand River waterway in northeast Oklahoma, an area that encompasses all or parts of 24 counties in the state. Its major impoundments include Grand Lake, Lake Hudson, and the Salina Pumped Storage Project.

Among the land holdings of GRDA are numerous, relatively small parcels occurring west of Miami, Ottawa Co., along or near the Neosho River (Figure 1). Ottawa County is the most northeasterly county in Oklahoma and shares its eastern border with McDonald and Newton counties of Missouri and its northern boundary with Cherokee Co., Kansas. The small parcels are known informally as the Neosho Bottoms Management Area (NBMA). They often experience mild to moderate seasonal flooding after high rainfall events that occur mostly in late spring and early summer. Moderate flooding occurred during 2015 and 2016, our two major field seasons, which prevented access to collecting across some areas of the property for up to three weeks. The parcels mostly comprise abandoned or only lightly grazed pastures, active and abandoned pecan groves, and bottomland mixed hardwood forests. A few upland sites somewhat distant from the lower elevations closer to the Neosho River were heavily infested with *Sericea lespedeza* (*Lespedeza cuneata* [see Annotated Checklist for nomenclatural authorities]). As our fieldwork was concluding, some

abandoned pastures were being cleared and burned for grazing via leases (A. Roper, GRDA, pers. comm. 2017), but we did not encounter cleared or burned pastures during our fieldwork.

A contractual agreement was signed between GRDA and Pittsburg State University (Pittsburg, Kansas) to inventory the native and non-native vascular plants currently growing on these properties during 2015 and 2016, although some initial collecting occurred in 2014. The purposes of the project were to provide an annotated checklist of vascular plants occurring on the parcels and to provide a reference collection of herbarium specimens for GRDA for its research headquarters in Langley, Oklahoma.

MATERIALS AND METHODS

The study area occurs west of Miami (Figure 1), the county seat of Ottawa County, which has a current population of approximately 13,500 residents based on the 2010 US Census data. The NBMA consists of fourteen parcels of land spread across a north-south axis of ca. 7.4 km (ca. 4.6 miles) and an east-west axis of ca. 4.83 km (ca. 3.0 miles) (Figure 1). All parcels included in this study are located east of South 520 Road. Most also occur west of South 540 Road, with the exception of an outlying parcel bounded on the east by P Street NW (in Miami) somewhat north (but mostly south) of P Street's T-intersection with the east-west oriented West Veteran's Avenue. Apart from one small pasture adjoining it to the north, the parcels occur south of East 65 Road, north of US Hwy 59. All parcels lie north of US Hwy 59/East 110 Road, including the southernmost parcel, which adjoins the highway on its southern boundary. Most of the parcels adjoin one another on at least one border, if one includes those bisected by the Neosho River. A second outlying (non-adjacent) parcel occurs to the southwest of where South 540 Road terminates, ca. 1.0 km due north of a northeast trending bend of the Neosho River. The area we surveyed comprises approximately 1021.5 hectares (ca. 2524 acres).

Our objective in the field was to survey for vascular plants over two complete growing seasons and to obtain at least one specimen of all native, non-native, and naturalizing ornamental plant species occurring in the area. No attempt was made to describe or quantify any aspect of the vegetation ecologically.

Specimens were collected during 2014 (October), 2015 (April through October), and 2016 (April through November), representing 28 separate collecting trips, wherein each trip refers to a single day in the field. Approximately 945 separate specimens were obtained, but a few were discarded due to their sterile condition or if all reproductive material broke off and was lost after pressing and drying. Collecting activities on a given day lasted approximately 2-10 hours, with most being approximately 8 hours. Field trips included from one to three individuals working (mostly) together or occasionally apart. Most collecting was done by the first three authors (see also Acknowledgements). The number of days collected by month included April (4 days), May (5), June (3), July (4), August (6), September (3), October (1), and November (2). On shorter-duration trips, or with specimens that are best preserved if pressed immediately (e.g., specimens of *Sisyrinchium*), pressing sometimes was done the day of the collecting. However, most specimens were kept in plastic bags on ice in coolers overnight and pressed indoors at Pittsburg State University the day after collecting, removed from the physical elements (heat, wind, rain insects) and allowing for more careful pressing and entry or annotation of information in collecting books.

We used the method of "intelligent meandering" to collect the highest possible percentage of plant species growing in the area, wherein collectors walk across parcels through different habitat types at different times during the flowering season to collect at least one of each plant taxon. We did not repeatedly re-collect taxa that were readily identifiable by the naked eye and unlikely to be confused with other species (e.g., the early-blooming and quite distinct species *Phlox divaricata*). However, when in doubt we erred on the conservative side and collected the plant (e.g., species of *Carex*).

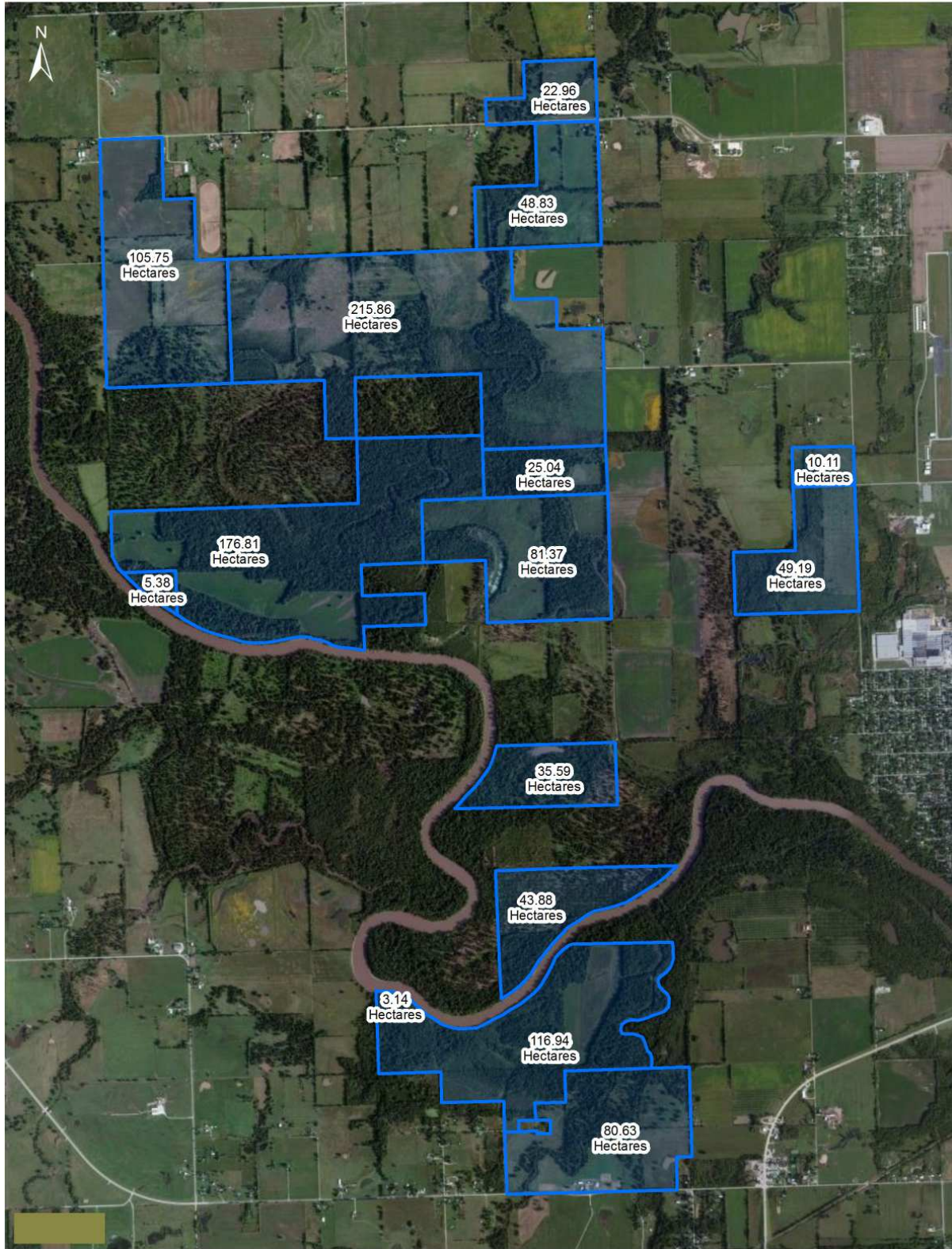


Figure 1. Parcels (outlined in blue) of the Neosho Bottoms Management Area (Grand River Dam Authority) surveyed for vascular plants, west of Miami, Oklahoma

The first set of herbarium specimens was deposited at the T.M. Sperry Herbarium (KSP, following Thiers 2017) at Pittsburg State University. One duplicate specimen for each taxon (if available) was transferred in a Reference Collection (Snow 2016) to GRDA in Langley, Oklahoma, for future researchers working on projects in the Neosho Bottomlands Management Area. Collection numbers for this project include those Chance Curran (1–353); “Sperry Herbarium Staff” (GRDA 332–542), which were collected by Sam Young but numbered separately from her personal collections; Neil Snow (10787–10813, 10815–10868, 10882–10972); and Karen Stoehr (58–303). Geo-coordinates and elevations were obtained using a hand-held Garmin Montana®, Google Earth maps, or smart phones using WGS84. Specimen data were entered into an Excel spreadsheet following DarwinCore standards (<http://rs.tdwg.org/dwc/>) and uploaded to Symbiota at Arizona State University (<http://Symbiota.org>; Gries et al. 2014), the data of which can be accessed from the Consortium of Northern Great Plains Herbaria (<http://ngpsherbaria.org/portal/index.php>). Specimen labels were generated from the Symbiota data portal.

Most identifications relied on Yatskievych (1999, 2006, 2013) as the primary authority, given the proximity of Ottawa County to Missouri, the comprehensive taxonomic details, and relatively recent publication of these three volumes. Secondary sources for identifications or corroboration of identifications from separate sources (especially for the genera *Dichanthelium* and *Carex*), included several volumes of Flora of North America North of Mexico, Flora of The Great Plains (GPFA 1986), Shinnery and Mahler’s Illustrated Flora of North Central Texas (Diggs et al. 1999), and Flora of Virginia (Weakly et al. 2012).

Although nearly all taxa were identified with a confidence, specific and infraspecific boundaries in *Dichanthelium* continue to be the most difficult and elusive of all North American genera of grasses. Each taxonomic treatment varies substantively in certain ways, and portions of the genus are being actively studied (e.g., Thomas 2015). For this treatment we used primarily the keys in Flora of North America North of Mexico (Freckmann & Lelong 2003) but followed the infraspecific taxa recognized by Kartesz (2017). Given the first author’s ontological aversion of recognizing varieties within subspecies (Snow 1997) or, in other words, of accepting taxonomic quadrinomials, for a few genera such as *Symphyotrichum* (Asteraceae), wherein Kartesz (2017) recognizes taxa using both levels, we followed the taxonomy of Yatskievych (2006). In a few instances we included a synonym, as for example when the name reported here is unlikely to occur yet in any regional printed references (e.g., *Buglossoides arvensis* [syn. *Lithospermum arvense*]).

Plant distributions at the state and county levels were based on Kartesz (2017), but we also consulted the Oklahoma Vascular Plants Database of Oklahoma Natural Heritage Inventory (ONHI 2017). Apart from easily confirmed specimens, those representing state records for Oklahoma or records for Ottawa County were compared with authenticated (annotated) specimens in the Missouri-Illinois reference collection at the Missouri Botanical Garden by the first author in November 2016 or the second author in January 2017.

RESULTS

A total of 460 unique taxa of vascular plants (species, subspecies, and varieties) were collected. The taxonomic diversity was spread across 80 families (following APG IV [2016]) and 254 genera, representing 937 separate numbered specimens. Of these, 78 taxa (ca. 16.9%) are not considered native to North America. Our tally of 937 specimens represents an average of approximately 92 collections per square kilometer.

Rank-ordered, the ten most diverse families were Poaceae (67 unique taxa), Asteraceae (52), Cyperaceae (37), Plantaginaceae (14), Lamiaceae (13), Polygonaceae (13), Rosaceae (13), Caryophyllaceae (11), Ranunculaceae (11) and Rubiaceae (10). Collectively, these ten families comprised approximately 52.4% of the unique taxa.

The percentages of non-native taxa among these varied significantly, ranging from 2.6% (1 of 39 taxa) in Cyperaceae and 3.9% in Asteraceae, to 44.4% (Fabaceae) and 81.8% (9 of 11 taxa) in Caryophyllaceae. The largest family Poaceae, included 26.4% non-native taxa.

The ten most diverse genera (including ties) comprised 16.9% of the taxa (78 of 460 taxa), including: *Carex* (26 unique taxa [none non-native]), *Juncus* (9 [0]), *Ranunculus* (9 [1]) *Periscaria* (7 [1]), *Dichantheium* (7 [0]), *Trifolium* (7 [6]), *Croton* (6 [0]), *Plantago* (5 [1]), *Galium* (5 [1]) and *Cerastium* (5 [4]). The percentage of non-native taxa among the ten most diverse genera collectively was only 17.9% (14 of 78 taxa).

None of the Rare or Vulnerable plant species monitored by the US Fish and Wildlife Service were collected (ONHI 2017). Species currently tracked by the Oklahoma Natural Heritage Survey that were collected, including their State and Global ranks (in parentheses), included *Allium triviale* (S2, G5), *Sagittaria ambigua* (S2, G2?), *Iodanthus pinnatifidus* (S2, G5), *Carex cephalophora* (SNR, G5), *Carex oklahomensis* (S2, G4), *Carya aquatica* (S1, G5), *Forestiera acuminata* (S2, G5), *Dasistoma macrophylla* (S3, G4), *Phanopyrum gymnocarpum* (S1, G5), and *Rumex verticillatus* (S3, G5).

Twelve taxa designated as noxious in Oklahoma by either FOK (2017) or Kartesz (2017) were collected (see Checklist) and are noted for future management considerations of the NBMA. Designations of “noxious” are not always consistent between states, but among those listed by Kartesz (2017) only two are non-native; *Solanum carolinense* var. *carolinense* and *S. elaeagnifolium* are native.

Species of *Rubus* (blackberries) are among the most difficult to identify in North America. Characters typically needed to identify species confidently include growth habit, differentiating between primocanes (first year’s growth) and floricanes (flowering, second year’s growth), whether canes grow horizontally and root at the nodes, whether canes are mostly straight or arching, and other characters (Widrechner 2013). Even with authenticated comparative material in the Missouri-Illinois Collection at Missouri Botanical Garden, few specimens could be identified confidently to species level. Specimens of the genus from the 4-state area (KS, OK, MO, AR) are being studied actively by Mark Widrechner at Iowa State University, who will be returning annotated specimens to local herbaria and which can be used for comparative purposes. We encourage future taxonomists working in the area to adhere closely to recommendations for collecting *Rubus* as outlined by Widrechner (2013) and also highly recommend capturing digital photos of specimens in the field, which can be attached to herbarium specimens.

DISCUSSION

A total of 920 unique taxa (species, subspecies, and varieties) of vascular plants had been verified for Ottawa Co., Oklahoma, prior to this study (Kartesz 2017). Our results increase that value by 11.4% to a total of 1025 unique taxa, and are notable in three ways. First, they reflect the fact that we have added 5 new state and 100 new records in Ottawa County, but from a sample area within the county of only 1021.5 hectares. Second, over 1 in every 10 specimens collected in the study (11.3 %) represented a first report for the county or state. Third, the results indicate that some counties still are substantially undocumented for their current distribution of vascular plants.

We stress that our data are based primarily on Kartesz (2017), whose research program has been summarizing taxonomic concepts, synonymy, and geographical distributions among North American species of vascular plants for several decades (e.g., Kartesz & Kartesz 1980). These data agree in most cases with those of the Oklahoma Vascular Plant Database records, which were provided to Kartesz and in some cases modified by Kartesz (2017). Despite the fact that Ottawa County has the third smallest land area geographically, it is the 14th richest in vascular plant diversity

among the 70 counties in Oklahoma. Rank-ordered as of March 2017 (Kartesz 2017), they are McCurtain (1675 unique taxa), Bryan (1418), Le Flore (1279), Cleveland (1273), Cherokee (1272), Muskogee (1219), Choctaw (1190), Oklahoma (1180), Murray (1160), Pushmataha (1155), Comanche (1137), Payne (1105), Johnston (1048), and Ottawa (1025).

Disentangling taxonomic concepts and associated nomenclature in the context of geographical distributions can be challenging. Confounding factors may include changes in taxonomic rank, the merging or segregating of taxa based on newer data, and the use of different taxonomic authorities (often across many decades) during the identification. Although doing so may seem minor today, indicating the authority used for an identification on an annotation label (e.g., “Fl of MO” for *Flora of Missouri*) will aid future workers interpret the basis of our identifications, especially for species-rich or taxonomically difficult genera (e.g., *Carex*, *Dichanthelium*, *Crataegus*). The large number of specimens across numerous institutions in Oklahoma and elsewhere also contributed to the daunting task of trying to confirm every new county record. We thus acknowledge that a few of our first reports may be in error but trust that corrections will be forthcoming as needed.

Parts of northeastern of Ottawa County include localized extensions of the Ozark Plateau limestones, which are shared by areas of northern Arkansas, southern Missouri, and small areas within Cherokee Co., Kansas. Many plant taxa found here have relatively high habitat fidelity to soils derived from these calcareous substrates (Yatskievych 1999). Building upon work dating back to at least the 1950s (Wallis 1959), Hoagland (2007) provided a recent summary of taxa from the Oklahoma Ozarks. Additional results soon after were published from a site east of the Grand River in Ottawa County, which included the limestones (Hoagland & Buthod 2008a). The latter authors also provided a summary of specimens collected in Ottawa County historically, which then included 2744 specimens. Our tally increases the total for Ottawa County to at least 3681 specimens.

The Neosho Bottoms Management Area does not include extensions of the Ozark Plateau but has moderate levels of plant diversity. The documentation here of so many first-time occurrences in Ottawa County indicates that knowledge of the current distributions of vascular plants in this area of Oklahoma and adjacent areas remains incomplete. This is illustrated further by the fact that the second author (SY), who is completing floristic surveys in nearby Cherokee and Crawford counties, Kansas, has collected numerous records for those two counties and additional state records in the past three years (Young, unpubl.). Further floristic surveying in other rural and peripheral areas of Oklahoma and other states, especially those that are significantly distant from active herbaria, almost assuredly will yield additional state and county records, similar to results recently documented in rural areas of New York (Martine & Ward 2013).

Although many non-native species occur within Neosho Bottoms Management Area and may predominate in areas such as highly disturbed or abandoned pastures and roadsides, seasonally flooded areas near or adjacent to the Neosho River were seen to harbor mostly native plants. Although future sampling undoubtedly will recover additional taxa, we suspect that our sampling efforts over a period of 36 months have documented at least 90% of the vascular plant taxa currently growing in the Neosho River Management Area.

Prather et al. (2004a, b) documented and discussed the implications of the steady decline in plant collecting across most of North America, compared to rates of collection that had occurred in decades prior to the 1990s. Despite local and relatively recent floristic projects in Oklahoma (e.g., Hoagland & Johnson 2005; Palmer 2007; Hoagland & Buthod 2008b; Channing Richardson & Palmer 2016) and elsewhere in the Great Plains (e.g., Schiebout et al. 2008; Charboneau 2013), the collection density of plant specimens remains inadequate in some areas of the Great Plains and other areas (Taylor 2014). Some areas, such as the NBMA, clearly had not been collected intensively in the past. Despite the concerns raised by Prather et al. (2004a, b), plant collecting in the USA probably

has declined even further, even at a time when knowledge of current plant distributions is highly useful and desirable. For example, the distributional data from our project is providing baseline data that is instrumental for current and future land management decisions for the NBMA (A. Roper, pers. comm. 2016). Given the steady discovery of botanical novelties in North America (e.g., Hartman & Nelson 1998; Ertter 2000; Estes & Small 2007; Legler 2011; Eggers 2013; McDonnell & Fishbein 2016; Crawford & Ayers 2017) and the plethora of newly reported state and county records in our study and elsewhere (e.g., Legler 2010), the importance of targeted floristic work in poorly surveyed areas is easy to justify.

For the more rural parts of Oklahoma, and surely for surrounding states as well, our study suggests that vascular plant diversity at the county level, particularly in and adjacent to wetlands, may be considerably greater than what is currently documented. This was demonstrated previously by the privately published Aquatic Plants of Oklahoma (Nelson & Couch 1985), whose authors surveyed the wetland flora of Oklahoma and added over 240 county records to the state's wetland flora. These records were nearly entirely overlooked for many years. We suspect additional wetland species will be discovered within the NBMA, particularly from areas of shallow standing water or lower-volume feeder streams into the Neosho River, where members of *Potamogeton* and other genera may grow, but which we did not encounter.

Future studies of vascular plants in the NBMA could include classification of the extant vegetation (e.g., USNVC 2016) and more intensive and quantitative surveys of invasive species, with specific recommendations for their management.

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Appendix 1. Annotated checklist of the vascular plants of the Neosho Bottoms Management Area, Grand River Dam Authority, Ottawa County, Oklahoma.

The Checklist is organized by spore-bearing plants (Ferns and Fern-Allies), Gymnosperms, and Angiosperms. All taxa are arranged alphabetically beginning with plant family. Vernacular or common names are provided (primarily following Kartesz 2017). Common names for infraspecific taxa are not provided. The wetland status of the US Fish and Wildlife Services (see Lichvar 2013) follows the common name, as such information may prove useful to future workers, including employees of GRDA who manage the site. “Unranked” refers to taxa that currently lack USFWS wetland rankings, but these are usually upland taxa. Taxa non-native to North America are indicated as “Non-native” in bold. State and county records also are noted in bold, with commentary (generally) on the taxon's distribution in Oklahoma, locally near Ottawa County, and frequently regionally. The “4-State area” refers to counties occurring nearby in Kansas (to the north), Missouri (to the east), and Arkansas (to the east and south).

FERNS AND FERN-ALLIES

Aspleniaceae (Spleenwort family)

Asplenium platyneuron (L.) B.S.P. Ebony spleenwort. FACU-, FACU

Ophioglossaceae (Adder's-tongue family)

Sceptridium dissectum (Spreng.) Lyon. Cut-leaf grape-fern. FAC. **Ottawa County record.** Reported from eight counties previously in Oklahoma and adjacent counties to the north (KS) and east (MO). Voucher: *C. Curran 285 & S. Young*

Woodsiaceae (Cliff-fern family)

Woodsia obtusa (Spreng.) Torr. subsp. *obtusa*. Blunt-lobe cliff fern. Unranked

GYMNOSPERMS**Cupressaceae** (Cyperus family)

Juniperus virginiana L. var. *virginiana*. Eastern red-cedar. FACU-, FACU

ANGIOSPERMS**Acanthaceae** (Acanthus family)

Dicliptera brachiata (Pursh) Spreng. Branched foldwing. FACW

Ruellia humilis Nutt. Finger-leaf wild petunia. UPL, FAC-

Ruellia strepens L. Limestone wild petunia. FAC-, FAC

Aceraceae (Maple family)

Acer negundo L. var. *negundo*. Ash-leaf maple (or Boxelder). FAC*, FACW

Acer saccharinum L. Silver maple. FAC, FACW

Adoxaceae (Muskroot family)

Sambucus nigra (L.) subsp. *canadensis* (L.) R. Bolli. Black elderberry. UPL, FACW

Viburnum prunifolium L. Smooth blackhaw. FACU, FAC-

Agavaceae (Agave family)

Camassia scillioides (Raf.) Cory. Atlantic camas. FAC, FACW

Alismataceae (Water-plantain family)

Alisma triviale Pursh. Northern water-plantain. Unranked (but likely OBL). **Ottawa County record.**

Reported from Alfalfa and Grant counties in northcentral OK; known in adjacent Newton and McDonald counties (MO). Voucher: *Sperry Herbarium Staff 430.*

Sagittaria ambigua J. G. Sm. Kansas arrowhead. OBL

Alliaceae (Onion family)

Allium canadense L. var. *canadense*. Meadow garlic. FACU-, FACU. **Noxious.**

Allium canadense L. var. *lavendulare* (Bates) Ownbey & Aase. **Noxious. Ottawa County record.**

Reported from fourteen counties in OK and all counties adjacent except for Craig Co, OK.

Voucher: *C. Curran 20 & N. Snow*

Allium canadense L. var. *mobile* (Regel) Ownbey. **Noxious.**

Allium tricoccum Ait. var. *tricoccum*. Ramp. FACU, FACU+. **Noxious. Ottawa County record.**

Reported from OK thus far only from LeFlore county in the southeast; the other nearest reported occurrence is from Carter County in southeast MO. Voucher: *K. Stoehr 191 & S. Young*

Allium vineale L. subsp. *compactum* (Thuill.) Coss. & Germ. Crow garlic. FACU, FACU-. **Noxious.**

Non-native

Nothoscorum bivalve (L.) Britt. Crowpoison. FACU-, FAC

Amaranthaceae (Amaranth family)*Amaranthus palmeri* S. Wats. Careless weed. FACU-, FACU*Amaranthus spinosus* L. Spiny amaranth. FACU-, FACU*Amaranthus tuberculatus* (Moq.) Sauer. Rough-fruit amaranth. FACU-, OBL*Chenopodium album* L. var. *missouriense* (Aellen) I.J. Bassett & C.W. Crompton. UPL, FAC*Dysphania ambrosioides* (L.) Mosyakin & Clemants. Mexican tea. **Non-native**. UPL, FAC.*Iresene rhizomatosa* Standl. Juda's-bush. FACW-, FACW. **Ottawa County record**. Reported from many counties in eastern OK and known from all adjacent counties except Craig County (OK).
Voucher: C. Curran 288 & S. Young**Anacardiaceae** (Sumac family)*Rhus copallinum* L. Winged sumac. UPL*, FACU*Toxicodendron radicans* (L.) Kuntze subsp. *radicans*. Eastern poison ivy. FACU, FACW**Apiaceae** (Parsely or Carrot family)*Chaerophyllum tainturieri* Hook. Hairy-fruit chervil. UPL, FACW*Limnoscadium pinnatum* (DC.) Mathias & Constance. Tansy dogshade. FAC+, OBL. **Ottawa County record**. Reported for over 25 counties in eastern OK and known from adjacent counties to the north, west and east. Vouchers: C. Curran 129 & S. Young; Sperry Herbarium Staff 419.*Ptilimnium nuttallii* (DC.) Britt. Laceflower. FAC+, FACW+*Sanicula canadensis* L. var. *canadensis*. Canadian black-snakeroot. UPL*, FACU+*Sanicula odorata* (Raf.) K.M. Pryer & L.R. Phillippe. Clustered black-snakeroot. FACU, FAC+*Torilis arvensis* (Huds.) Link subsp. *arvensis*. Spreading hedge-parsely. Unranked. **Non-native***Zizia aurea* (L.) W.D.J. Koch. Meadow alexanders. UPL, FAC-**Apocynaceae** (Dogbane family)*Amsonia tabernaemontana* Walt. var. *tabernaemontana*. Eastern bluestar. FACW-, FACW*Apocynum androsaemifolium* L. Spreading dogbane. UPL*Asclepias incarnata* subsp. *incarnata* L. Swamp milkweed. FACW+, OBL*Asclepias longifolia* Michx. var. *hirtella* (Pennell) B.L. Turner. UPL, FAC*Asclepias viridis* Raf. Green comet milkweed. Unranked*Gonolobus suberosus* (L.) R. Br. var. *granulatus* (Scheele) Krings & Q.Y. Yang. Angular-fruited anglepod. FACW*, FACW**Aquifoliaceae** (Holly family)*Ilex decidua* Walt. Deciduous holly. FACW-, FACW**Araceae** (Arum family)*Arisaema dracontium* (L.) Schott. var. *dracontium*. Greendragon. FACW*Lemna minor* L. Common duckweed. OBL. **Ottawa County record**. Reported from less than half of the counties in OK but widespread; known from most counties adjacent to or near Ottawa County.

Voucher: N. Snow 10941 & S. Young

Asteraceae (Aster family)*Achillea millefolium* L. Common yarrow. UPL, FACU*Ageratina altissima* (L.) King & Robins. var. *altissima*. White snakeroot. UPL, FACU*Ambrosia artemisiifolia* L. Annual ragweed. UPL, FACU+*Ambrosia bidentata* Michx. Lance-leaf ragweed. Unranked*Ambrosia trifida* L. Giant ragweed. FACU-, FACW*Bidens aristosa* (Michx.) Britt. Bearded beggarticks. FACW*Bidens bipinnata* L. Spanish needles. Unranked

- Bidens frondosa* L. Devil's pitchfork. FACW, FACW+. **Ottawa County record.** Widespread across much of the USA and has been reported for all adjacent counties (Kartesz 2017). Vouchers: C. Curran et al. 276.
- Boltonia asteroides* (L.) L'Hér. var. *latisquama* (Gray) Cronq. White doll's daisy. Unranked
- Bradburia pilosa* (Nutt.) Semple. Soft bradbury-bush. Unranked
- Cirsium altissimum* (L.) Spreng. Tall thistle. Unranked
- Coreopsis tinctoria* Nutt. var. *tinctoria*. Golden tickseed. FACU, FAC
- Echinacea pallida* (Nutt.) Nutt. var. *pallida*. Pale purple-coneflower. Unranked
- Eclipta prostrata* (L.) L. False daisy. FAC, OBL
- Elephantopus carolinianus* Raeusch. Carolina elephant's-foot. FACU, FAC
- Erigeron annuus* (L.) Pers. Eastern daisy fleabane. FACU*, FAC
- Erigeron canadensis* L. Canadian horseweed. UPL, FAC. **Non-native**
- Erigeron strigosus* Muhl. ex Willd. var. *strigosus*. FACU, FAC
- Erigeron tenuis* Torr. & Gray. Slender-leaf fleabane. Unranked
- Eupatorium serotinum* Michx. Late-flowering thoroughwort. FAC-, FAC+
- Euthamia gymnospermoides* Greene. Texas goldentop. FAC, FACW
- Gamochaeta argyrinea* Nesom. Silvery everlasting. Unranked
- Helenium amarum* (Raf.) H. Rock var. *amarum*. Yellowdicks. FACU-, FACU
- Helenium flexuosum* Raf. Purple-head sneezeweed. FAC-, FACW
- Helianthus grosseserratus* Martens. Sawtooth sunflower. FAC*, FACW
- Helianthus mollis* Lam. Ashy sunflower. Unranked
- Iva annua* L. Annual marsh-elder. FAC*, FAC
- Krigia caespitosa* (Raf.) Chambers var. *caespitosa*. Weedy dwarf-dandelion. FACU, FAC
- Krigia dandelion* (L.) Nutt. Potato dwarf dandelion. FACU*, FAC
- Lactuca canadensis* L. Canadian blue lettuce. FACU-, FAC+
- Packera glabella* (Poir.) C. Jeffrey. Cross-leaf groundsel. FACW, OBL
- Packera obovata* (Muhl. ex Willd.) W.A. Weber & A. Löve. Round-leaf groundsel. FACU-*, FACU-
- Pyrrhopappus carolinianus* (Walt.) DC. Carolina desert-chicory. Unranked
- Rudbeckia hirta* L. var. *hirta*. Black-eyed Susan. FACU-, FACU
- Rudbeckia laciniata* L. var. *laciniata*. Green-head coneflower. FACU, FACW+
- Rudbeckia triloba* L. var. *triloba*. Brown-eyed Susan. FACU-, FAC-
- Senecio hieraciifolius* L. var. *hieraciifolius*. American burnweed. FACU, FAC
- Silphium perfoliatum* L. var. *perfoliatum*. Cup-plant. FACU, FACW
- Solidago altissima* L. subsp. *altissima*. Tall goldenrod. UPL, FACU+
- Solidago altissima* L. subsp. *gilvocanescens*. Tall goldenrod. Not ranked.
- Solidago gigantea* Ait. Late goldenrod. FAC*, FACW
- Solidago missouriensis* Nutt. Missouri goldenrod. Unranked
- Symphyotrichum ericoides* (L.) Nesom var. *ericoides*. White heath American-aster. UPL, FACU
- Symphyotrichum lanceolatum* (Willd.) Nesom var. *lanceolatum*. White-panicked American-aster. FAC*, FACW. **Ottawa County record.** This taxon is widespread and occurs in all adjacent counties (Kartesz 2017). Vouchers: N. Snow et al. 10805; N. Snow et al. 10916; C. Curran et al. 280.
- Symphyotrichum pilosum* (Willd.) Nesom var. *pilosum*. White oldfield American-aster. UPL, FAC-
- Symphyotrichum praealtum* (Poir) Nesom var. *praealtum*. Willow-leaf American-aster. FACW-, OBL
- Taraxacum officinale* G.H. Weber ex Wiggers. Common dandelion. UPL, FACW. **Non-native**
- Verbesina alternifolia* (L.) Britt. ex Kearney. Wingstem. FAC, FACW
- Verbesina virginica* L. White crownbeard. UPL, FACU
- Vernonia arkansana* DC. Arkansas ironweed. FAC*, FACW
- Vernonia baldwinii* Torr. Western ironweed. UPL, FACW-
- Xanthium strumarium* L. Rough cockleburr. FACU, FAC+

Betulaceae (Birch family)

Betula nigra L. River birch. FACW, OBL

Bignoniaceae (Trumpet-creeper family)

Campsis radicans (L.) Seem. ex Bureau. Trumpet-creeper. FACU*, FAC

Boraginaceae (Borage family)

Buglossoides arvensis (L.) I.M. Johnst. Corn-gromwell. Unranked. **Non-native** [synonym:
Lithospermum arvense L.]

Heliotropium indicum L. Indian heliotrope. FAC, FACW

Brassicaceae (Mustard family)

Capsella bursa-pastoris (L.) Medik. Shephard's purse. UPL, FAC

Cardamine hirsuta L. Hairy bittercress. UPL, FAC. **Non-native. Ottawa County record.** Known from about half the counties in eastern Oklahoma and virtually all in Arkansas and Louisiana; in Missouri mostly known from the southern and eastern halves of the state. Vouchers: *N. Snow 10829* & *K. Stoehr*; *C. Curran 58* & *S. Young*

Cardamine parviflora L. Sand bittercress. FACU, FACW

Draba brachycarpa Nutt. ex Torr. & Gray. Short-pod whitlow-grass. Unranked

Iodanthus pinnatifidus (Michx.) Steud. Purple-rocket. FACW-, OBL

Lepidium campestre (L.) Ait. f. Cream-anther field pepperwort. Unranked. **Non-native. Ottawa County record.** Widespread across Missouri, northwest Arkansas, eastern Kansas, and with fewer reports from southern and eastern Oklahoma. Voucher: *K. Stoehr 300* & *S. Young*.

Lepidium densiflorum Schrad. Miner's peppwort. UPL, FAC

Lepidium virginicum L. var. *virginicum*. Poor-man's pepperwort. UPL*, FAC-

Rorippa palustris (L.) Bess. subsp. *palustris*. Bog yellowcress. FAC, OBL

Rorippa sessiliflora (Nutt.) A.S. Hitchc. Stalkless yellowcress. FACW+, OBL

Campanulaceae (Bellflower family)

Lobelia cardinalis L. Cardinal-flower. FACW+, OBL

Lobelia inflata L. Indian-tobacco. FACU-, FAC. **Ottawa County record.**

Triodanis perfoliata (L.) Nieuwl. subsp. *biflora* (Ruíz & Pavón) Lammers. Clasping-leaf Venus' looking-glass. Unranked

Triodanis perfoliata (L.) Nieuwl. subsp. *perfoliata*. UPL, FAC

Cannabaceae (Hemp family)

Celtis laevigata Willd. Sugar-berry. UPL, FACW

Celtis occidentalis L. Common hackberry. FACU, FAC

Caprifoliaceae (Honeysuckle family)

Lonicera japonica Thunb. Japanese honeysuckle. UPL, FACU+. **Non-native**

Lonicera sempervirens L. Trumpet honeysuckle. FACU, FAC

Symphoricarpos orbiculatus Moench. Coralberry. UPL, FAC-

Caryophyllaceae (Pink family)

Arenaria serpyllifolia L. var. *serpyllifolia*. Thyme-leaf sandwort. UPL, FAC. **Non-native**

Arenaria serpyllifolia L. var. *tenuior* Mert. & Koch. Thyme-leaf sandwort. Unranked. **Non-native.**

Oklahoma State record. Known from over twenty counties in northern Arkansas, including adjacent McDonald County and many others in Missouri. Material is limited but the seed with of ca. 0.4 mm agrees with the key in Yatskievych (2006: 798). Voucher: *K. Stoehr 244* & *S. Young*

Cerastium brachypetalum Desportes ex Pers. Gray mouse-ear chickweed. Unranked. **Non-native**

- Cerastium brachypodum* (Englem. ex Gray) B.L. Robins. Short-stalk mouse-ear chickweed. FACU-, FAC. **Ottawa County record.** Reported from over half of the counties in OK and known from most adjacent counties in the 4-state area. Voucher: *K. Stoehr 87 et al.*
- Cerastium fontanum* Baumg. subsp. *vulgare* (Hartman) Greuter & Burdet. FACU-, FAC-. **Non-native. Ottawa County record.** Reported for approximately half the counties in eastern OK and known from adjacent counties to the north, east and south. Voucher: *N. Snow 10817 & K. Stoehr.*
- Cerastium glomeratum* Thuill. Sticky mouse-ear chickweed. UPL*, FACU. **Non-native**
- Cerastium semidecandrum* L. Five-stamen mouse-ear chickweed. Unranked. **Non-native. Oklahoma State record.** Reported sporadically from Texas (Hopkins County), LA (five parishes), and a few counties each in MO and AR. Vouchers: *K. Stoehr 150 et al.*; *K. Stoehr 233 & S. Young*
- Dianthus armeria* L. Deptford pink. UPL, FACU-. **Non-native**
- Silene stellata* (L.) Ait. f. Widow's frill. Unranked
- Stellaria media* (L.) Vill. Common chickweed. UPL*, FACU. **Non-native**
- Stellaria neglecta* Weihe. Greater chickweed. Unranked. **Non-native. Ottawa County record.** As currently reported this species is considered largely absent from the 4-state area. However, extensive recent floristic research in Cherokee and Crawford counties in KS (*S. Young, ined.*) indicates the species is quite common. Vouchers: *K. Stoehr 60 et al.*; *K. Stoehr 65 et al.*; *K. Stoehr 79 et al.*

Celastraceae (Bittersweet family)

- Elaeodendron fortunei* Turcz. Winter-creeper. Unranked. **Non-native. Ottawa County record.** Known in adjacent Cherokee County (KS) and McDonald County (MO); otherwise only known from Muskogee and Pittsburg counties in Oklahoma. Voucher: *C. Curran 350 et al.*

Commelinaceae (Spiderwort family)

- Commelina diffusa* Burm. f. var. *diffusa*. Climbing dayflower. FAC, FACW. **Ottawa County record.** Reported from fourteen counties in eastern OK; known from Cherokee County (KS) to the north and Newton County (MO) to the east. Voucher: *N. Snow 10947 & S. Young*
- Commelina erecta* L. White-mouth dayflower. FAC
- Tradescantia bracteata* Small. Long-bract spiderwort. UPL, FAC
- Tradescantia ohiensis* Raf. Bluejacket. FACU, FACW

Convolvulaceae (Morning-glory family)

- Cuscuta cuspidata* Englem. Cusp dodder. Unranked (parasitic vine)
- Cuscuta cephalanthi* Engelm. Buttonbrush dodder. Unranked (parasitic vine). **Ottawa County record.** Reported from Oklahoma (county not verified; Kartesz 2017) and known from adjacent McDonald County, MO. Voucher: *N. Snow 10939 & S. Young*
- Cuscuta gronovii* Willd. ex J.A. Schultes var. *gronovii*. Scaldweed. Unranked (parasitic vine). **Ottawa County record.** Reported in OK from over 25 counties, including Delaware County due south; also known from adjacent counties to the east and north. Vouchers: *C. Curran 217 & S. Young*; *N. Snow 10804 et al.*
- Ipomoea hederacea* Jacq. Ivy-leaf morning-glory. FACU*, FAC
- Ipomoea lacunosa* L. Whitestar. FAC+, FACW
- Ipomoea pandurata* (L.) G.F.W. Mey. Man-of-the-earth. FACU-, FAC-
- Ipomoea purpurea* (L.) Roth. Common morning-glory. UPL, FAC. **Noxious. Non-native.**

Cornaceae (Dogwood family)

- Cornus drummondii* C.A. Mey. Rough-leaf dogwood. FAC

Cyperaceae (Sedge family)

- Carex annectens* (Bickn.) Bickn. Yellow-fruit sedge. FAC+, FACW+

- Carex arkansana* (Bailey) Bailey. Arkansas sedge. Unranked. **Ottawa County record.** Known in only seven widely-spaced counties in eastern OK, the nearest being Osage and Wagoner counties; reported in adjacent Cherokee County (KS). Vouchers: *C. Curran 35 & N. Snow, K. Stoehr 227 & S. Young, K. Stoehr 181 & S. Young, K. Stoehr 182 & S. Young*
- Carex blanda* Dewey. Eastern woodland sedge. FACU*, FAC
- Carex brevior* (Dewey) Mackenzie. Short-beak sedge. UPL, OBL
- Carex bushii* Mackenzie. Bush's sedge. FAC, OBL
- Carex caroliniana* Schwein. Carolina sedge. FACU, OBL. **Ottawa County record.** Known in central and eastern Oklahoma from approximately eighteen counties, the nearest being Cherokee County; known from adjacent Cherokee (KS) and Newton (MO) counties. At the time of re-submission the OK Vascular Plants Database is inconsistent, showing Ottawa County as being represented, but with the one voucher listed identified as *Carex bushii*. Voucher: *K. Stoehr 238 & S. Young*
- Carex cephalophora* Muhl. ex Willd. Oval-leaf sedge. UPL*, OBL
- Carex conjuncta* Boott. Soft fox sedge. FAC, FACW. **Ottawa County record.** Reported from Nowata and Rogers counties (OK); known from adjacent McDonald and Newton counties (MO) and Cherokee County (KS). Voucher: *K. Stoehr 171 & S. Young*
- Carex crus-corvi* Shuttlw. ex Kunze. Raven-foot sedge. OBL. **Ottawa County record.** Known from over two dozen counties in eastern OK and from adjacent Cherokee County, KS.
- Carex davisii* Schwien. & Torr. Davis' sedge. FACU, FAC+. **Ottawa County record.** Known from eight counties in eastern OK (including Delaware County to the due south) and adjacent counties in KS and MO. Vouchers: *C. Curran 47 & S. Young; K. Stoehr 124 et al.; K. Stoehr & 173 & S. Young; K. Stoehr 174 & S. Young*
- Carex festucacea* Schukr. ex Willd. Fescue sedge. FAC, FACW. **Ottawa County record.** Recorded for twenty counties across much of OK. Voucher: *K. Stoehr 197 & S. Young*
- Carex frankii* Kunth. Frank's sedge. OBL
- Carex grisea* Wahlen. Inflated narrow-leaf sedge. Unranked. **Ottawa County record.** Widespread in central and eastern OK; known from adjacent counties in KS, MO and OK. Vouchers: *K. Store [and collectors] 101; 103; 116; 118; 168; 170; 237; 239; N. Snow 10969 & C. Curran; N. Snow 10832 & K. Stoehr.*
- Carex grayi* Carey. Gray's sedge. FACW, FACW+
- Carex hyalinolepis* Steud. Shoreline sedge. OBL.
- Carex leavenworthii* Dewey. Leavenworth's sedge. Unranked
- Carex lupuliformis* Sartwell ex Dewey. False hop sedge. FACW+, OBL
- Carex molesta* Mackenzie ex Bright. Troublesome sedge. FACU, FACW. **Ottawa County record.** Reported thus far from only six counties in OK, but including adjacent Delaware Co., and known from adjacent counties in KS and MO. Voucher: *Sperry Herbarium Staff 344.*
- Carex molestiformis* Reznicek & P. Rothr. Ozark Plateau sedge. Unranked. **Ottawa County record.** Reported from at least six counties in eastern OK, including adjacent Delaware County, and known from about twenty counties eastwards in northern and central AR. Vouchers: *K. Stoehr 225 & S. Young.*
- Carex muhlenbergii* Schkuhr ex. Willd. var. *enervis* Boott. Muhlenberg's sedge. Unranked
- Carex oklahomensis* Mackenzie. Oklahoma sedge. FACW, OBL
- Carex radiata* (Wahlenb.) Small. Eastern star sedge. Unranked.
- Carex rosea* Schkuhr ex. Willd. Rose's sedge. Unranked. **Ottawa County record.** Known in OK from Bryan, McCurtain and Le Flore counties; reported from adjacent Cherokee (KS) and McDonald and Newton (MO) counties. Vouchers: *C. Curran 65 & S. Young; K. Stoehr 246 & S. Young*
- Carex shortiana* Dewey. Short's sedge. FAC, FACW+
- Carex socialis* Mohlenbrock & Schwegm. Low woodland sedge. Unranked. **Ottawa County record.** Reported from Oklahoma previously six counties in the southeastern and eastern part of the state and Cleveland County, the nearest being Delaware County; known elsewhere east and south in

the lower Mississippi and Ohio river drainages (including AR and MO) and the Blackland Prairies and Cross Timbers and Prairies of Texas (regions following Gould [1962]) and sporadically east to the Carolinas and Georgia (Kartesz 2017; Weakly et al. 2012). The senior collectors' notes indicate "rare" at this locality, which was a seasonally flooded mixed deciduous forest. Voucher: *N. Snow 10856 et al.*

- Carex sparganioides* Muhl. ex Willd. Burr-reed sedge. FACU, FAC+. **Oklahoma State record.** Reported from adjacent Newton and McDonald counties (MO) and nearby Crawford and Labette counties (KS); evidently not common in Arkansas or Kansas (Kartesz 2017) but north and east through the upper Midwest and New England. Details of the population size were not noted, so we are unable report on its relative abundance. The two collections cited were collected at the same site; the second collection cited here was taken because of uncertainty whether it was the same taxon as the other collection. Vouchers: *K. Stoehr 123 et al.*, *K. Stoehr 129 et al.*
- Cyperus acuminatus* Torr. & Hook. ex Torr. Taper-tip flat sedge. OBL
- Cyperus echinatus* (L.) Wood. Globe flat sedge. FACU, FAC+
- Cyperus erythrorhizos* Muhl. Red-root flat sedge. FACW+, OBL
- Cyperus iria* L. Ricefield flat sedge. FACW, FACW+. **Non-native. Ottawa County record.** Known from five counties in eastern OK, the nearest being Osage County; mostly occurring farther east and south. Vouchers: *Sperry Herbarium Staff 522.*
- Cyperus pseudovegetus* Steud. Marsh flat sedge. FACW
- Cyperus squarrosus* L. Awned flat sedge. FACW+, OBL
- Cyperus strigosus* L. Straw-color flat sedge. FACW, FACW+
- Eleocharis acicularis* (L.) Roemer & J.A. Schultes. Needle spike-rush. OBL
- Eleocharis engelmannii* Steud. Engelmann's spike rush. FACW, OBL. **Ottawa County record.** Widespread in central and eastern Oklahoma and known from adjacent counties in KS, MO and OK. Voucher: *N. Snow 10920 & S. Young; Sperry Herbarium Staff 432.*
- Eleocharis obtusa* (Willd.) J.A. Schultes. Blunt spike rush. OBL.
- Isolepis carinata* Hook. & Arn. ex Torr. Keeled lateral-bulrush. FACW, OBL

Ebenaceae (Ebony family)

Diospyros virginiana L. Common persimmon. FACU, FAC

Euphorbiaceae (Spurge family)

- Acalypha monococca* (Engelm. ex Gray) L. Mill. & Gandhi. Single-seed three-seed mercury. Unranked
- Acalypha rhomboidea* Raf. Common three-seed mercury. FACU-, FAC-. **Ottawa County record.** Known from many counties in OK (apart from the panhandle), including adjacent Delaware County; also in adjacent portions of AR, KS and MO. Vouchers: *C. Curran 239 & S. Young; C. Curran 279 & S. Young*
- Croton glandulosus* L. var. *septentrionalis* Muell.-Arg. Vente-conmigo. Unranked
- Croton lindheimeri* (Engelm. & Gray) Engelm. & Gray ex Wood. Lindheimer's croton. Unranked. **Ottawa County record.** Reported from fourteen counties in southern and eastern OK (Kartesz 2017), the nearest being Muskogee County; collections from AR, KS, and MO far less frequent and none within ca. 200 km. Voucher: *N. Snow 10882 & S. Young*
- Euphorbia dentata* var. *dentata* Michx. Toothed spurge. Unranked
- Euphorbia maculata* L. Spotted sandmat. UPL, FACU-
- Euphorbia nutans* Lag. Eyebean. FACU-, FAC
- Euphorbia spathulata* Lam. Warty spurge. FACU-, FAC. **Ottawa County record.** Known from over half the counties in OK and KS and many in AR and MO, including adjacent counties in OK, KS, and MO. Voucher: *C. Curran 78 & S. Young*

Fabaceae (Pea family)

Amorpha fruticosa L. False indigo-bush. FAC*, OBL

Amphicarpaea bracteata (L.) Fern. American hog-peanut. FACU, FACW

Baptisia alba (L.) Vent. var. *macrophylla* (Larisey) Isely. FACU*, FAC

Cercis canadensis L. var. *canadensis*. Redbud. UPL, FAC

Chamaecrista nictitans (L.) Moench subsp. *nictitans*. Partridge-pea. UPL, FACU

Desmanthus illinoiensis (Michx.) MacM. ex B.L. Robins. & Fern. Prairie bundle-flower. UPL, FAC

Desmodium glabellum (Michx.) DC. Dillenius' tick-trefoil. Unranked. **Ottawa County record.**

Known from OK in several counties in eastern OK including adjacent Delaware County; common in southern MO but much less so in AR and KS. Voucher: *C. Curran 254 & S. Young*

Desmodium paniculatum (L.) DC. Panicked-leaf tick-trefoil. UPL, FAC-

Desmodium perplexum Schub. Perplexed tick-trefoil. Unranked

Gleditsia triacanthos L. Honeylocust. FACU, FAC

Kummerowia stipulacea (Maxim.) Makino. Korean-clover. UPL, FACU-. **Non-native**

Lathyrus pusillus Ell. Tiny vetchling. UPL*, FACW-. **Ottawa County record.** In OK known from approximately 25 counties, the nearest being Rogers County; reported as extirpated from MO but once known from adjacent Newton County, and rare in five southeast counties of KS, including adjacent Cherokee County. Voucher: *K. Stoehr 96 et al.*

Lespedeza cuneata (Dum.-Cours.) G. Don. Chinese bush-clover. UPL*, FAC. **Non-native**

Medicago lupulina L. Black medik. UPL, FAC. **Non-native**

Melilotus officinalis (L.) Lam. Yellow sweet-clover. UPL, FACU-. **Non-native**

Mimosa nuttallii (DC.) B.L. Turner. Nuttall's mimosa. Unranked.

Senna marilandica (L.) Link. Maryland wild sensitive-plant. FAC, FACW

Sesbania herbacea (P. Mill.) McVaugh. Peatree. FAC, FACW. **Ottawa County record.** Reported for many counties in eastern OK, the nearest being Mayes and Nowata counties; widespread in much of AR (where it is a noxious weed) but much less so in KS and MO but not in adjacent counties. Voucher: *C. Curran 185 & S. Young*

Strophostyles helvola (L.) Ell. Trailing fuzzy-bean. FACU-, FAC+

Trifolium arvense L. Rabbit-foot clover. Unranked. **Non-native. Ottawa County record.** Common in adjacent parts of OK, AR and MO but not southeast KS. Voucher: *Sperry Herbarium Staff 386.*

Trifolium aureum Pollich. Greater hop clove. Unranked. **Non-native. Oklahoma State record.** This species is widely distributed in North America, with concentrations in the USA in the northern Rockies, the upper Midwest (MN, WI, MI), the northeast, and along the Appalachian ridges. The nearest reports are from Dade and Christian counties in Missouri, approximately 100 and 150 km northwest and east, respectively. Voucher: *C. Curran 49 & S. Young*

Trifolium campestre Schreb. Lesser hop clover. Unranked

Trifolium dubium Sibthorp. Suckling clover. UPL, FACU. **Non-native. Ottawa County record.**

Common in adjacent parts of OK, AR, KS and MO. Voucher: *N. Snow 10790 et al.*

Trifolium hybridum L. Alsike clover. UPL, FAC. **Non-native.**

Trifolium pratense L. Red clover. UPL, FAC. **Non-native**

Trifolium repens L. White clover. FACU-, FAC. **Non-native**

Vicia sativa L. Garden vetch. UPL, FACW. **Non-native. Ottawa County record.** Reported from approximately twenty counties in OK, the nearest being Mayes Co., and adjacent Newton and McDonald counties in Missouri. Voucher: *K. Stoehr 119 et al.*

Vicia villosa Roth subsp. *varia* (Host) Corb. Winter vetch. **Non-native. Ottawa County record.**

Known from over half the counties in eastern OK, the nearest being Cherokee and Nowata counties; occurring in adjacent counties in KS and MO. Voucher: *C. Curran 40 & S. Young*

Fagaceae (Oak family)

Quercus macrocarpa Michx. var. *macrocarpa*. Burr oak. FACU, FAC

Quercus palustris Muenchh. Pin oak. FAC, FACW

Quercus rubra L. Northern red oak. FACU-, FACU+
Quercus shumardii Buckl. Shumard's oak. FAC, FACW-

Gentianaceae (Gentian family)

Sabatia angularis (L.) Pursh. Rose-pink. FAC, FAC+. **Ottawa County record.** Known from the adjacent counties of Delaware (OK), Cherokee (KS), and McDonald and Newton (both MO); also reported from over half of the counties of eastern Oklahoma. Vouchers: *C. Curran 117* & *S. Young; Sperry Herbarium Staff 354.*

Geraniaceae (Geranium family)

Geranium carolinianum L. Carolina crane's-bill. Unranked
Geranium dissectum L. Cut-leaf crane's-bill. Unranked. **Non-native. Ottawa County record.** Scattered widely across seven counties in OK, the nearest being Pittsburg, Co.; know from nearby Labette County (KS) and Washington County (AR). Vouchers: *N. Snow 10836 et al.*; *K. Stoehr 195* & *S. Young*; *C. Curran 91* & *S. Young*

Haloragaceae (Water-milfoil family)

Myriophyllum heterophyllum Michx. Two-leaf water milfoil. OBL. **Ottawa County record.** Reported in OK from fifteen counties, the nearest being Mayes County; known in adjacent Newton (MO) and Cherokee County (KS) and many counties in adjacent states of AR, KS, and MO. Vouchers: *C. Curran 44* & *S. Young*; *Sperry Herbarium Staff 371* & *372*

Hemerocallidaceae (Day-lily family)

Hemerocallis fulva (L.) L. Orange day-lily. UPL, FACU. **Non-native. Ottawa County record.** Known in OK from Le Flore and Cherokee counties; reported in many nearby counties in AR, KS, and MO. Voucher: *Sperry Herbarium Staff 438*

Hypericaceae (St. John's Wort family)

Hypericum perforatum L. Common St. John's-wort. Unranked. **Non-native**

Iridaceae (Iris family)

Sisyrinchium angustifolium P. Mill. Narrow-leaf blue-eyed grass. FACU, FACW-

Juglandaceae (Walnut family)

Carya aquatica (Michx. f.) Nutt. Water hickory. OBL. **Ottawa County record.** Known from Oklahoma infrequently in seven southeastern counties and Cherokee County of east-central OK (Kartesz 2017). Although the specimen was sterile and only starting to exhibit peeling bark, the number of leaflets and the densely pubescent abaxial midvein together confirm its identification.
Carya cordiformis (Wangenh.) K. Koch. Bitter-nut hickory. FACU+, FAC
Carya illinoensis (Wangenh.) K. Koch. Pecan. FACU, FACW
Carya ovata (P. Mill.) K. Koch. Shag-bark hickory. FACU, FACU+
Carya tomentosa (Lam. ex Poir.) Nutt. Mockernut hickory. Unranked

Juncaceae (Rush family)

Juncus brachycarpus Engelm. White-root rush. FACW. **Ottawa County record.** Widespread in OK and adjacent states of AR, KS, and MO, and known from all adjacent counties. Voucher: *Sperry Herbarium Staff 378.*

Juncus vel aff. *debilis* Gray. Weak rush. FACW*, OBL. If correctly identified, it would be a county record. (This record is not included in the numerical tallies.) Voucher: *Stoehr 211* & *S. Young.* Noted as infrequent at this locality.

Juncus diffusissimus Buckl. Slim-pod rush. FACW, FACW+

- Juncus effusus* L. subsp. *solutus* (Fern. & Weig.) Hänet-Ahti. Lamp rush. FACW, OBL
Juncus interior Wieg. var. *interior*. Interior rush. FACU, FACW
Juncus marginatus Rostk. Bog rush. FACW, OBL
Juncus scirpoides Lam. Needle-pod rush. FACW, FACW+
Juncus secundus Beauv. ex Poir. Lopsided rush. FACU, FAC. **Ottawa County record.** Reported from twelve counties in OK, the nearest being Adair and Nowata counties; present in adjacent McDonald County (MO) and occurring in much of AR and MO. Voucher: *C. Curran 141 & S. Young*
Juncus tenuis Willd. Lesser poverty-rush. FAC-, OBL
Juncus torreyi Coville. Torrey's ruish. FACW, FACW+

Lamiaceae (Mint family)

- Hedeoma hispida* Pursh. Rough false pennyroyal. Unranked
Lamium purpureum L. Giraffe-head. **Non-native.** Unranked
Lycopus americanus Muhl. ex W. Bart. Cut-leaf water-horehound. OBL
Lycopus rubellus Moench. Taper-leaf water-horehound. OBL
Monarda fistulosa L. var. *fistulosa*. Oswego-tea. UPL, FAC+ [species-level rank]
Monarda fistulosa L. var. *mollis* (L.) Benth. UPL, FAC+ [species-level rank]
Perilla frutescens (L.) Britt. var. *frutescens*. Beef-steak plant. FACU+, FAC+. **Non-native**
Physostegia virginiana (L.) Benth. subsp. *praemorsa* (Shinners) Cantino. Obedient-plant. FACW
Prunella vulgaris L. subsp. *lanceolata* (W. Bart.) Hultén. Common selfheal. FACU, FACW [species-level rank]
Pycnanthemum tenuifolium Schrad. Narrow-leaf mountain-mint. FACU, FACW
Scutellaria parvula Michx. Small skullcap. UPL, FACU
Stachys tenuifolia Willd. Smooth hedge-nettle. FAC, OBL
Teucrium canadense L. var. *occidentale* (Gray) McClintock & Epling. FAC+, FACW [species-level rank]. **Ottawa County record.** Reported from ten counties in OK, the nearest being Cherokee County; scattered occurrences across much of KS and MO, but none within ca. 150 km. Voucher: *Sperry Herbarium Staff 337.*

Lauraceae (Laurel family)

- Lindera benzoin* (L.) Blume. Northern spicebush. FACW-, FACW

Lythraceae (Loosestrife family)

- Ammannia coccinea* Rottb. Valley redstem. OBL
Lythrum alatum Pursh var. *alatum*. Wing-angle loosestrife. FACW+, OBL
Lythrum alatum Pursh var. *lanceolatum* (Ell.) Torr. & Gray ex Rothrock. Wing-angle loosestrife. FACW+, OBL [species-level rank]. **Ottawa County record.** Widespread in OK and AR, not reported for KS and known from only two counties in eastern and central MO. Vouchers: *C. Curran 123; C. Curran 182 & S. Young*
Rotala ramosior (L.) Koehne. Lowland toothcup. OBL

Malvaceae (Mallow family)

- Abutilon theophrasti* Medik. Velvetleaf. UPL, FACU-. **Non-native**
Hibiscus laevis All. Halberd-leaf rose-mallow. OBL
Hibiscus trionum L. Flower-of-an-hour. Unranked. **Non-native**
Sida spinosa L. Prickly fanpetals. UPL*, FACU

Menispermaceae (Moonseed family)

- Cocculus carolinus* (L.) DC. Carolina coralbead. FACU, FAC
Menispermum canadense L. Canadian moonseed. FACU*, FAC

Molluginaceae (Carpetweed family)

Mollugo verticillata L. Green carpetweed. FAC-, FAC

Montiaceae (Candy-flower family)

Claytonia virginica L. var. *virginica*. Virginia spring-beauty. FACU-, FAC

Moraceae (Mulberry family)

Maclura pomifera (Raf.) Schneid. Osage-orange. UPL, FACU

Morus alba L. White mulberry. UPL, FAC. **Non-native**

Morus rubra L. Red mulberry. FACU, FAC

Nyctaginaceae (Four-O'clock family)

Mirabilis nyctaginea (Michx.) MacM. Heart-leaf four-o'clock. UPL*, FACU. **Ottawa County record.** Widespread across 4-state area including all adjacent counties, apart from Craig County (OK). Voucher: *C. Curran 64 & S. Young*

Oleaceae (Olive family)

Forestiera acuminata (Michx.) Poir. Eastern swamp-privet. OBL

Fraxinus pennsylvanica Marsh. Green ash. FAC, FACW

Ligustrum sinense Lour. Chinese privet. UPL*, FAC. **Non-native**

Ligustrum vulgare L. European privet. UPL, FAC-*. **Non-native. Ottawa County record.** Reported from ten counties in OK, the nearest being Tulsa County; not reported for adjacent counties in AR, KS, or MO, but of these states most common in AR. Voucher: *K. Stoehr 303 & S. Young*

Onagraceae (Evening primrose family)

Ludwigia palustris (L.) Ell. Marsh primrose-willow. OBL

Ludwigia peploides (Kunze) Raven subsp. *glabrescens* (Kunze) Raven. OBL. **Ottawa County record.** Common regionally for at least 300 km in all directions; known from adjacent counties in AR, MO, and KS. Voucher: *N. Snow 10955 & S. Young*

Oenothera filiformis (Small) W.L. Wagner & Hoch. Long-flower evening-primrose. Unranked

Oenothera laciniata Hill. Cut-leaf evening-primrose. UPL, FAC*

Oenothera villosa Thunb. subsp. *villosa*. Hairy evening-primrose. FACU, FACW*

Orchidaceae (Orchid family)

Spiranthes vernalis Engelm. & Gray. Spring ladies'-tresses. FAC, FACW

Orobanchaceae (family)

Agalinis heterophylla (Nutt.) Small ex Britt. Prairie false foxglove. FACU+, FAC+

Dasistoma macrophylla (Nutt.) Raf. Mullein-foxglove. FACU-, FAC. **Ottawa County record.**

Reported from eighteen counties in OK, including adjacent Delaware and Craig counties; also occurring in most adjacent and nearby counties in AR, KS and MO. Voucher: *C. Curran 274 & S. Young*

Oxalidaceae (Wood-sorrel family)

Oxalis dillenii Jacq. Yellow wood-sorrel. FACU*. **Ottawa County record.** Known from many counties across most of OK (excluding the Panhandle and approximately twenty contiguous counties in east-central parts of the state; in adjacent Delaware County and widespread and common across most of AR, KS, and MO. Vouchers: *K. Stoehr 185 & S. Young; K. Stoehr 288 & S. Young; C. Curran 34 & N. Snow; C. Curran 48 & S. Young; N. Snow 10841 et al.*

Passifloraceae (Passion-flower family)*Passiflora incarnata* L. Purple passion-flower. Unranked*Passiflora lutea* L. Yellow passion-flower. Unranked**Penthoraceae** (Ditch-Stonecrop family)*Penthorum sedoides* L. Ditch-stonecrop. OBL**Phrymaceae** (Lopseed family)*Mimulus alatus* Ait. Sharp-wing monkey-flower. OBL**Phytolaccaceae** (Pokeweed family)*Phytolacca americana* L. var. *americana*. American pokeweed. FACU*, FAC**Plantaginaceae** (Plantain family)*Bacopa rotundifolia* (Michx.) Wettst. Disk water-hyssop. OBL*Callitriche heterophylla* Pursh subsp. *heterophylla*. Greater water-starwort. OBL*Gratiola neglecta* Torr. Clammy hedge-hyssop. OBL*Nuttallanthus canadensis* (L.) D.A. Sutton. Oldfield-toadflax. Unranked*Nuttallanthus texanus* (Scheele) D.A. Sutton. Texas-toadflax. Unranked*Penstemon tubiflorus* Nutt. var. *tubiflorus*. White-wand beardtongue. Unranked*Plantago aristata* Michx. Large-bract plantain. Unranked*Plantago elongata* Pursh. Prairie plantain. UPL, FACW+*Plantago lanceolata* L. English plantain. UPL, FACW. **Noxious. Non-native***Plantago rugelii* Dcne. Black-seed plantain. FACU, FAC*Plantago virginica* L. Plain-seed plantain. UPL, FACW*Veronica arvensis* L. Corn speedwell. UPL, FAC. **Non-native***Veronica peregrina* L. subsp. *peregrina*. Neckweed. FACU-, OBL*Veronica peregrina* L. subsp. *xalapensis* (Kunth) Pennell. Neckweed. Unranked**Platanaceae** (Planetree family)*Platanus occidentalis* L. American sycamore. FAC, FACW**Poaceae** (Grass family)*Agrostis hyemalis* (Walt.) B.S.P. Winter bent. FACU, FACW*Agrostis perennans* (Walt.) Tuckerman. Upland bent. FACU, FACW. **Ottawa County record.**

Reported for ten counties in OK, including adjacent Delaware County; known from adjacent Newton (MO) and Cherokee (KS) counties, and widespread in AR and MO. Voucher: *Sperry Herbarium Staff 367.*

Alopecurus carolinianus Walt. Tufted meadow-foxtail. FAC+, FACW. **Ottawa County record.**

Known in OK from over half the counties across all but the Panhandle of OK, including adjacent Delaware County; widespread in nearby AR, KS and MO. Voucher: *K. Stoehr 89 et al.*

Andropogon gerardi Vitman. Big bluestem. FACU, FAC*Aristida oligantha* Michx. Prairie three-awn. Unranked*Bothriochloa laguroides* (DC.) Hunter subsp. *torreyana* (Steud.) Allred & Gould. Silver beardgrass. Unranked*Bromus arvensis* L. Field brome. UPL, FACU. **Non-native**

Bromus catharticus Vah. var. *catharticus*. Rescue grass. Unranked. **Non-native. Ottawa County record.** Widespread across OK, southern KS, and AR; known from adjacent Newton County (MO). Vouchers: *K. Stoehr 241 & S. Young, K. Stoehr 284 & S. Young; C. Curran 37 & N. Snow.*

Bromus racemosus L. Bald brome. Unranked. **Non-native**

- Bromus tectorum* L. Cheat grass. Unranked. **Non-native**
- Chasmanthium latifolium* (Michx.) Yates. Indian wood-oats. UPL, FACW
- Chloris verticillata* Nutt. Tumble windmill-grass. Unranked. **Ottawa County record.** Widespread across OK, KS, southwestern MO and a few counties in AR; occurs in adjacent Newton and McDonald counties (MO). Voucher: *N. Snow 10894 & S. Young*
- Cinna arundinacea* L. Sweet wood-reed. FACW, OBL*
- Coleataenia anceps* (Michx.) Soreng. Beaked cut-throat grass. FAC-, FACW
- Coleataenia rigidula* (Bosc ex Nees) LeBlond subsp. *rigidula*. Red cut-throat grass. FAC, OBL
- Cynodon dactylon* (L.) Pers. Bermuda grass. FACU, FAC. **Non-native**
- Dactylis glomerata* L. subsp. *glomerata*. Orchard grass. UPL, FACU+. **Ottawa County record.** Widespread in AR, KS and MO, and sixteen counties in OK, including adjacent Delaware County. Voucher: *K. Stoehr 283 & S. Young*
- Diarrhena obovata* (Gleason) Brandenburg. Hairy beakgrass. Unranked
- Dichantherium aciculare* (Desv. ex Poir.) Gould & C.A. Clark. Needle-leaf rosette grass. FACU-, FACU. **Ottawa County record.** Known from eight counties in OK; reported most closely from Benton County, AR. Voucher: *C. Curran 51 & S. Young*
- Dichantherium acuminatum* (Sw.) Gould & C.A. Clark var. *acuminatum*. Tapered rosette grass. FACU-, FACW
- Dichantherium commutatum* (J.A. Schultes) Gould. Variable rosette grass. FACU+, FAC. **Ottawa County record.** Reported from eight counties in eastern OK and known from adjacent Delaware County (OK) and McDonald County (MO); widespread farther east and south. Voucher: *K. Stoehr 202 & S. Young*
- Dichantherium latifolium* (L.) Harville. Broad-leaf rosette grass. FACU-, FACU. **Ottawa County record.** Known from adjacent McDonald and Newton counties in MO and Cherokee County, KS. Voucher: *C. Curran 44 & S. Young*
- Dichantherium malacophyllum* (Nash) Gould. Soft-leaf rosette grass. Unranked. **Ottawa County record.** Known from only four counties in OK, the nearest being Sequoyah and Creek counties; widespread in MO and in adjacent Newton and McDonald (MO) and Cherokee (KS) counties. Voucher: *C. Curran 53 & S. Young*
- Dichantherium scoparium* (Lam.) Gould. Broom rosette grass. FAC, FACW. **Ottawa County record.** Known from over half the counties of eastern OK; reported for all adjacent counties except McDonald County, MO. Voucher: *Sperry Herbarium Staff 393*.
- Dichantherium sphaerocarpon* (Ell.) Gould var. *isophyllum* (Scribn.) Gould & C.A. Clark. Round-seed rosette grass. FACU. **Ottawa County record.** Known from eighteen counties in eastern OK, including adjacent Delaware and Craig counties; also in adjacent Cherokee (KS) and McDonald (MO) counties. Vouchers: *K. Stoehr 201 & S. Young, K. Stoehr 204 & S. Young*
- Digitaria ciliaris* (Retz.) Koel. Southern crab grass. FAC. **Non-native**
- Digitaria cognata* (J.A. Schultes) Pilger. Carolina crab grass. Unranked
- Digitaria filiformis* (L.) Koel. var. *filiformis*. Slender crab grass. Unranked. **Ottawa County record.** Known from at least ten other counties in eastern and southern OK; reported for adjacent counties in Missouri and Cherokee County (KS). Voucher: *N. Snow 10914 & S. Young*
- Digitaria ischaemum* (Schreb. ex Schweib.) Schreb. ex Muhl. Smooth crab grass. UPL, FAC*. **Non-native.**
- Digitaria sanguinalis* (L.) Scop. Hairy crab grass. UPL, FAC-. **Non-native**
- Dinebra panicea* (Retz.) P.M. Peterson & N. Snow subsp. *mucronata* (Michx.) P.M. Peterson & N. Snow. FACW
- Echinochloa crus-galli* (L.) Beauv. Large barnyard grass. FACU, OBL. **Non-native**
- Echinochloa muricata* (Beauv.) Fern. var. *muricata*. Rough barnyard grass. FAC, OBL
- Eleusine indica* (L.) Gaertn. Indian goose grass. UPL, FAC. **Non-native**
- Elymus glabriflorus* (Vasey) Scribn & Beal. Southeastern wild rye. Unranked. **Ottawa County record.** Widespread in the 4-state area; known from all adjacent counties except for Craig County

- (OK). Voucher: *C. Curran 110 & S. Young; Sperry Herbarium Staff 343; Sperry Herbarium Staff 404.*
- Elymus virginicus* L. var. *virginicus*. Virginia wild rye. FAC, FACW
- Eragrostis hirsuta* (Michx.) Nees. Big-top love grass. UPL, FACU
- Eragrostis pectinacea* (Michx.) Nees var. *pectinacea*. Purple love grass. FACU, FAC. **Ottawa County record.** Reported for adjacent counties apart from Craig County (OK), and widespread and common in the region. Voucher: *C. Curran 224 & S. Young*
- Festuca subverticillata* (Pers.) Alexeev. Nodding fescue. FACU, FAC
- Hordeum pusillum* (Ledeb.) J.A. Schultes. Prairie koeler's grass. Unranked (but clearly an upland species)
- Leersia lenticularis* Michx. Catchfly grass. OBL. **Ottawa County record.** Known from adjacent Cherokee County (KS) to the north, four other counties in eastern OK, and fairly widespread in the Mississippi and lower Ohio River drainages. Voucher: *C. Curran 255 & S. Young*
- Leersia oryzoides* (L.) Sw. Rice cut grass. OBL.
- Lolium perenne* L. var. *multiflorum* (Lam.) Husnot. Perennial ryegrass. UPL. **Non-native. Ottawa County record.** Known from adjacent counties; widespread regionally and in eastern OK. Vouchers: *K. Stoehr 189-A & S. Young; C. Curran-70 & S. Young*
- Muhlenbergia bushii* Pohl. Nodding muhly. Unranked
- Muhlenbergia schreberi* J.F. Gmel. Nimblewill. FACU*, FACU
- Panicum dichotomiflorum* Michx. var. *dichotomiflorum*. Fall panic grass.
- Paspalum laeve* Michx. Field crown grass. FAC, FACW-. **Ottawa County record.** Widespread in eastern OK and regionally. Vouchers: *N. Snow 10899 & S. Young; N. Snow 10962 & S. Young; Sperry Herbarium Staff 422.*
- Paspalum pubiflorum* Rupr. ex Fourn. Hairy-seed crown grass. FAC, FACW
- Paspalum setaceum* Michx. Slender crown grass. UPL*, FAC
- Phanopyrum gymnocarpum* (Ell.) Nash. Savannah panic-grass. OBL. **Ottawa County record.** Reported as rare in McCurtain, Cleveland and Cherokee counties (OK); known from the southern third of AR and mostly south and east. Voucher: *C. Curran 183 & S. Young*
- Phleum pratense* L. Timothy. Common timothy. FACU*, FAC. **Non-native. Ottawa County record.** Sporadically reported (four counties) from central and eastern OK but probably more common; widespread reports in adjacent KS, MO, and AR. Vouchers: *K. Stoehr 166 & S. Young; K. Stoehr 222 & S. Young; C. Curran 28 & N. Snow; C. Curran 125.*
- Poa annua* L. Annual bluegrass. FACU-, OBL. **Non-native.**
- Poa compressa* L. Flat-stem bluegrass. FACU-, FAC. **Non-native. Ottawa County record.** Reported from several counties across much of OK; widespread elsewhere, especially northward. Voucher: *K. Stoehr 126 & S. Young*
- Poa pratensis* L. subsp. *pratensis*. Kentucky bluegrass. FACU-, FACU. **Ottawa County record.** This subspecies is widespread in much of OK and North America. That it is first reported here reflects the fact that many common species are under-collected. Vouchers: *N. Snow 10831 & K. Stoehr; C. Curran 22 & N. Snow; K. Stoehr 213 & S. Young*
- Schedonorus arundinaceus* (Schreb.) Dumort. Tall false rye grass. UPL, FACW-. **Non-native. Ottawa County record.** Widespread across North America and with many reports in Oklahoma. Vouchers: *K. Stoehr 149 & S. Young; K. Stoehr 272 & S. Young; Sperry Herbarium Staff 432; C. Curran 33 & N. Snow.*
- Schedonorus pratensis* (Huds.) Beauv. Meadow false rye grass. FACU-, FAC. **Non-native. Ottawa County record.** Widespread across North America and with many reports in Oklahoma. Voucher: *K. Stoehr 274 & S. Young*
- Schizachyrium scoparium* (Michx.) Nash var. *scoparium*. Little false bluestem. UPL, FAC+
- Setaria parviflora* (Poir.) Kerguelen. Marsh bristle grass. FACU
- Setaria viridis* (L.) Beauv. var. *viridis*. Green bristle grass. **Non-native.** Unranked
- Sorghum halepense* (L.) Pers. Johnson grass. **Noxious. Non-native.** FACU-, FAC

Spartina pectinata Bosc ex Link. Freshwater cord grass. FACW, OBL
Sporobolus airoides (Torr.) Torr. Alkali-sacaton. FAC-, FAC. **Ottawa County record.** Reported for over twenty counties in (mostly) western OK, the nearest being Cherokee County; unknown from adjacent counties in AR, KS, and MO. Voucher: *N. Snow 10963 & S. Young*
Steinchisma hians (Ell.) Nash. Gaping grass. FACW-, OBL. **Ottawa County record.** Reported for most counties in eastern OK and AR. However, this is the most northerly occurrence in Oklahoma. Voucher: *Sperry Herbarium Staff 381.*
Tridens flavus (L.) A.S. Hitchc. var. *flavus*. Tall redtop. UPL, FACU
Tridens strictus (Nutt.) Nash. Long-spike fluff grass. FACU, FACW
Tripsacum dactyloides (L.) L. Eastern mock grama. FAC, FACW
Vulpia octoflora (Walt.) Rydb. var. *octoflora*. UPL, FACU+

Polemoniaceae (Phlox family)

Phlox divaricata L. Wild blue phlox. UPL, FACU

Polygonaceae (Buckwheat family)

Persicaria amphibia (L.) S.F. Gray p.p. Water smartweed. OBL. **Ottawa County record.** Widespread in OK and elsewhere in North America. Vouchers: *N. Snow 10809 et al.*; *C. Curran 199 & S. Young*; *C. Curran 232 & S. Young*
Persicaria bicornis (Raf.) Nieuwl. Pink knotweed. Unranked
Persicaria hydropiper (L.) Delarbre. Mid water-pepper. FACW*, OBL. **Non-native**
Persicaria hydropiperoides (Michx.) Small. Swamp smartweed. OBL
Persicaria lapathifolia (L.) S.F. Gray. Dock-leaf smartweed. FAC, OBL
Persicaria punctata (Ell.) Sm. Spotted smartweed. FACW, OBL
Persicaria virginiana (L.) Gaertn. Jumpseed. FAC, FACW
Polygonum aviculare L. subsp. *depressum* (Meisn.) Arcang. FACU*, FAC. **Non-native**
Polygonum ramosissimum Michx. subsp. *ramosissimum*. Yellow-flower knotweed. FACU-, FACW. **Ottawa County record.** Widespread across much of OK, including adjacent Delaware County, and regionally, although less common in AR. *C. Curran 188 & S. Young*
Rumex acetosella L. Common sheep sorrel. UPL, FACW. **Noxious. Non-native**
Rumex altissimus Wood. Pale dock. FACW, FACW+
Rumex crispus subsp. *crispus*. Curly dock. FAC. **Non-native**
Rumex verticillatus L. Swamp dock. FACW*, OBL. **Non-native. Ottawa County record.** Known infrequently in OK from several counties in the central and eastern parts of the state; more commonly east in MO and AR, where it is listed as a noxious weed. The closest report is from Cherokee County (KS) to the north. Vouchers: *C. Curran 12 & N. Snow*; *Sperry Herbarium Staff 338.*

Portulacaceae (Pursland family)

Portulaca oleracea L. Little hogweed. FACU, FAC

Primulaceae (Primrose family)

Androsace occidentalis Pursh. Western rock-jasmine. FACU-, FACU
Lysimachia ciliata L. Fringed yellow-loosestrife. FACW-, FACW+
Lysimachia nummularia L. Creeping-jenny. FACW-, OBL. **Non-native. Ottawa County record.** Otherwise known in the state from Adair and Cherokee counties; sporadic occurrences in AR, KS, and MO. Voucher: *C. Curran 339 et al.*

Ranunculaceae (Buttercup family)

Clematis pitcheri Torr. & Gray var. *pitcheri*. Bluebill. FACU*, FAC

- Enemion biternatum* Raf. Eastern false rue-anemone. UPL, FACW. **Ottawa County record.**
Common regionally, especially to the north and east, and known in most adjacent counties.
Voucher: *N. Snow 10972 et al.*
- Ranunculus abortivus* L. Kidney-leaf buttercup. FAC, FACW
- Ranunculus bulbosis* L. vel aff. St. Anthony's turnip. UPL*, FACW. **Non-native.** Because of the uncertainty of its identification it is not included in the numerical tallies. However, if correct, it would represent a state record for Oklahoma. The nearest collections are from Cherokee County (KS) and Crawford County (AR). Voucher: *K. Stoehr 243 & S. Young*
- Ranunculus fascicularis* Muhl. ex Bigelow. Early buttercup. FACU, FAC.
- Ranunculus hispidus* Michx. var. *hispidus*. Bristly buttercup. FAC, FACW. **Ottawa County record.**
Reported from counties due east and north and common regionally to the east; only two previous reports for OK (Logan and Muskogee counties). As of this time, eight collections in the Vascular Plant Data Base from Ottawa County of this species do not indicate an infraspecific level of identification. Voucher: *K. Stoehr 152 et al.*
- Ranunculus hispidus* Michx. var. *nitidus* (Chapman) T. Duncan. FACW, OBL
- Ranunculus laxicaulis* (Torr. & Gray) Darby. Mississippi buttercup. OBL. **Ottawa County record.**
Reported for thirteen counties in eastern OK, Ottawa being the northern-most; widespread to areas north and (especially) southeast. Voucher: *C. Curran 58 & S. Young*
- Ranunculus parviflorus* L. Small-flowered buttercup. FACU, FAC. **Non-native. Ottawa County record.** Known relatively nearby from Jasper and Barry counties (MO) and nine counties in OK, the nearest being Rogers County. Voucher: *K. Stoehr 242 & S. Young*
- Ranunculus pusillus* Poir. Low spleenwort. FACW+, OBL
- Ranunculus sardous* Crantz. Hairy buttercup. UPL, FAC+. **Ottawa County record.** Reported extensively in AR and from several counties in eastern OK; closest in OK is Delaware County to the south and adjacent (to east) Newton County, MO. Voucher: *K. Stoehr 270 et al.*
- Ranunculus scleratus* L. var. *scleratus*. Cursed buttercup. OBL. **Ottawa County record.** Widespread across the southern Great Plains and areas east; the nearest collections from Cherokee County (KS) and Mayes County in OK. Vouchers: *N. Snow 10847 et al.*; *K. Stoehr 74 et al.*

Rosaceae (Rose family)

- Crataegus crus-galli* L. Cock-spur hawthorn. FACU, FAC
- Crataegus phaenopyrum* (L. f.) Medik. Washington Hawthorn. FAC-, FAC. **Oklahoma state record.**
Native from Missouri and Arkansas (where extirpated) east to Florida and Connecticut (Kartesz 2017). The nearest known collection is Jasper County (MO). Voucher: *Stoehr 220 & S. Young*
- Crataegus viridis* L. var. *viridis*. Green hawthorn. FACU+, OBL
- Geum vernum* (Raf.) Torr. & Gray. Spring avens. FACU-, FAC
- Potentilla recta* L. Sulfur cinquefoil. **Non-native.** Unranked
- Potentilla simplex* Michx. Oldfield cinquefoil. UPL, FACU
- Prunus hortulana* Bailey. Hortulan plum. Not ranked.
- Prunus serotina* Ehrh. var. *serotina*. Black cherry. FACU
- Prunus virginiana* L. Chokecherry. UPL, FAC. **Ottawa County record.** Known from eight counties in OK, the closest in OK being either Adair (south) or Rogers (southwest) counties, and Labette County (KS) slightly to the northwest; the species is widespread across much of northern and western parts of the U.S.A. and adjacent parts of Canada. Voucher: *N. Snow 10964 & C. Curran*
- Pyrus calleryana* Dcne. Bradford pear. Unranked. **Non-native. Ottawa County record.** This widely planted flowering tree has become established in many areas of the eastern US and western US. Its nearest record is Jasper County (MO) to the east. Voucher: *N. Snow 10960 & S. Young*
- Rosa multiflora* Thunb. Rambler rose. UPL, FACU. **Non-native**
- Rosa setigera* Michx. Climbing rose. FACU-, FACU+
- Rubus* spp. See above regarding identification of species in this genus. Species reported for Ottawa County (Kartesz 2017; ONHI 2017) but not confirmed by our work include: *Rubus aboriginum*

Rydb., *Rubus allegheniensis* Porter var. *allegheniensis*, *R. bushii* Bailey, *R. flagellaris* Willd., *R. mollier* Bailey, *R. occidentalis* L., and *R. ostryaefolius* Rydb. The lattermost is reported by ONHI (2017) for Ottawa county, but the taxonomic concept of Kartesz (2017) restricts that taxon to a narrow distribution in Maryland, Delaware, and possibly into Virginia and as far north as Maine. One specimen tentatively identified as *R. bifrons* Vest (*Sperry Herbarium Staff 412*) would be a county record of a non-native but aggressively weedy species (“Himalayan blackberry”), although its invasive tendencies are strongest in the Pacific Northwest, where it designated as a noxious weed in Washington and Oregon.

Rubiaceae (Madder family)

Cephalanthus occidentalis L. Common buttonbrush. OBL.

Cruciata pedemontana L. Piedmont bedstraw. Unranked. **Non-native**

Diodia teres Walt. Poorjoe. UPL, FACU

Galium aparine L. Sticky-willy. FACU, FAC-

Galium pilosum Ait. Hairy bedstraw. Unranked

Galium sherardia Krause. Blue field-madder. Unranked. **Non-native. Ottawa County record.**

Reported for much of eastern OK, most of AR, and a few counties relatively nearby in KS and MO. Voucher: *C. Curran 75 & S. Young*

Galium tinctorium (L.) Scop. Stiff marsh bedstraw. FACW, OBL

Galium triflorum Michx. Flagrant bedstraw. FACU, FACU+. **Ottawa County record.** Reported for approximately fifteen counties in OK and known from all counties adjacent to Ottawa County.

Voucher: *C. Curran 296 & S. Young*

Houstonia pusilla Schoep. Tiny bluet. UPLP*, FAC-

Spermacoce glabra Michx. Smooth false buttonwood. FACW, FACW+

Salicaceae (Willow family)

Populus deltoides Bartr. ex Marsh. subsp. *deltoides*. Eastern cottonwood. FAC, FACW*

Salix caroliniana Michx. Carolina willow. FACW+, OBL

Salix nigra Marsh. Black willow. FACW+, OBL

Santalaceae (Sandalwood family)

Phoradendron leucarpum (Raf.) Reveal & M.C. Johnston subsp. *leucarpum*. Oak mistletoe.

Unranked (parasitic epiphyte). **Ottawa County record.** Reported for over half the counties in eastern OK, the nearest being Craig and Nowata counties; also known (rare) in adjacent Cherokee County (KS). Voucher: *C. Curran 14 & N. Snow*

Scrophulariaceae (Figwort family)

Verbascum blattaria L. White moth mullein. UPL, FAC. **Non-native**

Smilacaceae (Greenbriar family)

Smilax bona-nox L. var. *bona-nox*. Fringed greenbriar. FACU, FAC

Smilax hispida Muhl. ex Torr. Chinaroot. FAC, FAC+

Smilax lasioneuron Hook. Blue-ridge carrion flower. Unranked

Smilax rotundifolia L. Horsebriar. FAC

Solanaceae (Potato family)

Datura stramonium L. Jimsonweed. Unranked. **Non-native**

Physalis angulata L. Cut-leaf ground-cherry. UPL, FAC

Physalis cordata P. Mill. Heart-leaf ground-cherry. Unranked. **Ottawa County record.** Reported for Pushmataha and Choctaw counties in OK, with the nearest record in Barry County, MO. Voucher: *C. Curran 220 & S. Young*

Physalis longifolia Nutt. var. *longifolia*. Long-leaf ground-cherry. Unranked
Physalis longifolia Nutt. var. *subglabrata* (Mackenzie & Bush) Cronq. Unranked
Solanum carolinense L. var. *carolinense*. Carolina horse-nettle. UPL, FACU. **Non-native. Noxious.**
Solanum elaeagnifolium Cav. Silver-leaf nightshade. Unranked. **Ottawa County record. Noxious.**
 Known across Oklahoma and most nearby counties in adjacent states (AR, KS, MO). Voucher:
Sperry Herbarium Staff 440
Solanum ptychanthum Dunal. Eastern black nightshade. Unranked.

Ulmaceae (Elm family)

Ulmus alata Michx. Winged elm. FACU, FACU+
Ulmus americana L. American elm. FAC, FACW
Ulmus rubra Muhl. Slippery elm. FAC-, FAC

Urticaceae (Nettle family)

Boehmeria cylindrica (L.) Sw. Small-spike false nettle. FACW, OBL
Laportea canadensis (L.) Weddell. Canadian wood-nettle. FAC, FACW
Parietaria pensylvanica Muhl. ex Willd. Pennsylvania pellitory. FACU-, FACW-
Pilea pumila (L.) Gray. Canadian clearweed. FAC, FACW

Valerianaceae (Valerian family)

Valerianella radiata (L.) Dufr. Beaked cornsalad. FACU*, FACW

Verbenaceae (Verbena family)

Glandularia canadensis (L.) Nutt. Rose mock-vervain. Unranked
Phyla lanceolata (Michx.) Greene. Northern frogfruit. FACW, OBL
Verbena hastata L. Simpler's joy. FAC, FACW+
Verbena urticifolia L. White vervain. UPL, FAC+

Violaceae (Violet family)

Viola bicolor Pursh. Field pansy. UPL, FAC
Viola missouriensis Greene. Missouri violet. FACU*, FACW+
Viola nephrophylla Greene. Northern bog violet. FACU, FACW+
Viola pubescens Ait. Downy yellow violet. FACU-, FACW
Viola sororia Willd. Hooded blue violet. FAC*, FAC

Vitaceae (Grape family)

Ampelopsis cordata Michx. Heart-leaf peppervine. UPL, FAC+
Parthenocissus quinquefolia (L.) Planch. Virginia-creeper. FACU, FAC
Vitis aestivalis Michx. var. *lincecumii* (Buckl.) Munson. Summer grape. UPL, FAC
Vitis cinerea (Englem.) Engelm. ex Millard var. *cinerea*. Gray-bark grape. FAC, FACW