

**Additions to the vascular flora of the Red Slough Wildlife  
Management Area, McCurtain County, Oklahoma**

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## ABSTRACT

The Red Slough Wildlife Management Area (7,800 ha) is located on the West Gulf Coastal Plain in southeastern Oklahoma. The inventory was motivated by land acquisitions and is intended to augment a 1999 inventory. We report 193 taxa of vascular plants, with 177 species, 151 genera, and 66 families. This is a 56% increase in the number of taxa previously listed for the site. The largest families were the Poaceae (with 35 taxa), Asteraceae (19 taxa), and Fabaceae (18 taxa). Thirty-one non-native taxa and 17 taxa tracked by the Oklahoma Natural Heritage Inventory were encountered.

Key words: flora, inventory, Oklahoma, rare taxa, Upper Gulf Coastal Plain

## INTRODUCTION

In 1996, the United States Forest Service, in cooperation with the Natural Resources Conservation Service, and the Oklahoma Department of Wildlife Conservation, acquired 2,158 hectares of fallow rice fields and secondary bottomland forests in McCurtain County, Oklahoma and initiated an ambitious wetland restoration project (United States Forest Service 2015). The site was named the Red Slough Wildlife Management Area (RSWMA), and Hoagland and Johnson were contracted in March 1999 to inventory the vascular flora, an effort that reported 343 taxa in 90 families (2004; Table 1). In the decade since the primary acquisition, 5,624 hectares have been added to the RSWMA (Oklahoma Department of Wildlife Conservation 2015), and a successful wetland management program has created a mosaic of forested and herbaceous wetlands that hosts over 300 species of resident and migratory birds, many unique to the state

(United States Forest Service 2015). Given the increased size of RSWMA, the active management, and that a decade had elapsed since the initial inventory, this project was undertaken to document previously unreported taxa of vascular plants.

#### STUDY AREA

The RSWMA (94.616<sup>0</sup>W to 94.703<sup>0</sup>W and 33.725<sup>0</sup>N to 33.755<sup>0</sup>N) is located on the Dissected Coastal Plain province of Oklahoma (Curtis et al. 2008) in the Upper West Gulf Coastal Plain (Hunt 1974). The topography is nearly level and elevation ranges from 100.3 m to 104.2 m above sea level. The surface geology is predominantly Quaternary alluvial deposits consisting of silt, sand, clay, and gravels on floodplains and terraces of the Red River (Johnson 2008). Two soil associations occur at the RSWMA. The Kinta-Wrightsville association occurs on uplands and terraces along the Red River and consists of deep, nearly level, poorly drained loamy soils. The Pledger-Roebuck-Redlake Association is composed of deep, nearly level, moderately to poorly drained clayey floodplain soils (Reasoner 1974).

The RSWMA is located in the Subtropical Humid (Cf) climate zone (Trewartha 1968). Summers are warm (mean July temperature 26.9<sup>0</sup>C) and humid, and winters are relatively short and mild (mean January temperature 4.0<sup>0</sup>C). Mean annual precipitation is 136 cm (Oklahoma Climatological Survey 2015). Potential natural vegetation is bottomland forest (Duck and Fletcher 1943), in which *Quercus lyrata*, *Q. nigra*, and *Q. phellos* were the predominant canopy species (Hoagland 2000). These forests were cleared in the mid-nineteenth century for agricultural production, including rice cultivation (Oklahoma Department of Wildlife Conservation 2015). Secondary growth

forest, old fields, and man-made lakes and wetlands now predominate throughout the study area.

## METHODS

Vouchers of vascular plants were made throughout the growing season (March to October) of 2010. Vouchers were made only for taxa not collected during the 1999 survey. Vouchers for exotic taxa were made from naturalized populations only, thus excluding cultivated and ornamental plants. Specimens were processed at the Robert Bebb Herbarium (OKL) at the University of Oklahoma following standard procedures. Manuals used for specimen identification included Smith (1994) and Tyril et al. (2010). Identifications were verified by comparison with collections from the Robert Bebb Herbarium. Origin, either native or introduced to North America, was determined using the PLANTS Database (USDA-NRSC 2015) and Taylor and Taylor (1991). Nomenclature follows the Integrated Taxonomic Information System (ITIS 2015) and Angiosperm Phylogeny Group III (Stevens 2001 and onwards). The resulting list was compared to Sorrie and Weakley (2001) to identify coastal plain endemics.

## RESULTS AND DISCUSSION

We collected 193 taxa of vascular plants in 151 genera and 66 families, previously unreported from RSWMA (Table 1, Appendix 1), representing a 56% increase from Hoagland and Johnson (2004). Families contributing the greatest number of new taxa were Poaceae (35 taxa), Asteraceae (19 taxa), and Fabaceae (18 taxa). Thirty-one new non-native taxa were collected in this study, surpassing the 24 reported in 1999. The Poaceae and the Fabaceae had the most non-native species (nine and eight,

respectively). Perennial taxa (64%) predominated the flora, followed by annuals (35%) and biennials (1%). Seventeen taxa were encountered that are currently tracked by the Oklahoma Natural Heritage Inventory (Oklahoma Natural Heritage Inventory 2014, Table 2), compared to 15 in 1999 (Table 1).

Nine species occurred in four of the coastal plain endemic categories of Sorrie and Weakley (2001); six species were “widespread, including the Mississippi embayment” (*Brunnichia ovata*, *Crataegus marshallii*, *Hydrolea ovata*, *Planera aquatica*, *Thalia dealbata*, and *Trepocarpus aethusae*), one “widespread, disjunct to central Tennessee and/or Kentucky” (*Chasmanthium laxum*), one “West Gulf Coastal Plain” (*Sagittaria papillosa*), and one “widespread, disjunct to western Cuba” (*Axonopus furcatus*).

Four habitats were identified at RSWMA (Hoagland 2000):

1. *Quercus nigra*–*Quercus phellos*/*Carpinus caroliniana* forest association (QNQP)

The *Quercus nigra*–*Quercus phellos*/*Carpinus caroliniana* forest association is the most extensive forest type at RSWMA, all occurrences of which were second-growth. These forest stands consist of small patches in a matrix of old fields and moist soil management units. Associated taxa include *Crataegus marshallii*, *Ilex decidua*, *Sabal minor*, and *Ulmus rubra*.

2. *Quercus alba*–*Carya alba* forest association (QACA)

*Quercus alba*–*Carya alba* forest association is also found in small patches on the RSWMA. Associated taxa include *Acer rubrum*, *Cornus florida*, *Crataegus spathulata*, *Lindera benzoin*, *Carpinus caroliniana*, and *Quercus falcata*.

### 3. Herbaceous wetland vegetation (WETL)

Several wetland vegetation associations were present at RSWMA. However, since they are so heavily intergraded, all were subsumed into one category. Examples of the *Typha latifolia* herbaceous association and the *Ludwigia peploides*–*Persicaria hydropiperoides* herbaceous association predominate. Common wetland taxa include *Cephalanthus occidentalis*, *Hibiscus laevis*, *Juncus effusus*, *Nelumbo lutea*, *Persicaria amphibia*, *Sagittaria graminea*, and *Salix nigra*.

### 4. Disturbed areas and old field vegetation (DAOF)

Disturbed areas consist of parking areas, mowed lawns, roadsides, and other sites exhibiting signs of physical disruption. Common plants in disturbed areas include *Ambrosia artemisiifolia*, *A. trifida*, *Andropogon virginicus*, *Conyza canadensis*, *Daucus pusillus*, *Digitaria ciliaris*, *Lespedeza cuneata*, *Melilotus officinalis*, *Mollugo verticillata*, *Rhus glabra*, *Sorghum halepense*, and *Trifolium dubium*.

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## APPENDIX 1

Annotated list of vascular plant taxa collected during a resurvey of the Red Slough Wildlife Management Area, McCurtain County, Oklahoma. Each entry includes life history (A = annual, B = biennial, or P = perennial), growth form (f = forb, g = graminoid, s = shrub, t = tree), habitat(s) of occurrence (QNQP = *Quercus nigra*-*Quercus phellos*/*Carpinus caroliniana* forest association, QACA = *Quercus alba*-*Carya alba* forest association, WETL = herbaceous wetland vegetation, DAOF = disturbed area/old field), collection number, and unit from which the voucher was collected. Introduced taxa are denoted with an asterisk (\*) and taxa tracked by the Oklahoma Natural Heritage Inventory are denoted with a dagger (+).

### ACANTHACEAE

*Ruellia humilis* Nutt. - P; F; DAOF; RS-108; Unit 9 Wild Petunia

### ADOXACEAE

*Viburnum rufidulum* Raf. - P; S; QACA RS-082; Unit 9 Rusty Blackhaw

### ALISMATACEAE

*Sagittaria graminea* Michx. ssp. *graminea* - P; F; WETL; RS-072; Unit 9 Grass-leaved Arrowhead

*Sagittaria montevidensis* Cham & Schlecht. ssp. *calycina* (Engelm.) Bogin - P; F; WETL;

RS-224; Unit 30E Giant Arrowhead

*Sagittaria papillosa* Buchenau - P; F; WETL; RS-278; Unit 26 Nipplebract Arrowhead

### AMARYLLIDACEAE

*Hymenocallis lirioides* (Raf.) Shinnery; P; F; QNQP; RS-044; Unit 15 Spider Lily

ANACARDIACEAE

*Toxicodendron pubescens* Mill. - P; S; DAOF, QACA; RS-279; Unit 20 Atlantic Poison Oak

APIACEAE

\**Daucus carota* L. - B; F; DAOF; RS-036; Unit 11 Wild Carrot

*Eryngium yuccifolium* Michx. - P; F; DAOF; RS-114; Unit 34 Rattlesnake Master

*Ptilimnium nuttallii* (DC.) Britton - A; F; DAOF; RS-129; Unit 19 Mock Bishops-weed

*Sanicula canadensis* L. - B; F; QACA; RS-061; Unit 9 Black Snakeroot

\**Torilis arvensis* (Huds.) Link - A; F; DAOF; RS-060; Unit 31 Hedge Parsley

*Trepocarpus aethusae* Nutt. ex DC. - A; F; DAOF; RS-106; Unit 9 Whitenymph

APOCYNACEAE

*Cynanchum leave* (Michx.) Pers. - P; F; DAOF; RS-178; Unit 4 Honeyvine Milkweed

*Apocynum cannabinum* L. - P; F; DAOF; RS-118; Unit 16W Dogbane

*Asclepias tuberosa* L. - P; F; DAOF; RS-281; Unit 20 Butterfly Weed

ARACEAE

*Arisaema dracontium* (L.) Schott - P; F; QACA; one individual, no voucher collected; Unit Green Dragon

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ASPARAGACEAE

*Yucca louisianensis* Trel. - P; S; DAOF; RS-290; Unit 20 Gulf coast Yucca

ASPLENIACEAE

*Asplenium platyneuron* (L.) Britton, Sterns & Poggenb. - P; F; QACA; RS-081; Unit 9 Ebony Spleenwort

ASTERACEAE

- †*Acmella repens* (Walter) Rich. - P; F; WETL; RS-232; Unit 27A Oppositeleaf Spottflower
- Ambrosia bidentata* Michx. - A; F; DAOF; RS-180; Unit 9 Lanceleaf Ragweed
- Baccharis halimifolia* L. - P; S; DAOF; RS-264; Unit 20 Eastern Baccharis
- Bidens polylepis* S.F. Blake - A; F; WETL; RS-152; Unit 9 Bearded Beggartick
- Bidens laevis* (L.) Britton, Sterns & Poggenb. - A; F; WETL; RS-251; Unit 21 Smooth Beggartick
- Boltonia asteroides* (L.) L'Hér. - P; F; WETL; RS-259; Unit 29 False Aster
- Erechtites hieraciifolius* (L.) Raf. ex DC. var. *hieraciifolius* - A; F; QACA; RS-253; Unit 19 Fireweed
- Erigeron strigosus* Muhl. ex Willd. var. *septentrionalis* (Fernald & Wiegand) Fernald - A; F; DAOF; RS-043; Unit 6 Common Eastern Fleabane
- Eupatorium perfoliatum* L. - P; F; DAOF; RS-187; Unit 20 Boneset
- Eupatorium serotinum* Michx. - P; F; DAOF; RS-197; Unit 6 Late Boneset
- †*Euthamia leptoccephala* (Torr. & A. Gray) Greene ex Porter & Britton - P; F; DAOF; RS-257; Unit 40N Bushy Goldenrod
- Helianthus angustifolius* L. - P; F; DAOF; RS-265; Unit 20 Swamp Sunflower
- Heterotheca subaxillaris* (Lam.) Britton & Rusby ssp. *latifolia* (Buckley) Semple - A; F; DAOF; RS-177; Unit 20 Camphorweed
- Lactuca canadensis* L. - A; F; DAOF; RS-149; Unit 10 Canada Lettuce
- Silphium integrifolium* Michx. - P; F; DAOF; RS-137; Unit 27B Whole-leaf Rosinweed
- †*Symphotrichum dumosum* (L.) G.L. Nesom var. *dumosum* - P; F; WETL; RS-262; Unit 20 ~~Panicled Aster~~ Bushy Aster
- Symphotrichum lanceolatum* (Willd.) G.L. Nesom ssp. *lanceolatum* - P; F; DAOF; RS-247; Unit 19 Panicled Aster

*Symphotrichum praealtum* (Poir.) G.L. Nesom - P; F; DAOF; RS-256; Unit 33 Willowleaf Aster  
*Verbesina helianthoides* Michx. - P; F; DAOF; RS-256; Unit 19 Yellow Crownbeard

#### BETULACEAE

*Betula nigra* L. - P; T; QNQP; RS-027; Unit 35 River Birch

#### BRASSICACEAE

*Lepidium densiflorum* Schrad. - A; F; DAOF; RS-145; Bittern Lake Common Pepperweed

*Lepidium virginicum* L. ssp. *virginicum* - A; F; DAOF; RS-090; Unit 16W Least Pepperwort

*Rorippa palustris* (L.) Besser ssp. *fernaldiana* (Butters & Abbe) Jonsell - A; F; WETL; RS-010; Unit 7 Marsh Yellow-cross

#### CACTACEAE

*Opuntia macrorhiza* Engelm. - P; S; DAOF; RS-255; Unit 4 Plains Prickly-Pear

#### CAMPANULACEAE

*Lobelia puberula* Michx. - P; F; DAOF; RS-206; Unit 20 Downy Lobelia

#### CARYOPHYLLACEAE

\**Cerastium glomeratum* Thuill. - A; F; DAOF; RS-014; Unit 6 Sticky Mouse-ear Chickweed

*Sagina decumbens* (Elliott) Torr. & A. Gray - A; F; DAOF; RS-031; Unit 39 Trailing Pearlwort

#### CERATOPHYLLACEAE

*Ceratophyllum demersum* L. - P; F; WETL; RS-168; Unit 15 Coontail

#### COMMELINACEAE

*Commelina virginica* L. - P; F; DAOF; RS-215; Unit 9 Virginia Dayflower

*Tradescantia occidentalis* (Britton) Smyth var. *occidentalis* - P; F; DAOF; RS-035; Unit 6

*Tradescantia ohiensis* Raf. - P; F; DAOF; RS-088; Unit 9 Prairie Spiderwort

CONVOLVULACEAE

- Dichondra carolinensis* Michx. - P; F; DAOF; RS-217; Unit 9 Carolina Pynsfoot  
\**Ipomoea hederacea* Jacq. - A; F; DAOF; RS-225; Unit 30W Ivy-leaved Morning Glory  
*Ipomoea lacunosa* L. - A; F; DAOF; RS-212; Unit 10 Whitestar Morning Glory  
*Ipomoea pandurata* (L.) G. Mey. - P; F; DAOF; RS-123; Unit 14 Man-of-the-earth

CYPERACEAE

- Cyperus odoratus* L. - A; G; DAOF; RS-243; Unit 38 Fragrant Flatsedge  
*Eleocharis lanceolata* Fernald - A; G; WETL; RS-076; Unit 9 Dagger-leaf Spikerush  
*Eleocharis quadrangulata* (Michx.) Roem. & Schult. - P; G; WETL; RS-186; Unit 40N Square-stem Spikerush  
*Fimbristylis vahlii* (Lam.) Link - A; G; WETL; RS-175; Unit 31 Vahl's Fimbry  
*Rhynchospora glomerata* (L.) Vahl - P; G; WETL; RS-136; Unit 19 Clustered Beaksedge  
*Scirpus cyperinus* (L.) Kunth - P; G; WETL; RS-125; Unit 5 Woolgrass

EQUISETACEAE

- Equisetum laevigatum* A. Br. - P; F; WETL; RS-237; Unit 58 Smooth Horsetail

ERICACEAE

- Monotropa uniflora* L. - P; F; QACA; RS-287; Unit 9 Indian Pipe

EUPHORBIACEAE

- Acalypha gracilens* A. Gray - A; F; DAOF; RS-134; Unit 19 Slender Three-seeded Mercury  
*Croton glandulosus* L. - A; F; DAOF; RS-102; Unit 9 Tropic Croton  
*Croton monanthogynus* Michx. - A; F; DAOF; RS-160; Unit 9 Prairie Tea

FABACEAE

- †*Aeschynomene indica* L. - P; F; DAOF; RS-204; Unit 40N Indian Jointvetch

- Centrosema virginianum* (L.) Benth. - P; F; DAOF; RS-284; Unit 20 Spurred Butterfly Pea
- Desmodium paniculatum* (L.) DC. var. *paniculatum* - P; F; QACA; RS-209; Unit 8 Panicked Tick-Trefoil
- \**Kummerowia striata* (Thunb.) Schindl. - A; F; DAOF; RS-205; Unit 20 Japanese Clover
- \**Lespedeza cuneata* (Dum. Cours.) G. Don - P; F; DAOF; RS-120; Unit 34 Chinese Lespedeza
- Lespedeza repens* (L.) W.P.C. Barton - P; F; QACA; RS-234; Unit 27A Creeping Lespedeza
- Lespedeza virginica* (L.) Britton - P; F; DAOF; RS-214; Unit 9 Slender Lespedeza
- \**Medicago polymorpha* L. - P; F; DAOF; RS-021; Unit 16W California Burclover
- \**Securigera varia* (L.) Lassen - P; F; DAOF; RS-277; Bittern Lake Purple Crown Vetch
- Senna marilandica* (L.) Link - P; F; WETL; RS-190; Unit 44 Wild Senna
- Strophostyles helvola* (L.) Elliott - A; F; DAOF; RS-192; Unit 9 Annual Woolly Bean
- Strophostyles leiosperma* (Torr. & A. Gray) Piper - A; F; DAOF; RS-181; Unit 9 Small Fuzzy Bean
- \**Trifolium campestre* Schreb. - A; F; DAOF; RS-037; Unit 8 Low Hop Clover
- \**Trifolium incarnatum* L. - A; F; DAOF; RS-065; Unit 9 Crimson Clover
- Trifolium reflexum* L. - A; F; DAOF; RS-077; Unit 9 Buffalo Clover
- Vicia minutiflora* D. Dietr. - A; F; DAOF; RS-094; Unit 35 Pygmyflower Vetch
- \**Vicia sativa* L. - A; F; DAOF; RS-005; Unit 4 Garden Vetch
- \**Wisteria floribunda* (Willd.) DC. - P; V; DAOF; RS-009; Unit 9 Japanese Wisteria

#### FAGACEAE

- Quercus marilandica* Münchh. - P; T; QACA; RS-068; Unit 9 Blackjack Oak
- Quercus palustris* Münchh. - P; T; QNQP; RS-041; Unit 11 Pin Oak
- Quercus stellata* Wangenh. - P; T; QACA; RS-074; Unit 9 Post Oak

#### GERANIACEAE

\**Geranium dissectum* L. - A; F; DAOF; RS-023; Bittern Lake Cut-leaved Geranium

HALORAGACEAE

*Myriophyllum heterophyllum* Michx. - P; F; WETL; RS-272; Unit 27a Variable Watermilfoil

HELIOTROPIACEAE

\**Heliotropium indicum* L. - A; F; WETL; RS-127; Unit 30E Indian Heliotrope

HYDROCHARITACEAE

†*Limnobium spongia* (Bosc) Rich. ex Steud. - P; F; WETL; RS-239; Unit 27A American Spongeplant

HYDROLEACEAE

*Hydrolea uniflora* Raf. - P; F; WETL; RS-113; Bittern Lake Oneflower False Fiddleleaf

HYPERICACEAE

*Hypericum gymnanthum* Englem. & A. Gray - P; F; DAOF; RS-157; Unit 9 Claspingleaf St. Johnswort ~~Five-lobed St. Johnswort~~

†*Hypericum lobocarpum* Gatt. ex J.M. Coult. - P; S; DAOF; RS-283; Unit 20 Five-lobed St. Johnswort

JUGLANDACEAE

†*Carya myristiciformis* (F. Michx.) Elliott - P; T; QACA; RS-241; Unit 8 Nutmeg Hickory

JUNCACEAE

*Juncus acuminatus* Michx. - P; G; WETL; RS-040; Unit 8 Tapertip Rush

*Juncus bufonius* L. - A; G; WETL; RS-029; Unit 39 Toad Rush

LAMIACEAE

*Hedeoma hispida* Pursh - A; F; DAOF; RS-067; Unit 9 Rough False Pennyroyal

\**Lamium amplexicaule* L. - A; F; DAOF; RS-034; Unit 11 Henbit Dead-nettle

*Lycopus rubellus* Moench - P; F; WETL; RS-233; Unit 27A Water horehound

*Monarda russeliana* Nutt. ex Sims - P; F; DAOF; RS-059; Teal Lake Redpurple Bee balm

†*Physostegia intermedia* (Nutt.) Engelm. & A. Gray - P; F; WETL; RS-046; Unit 4 Marsh Obedient-plant  
*Teucrium canadense* L. - P; F; DAOF; RS-111; Unit 11 Canada Germander

LENTIBULARIACEAE

*Utricularia gibba* L. - P; F; WETL; RS-054; Otter Lake Floating Bladderwort

LILIACEAE

*Erythronium rostratum* W. Wolf - P; F; QACA; RS-092; Unit 35 Yellow Troutlily

LYTHRACEAE

\**Lagerstroemia indica* L. - P; S; DAOF; RS-288; Unit 9 Crape Myrtle

MALVACEAE

*Hibiscus laevis* All. - P; F; WETL; RS-126; Unit 7 Halberd-leaf Rosemallow

*Sida spinosa* L. - A; F; DAOF; RS-191; Unit 5 Prickly Fanpetals

*Tilia americana* L. - P; T; QACA; RS-093; Unit 35 American Basswood

MARANTACEAE

†*Thalia dealbata* Fraser ex Roscoe - P; F; WETL; RS-057; Unit 30E Powdery Thalia

MOLLUGINACEAE

*Mollugo verticillata* L. - A; F; DAOF; RS-116; Unit 19 Green Carpetweed

MORACEAE

*Maclura pomifera* (Raf.) C.K. Schneid. - P; T; DAOF; RS-112; Unit 11 Osage Orange

MYRICACEAE

†*Morella cerifera* (L.) Small - P; S; DAOF; RS-229; Unit 25 Wax Myrtle

NELUMBONACEAE

*Nelumbo lutea* Willd. - P; F; WETL; RS-115; Bittern Lake American Lotus



NYMPHAEACEAE

*Nymphaea odorata* Aiton ssp. *odorata* - P; F; WETL; RS-053; Otter Lake American White Waterlily

OLEACEAE

\**Ligustrum sinense* Lour. - P; S; DAOF; RS-042; Unit 9 Chinese Privet

ONAGRACEAE

*Ludwigia glandulosa* Walter - P; F; WETL; RS-133; Unit 19 Cylindric-fruited Primrose

*Ludwigia leptocarpa* (Nutt.) H. Hara - P; F; WETL; RS-144; Unit 27A Anglestem Primrose

*Ludwigia palustris* (L.) Elliott - P; F; WETL; RS-193; Unit 9 Marsh Seedbox

*Ludwigia peploides* (Kunth) P.H. Raven - P; F; WETL; RS-122; Unit 7 Floating Primrose

*Oenothera curtiflora* W.L. Wagner & Hoch - A; F; DAOF; RS-166; Unit 8 Lizard-tail

*Oenothera filiformis* (Small) W.L. Wagner & Hoch - A; F; DAOF; RS-208; Unit 8 Bee-blossom

*Oenothera linifolia* Nutt. - A; F; DAOF; RS-064; Unit 9 Thread-leaf Evening Primrose

*Oenothera villosa* Thunb. - P; F; DAOF; RS-207; Unit 20 Hairy Evening Primrose

ORCHIDACEAE

*Spiranthes cernua* (L.) Rich. - P; F; DAOF; RS-267; Unit 20 Nodding Lady's Tresses

†*Spiranthes odorata* (Nutt.) Lindl. - P; F; QNQP; (observed, no voucher collected); Unit

35 Marsh Lady's Tresses

†*Spiranthes praecox* (Walter) S. Watson - P; F; QNQP; (observed, no voucher

collected); Unit 9 Greenvein Lady's Tresses

*Spiranthes tuberosa* Raf. - P; F; DAOF; RS-289; Unit 9 Little Lady's Tresses

OROBANCHACEAE

*Agalinis gattingeri* (Small) Small - A; F; DAOF; RS-230; Unit 20 Roundstem False Foxglove

- Agalinis heterophylla* (Nutt.) Small - A; F; DAOF; RS-226; Unit 8 Prairie False Foxglove  
*Buchnera americana* L.; P; F; Arbour s.n.; Unit 20 American Bluehearts  
*Castilleja indivisa* Engelm. - A; F; DAOF; RS-003; Unit 9 Texas Indian Paintbrush

PLANTAGINACEAE

- Mecardonia acuminata* (Walter) Small - P; F; DAOF; RS-213; Unit 9 Axilflower  
*Penstemon digitalis* Nutt. ex Sims - P; F; DAOF; RS-066; Unit 9 Foxglove Beardtongue  
*Plantago pusilla* Nutt. - A; F; DAOF; RS-030; Unit 39 Dwarf Plantain  
 \**Veronica arvensis* L. - DAOF; RS-033; A; F; Unit 11 Corn Speedwell

POACEAE

- Agrostis hyemalis* (Walter) Britton, Sterns & Poggenb. - P; G; WETL; RS-271; Unit 9 Winter Bentgrass  
 \**Aira elegantissima* Schur - A; G; DAOF; RS-062; Unit 9 Lace Hairgrass  
*Andropogon glomeratus* (Walter) Britton, Sterns & Poggenb. - P; G; WETL; RS-261; Unit Bushy  
 Bluestem

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- Andropogon ternarius* Michx. - P; G; DAOF; RS-263; Unit 20 Splitbeard Bluestem  
*Aristida ramosissima* Engelm. ex A. Gray - A; G; DAOF; RS-223; Unit 30E S-curve Threawn  
 †*Axonopus furcatus* (Flueggé) Hitchc. - P; G; WETL; RS-167; Unit 13 Big Carpetgrass  
 \**Bromus arvensis* L. - A; G; DAOF; RS-047; Unit 6 Field Brome  
 \**Bromus secalinus* L. - A; G; DAOF; RS-071; Unit 9 Rye Brome  
*Coleataenia longifolia* (Torr.) Soreng ssp. *rigidula* (Bosc ex Nees) Soreng; P; G; RS-183;  
 Unit 9 - P; G; DAOF; RS-183; Unit 9 Long-leaved Panic Grass  
 \**Dactylis glomerata* L. - P; G; DAOF; RS-022; Unit 27A Orchard grass  
*Danthonia spicata* (L.) P. Beauv. ex Roem. & Schult. - P; G; QACA; RS-079; Unit 9 Poverty Oatgrass

- Dichanthelium aciculare* (Desv. ex Poir.) Gould & C.A. Clark - P; G; DAOF; RS-195; Unit 9 Rosette Grass
- Dichanthelium villosissimum* (Nash) Freckmann - P; G; DAOF; RS-196; Unit 9 Whitehair Rosette Grass
- Digitaria ciliaris* (Retz.) Koeler - A; G; DAOF; RS-194; Unit 9 Southern Crabgrass
- Digitaria cognata* (Schult.) Pilg. - P; G; DAOF; RS-131; Unit 38 Fall Witchgrass
- Echinochloa muricata* (P. Beauv.) Fernald - A; G; WETL; RS-140; Unit 13 Rough Barnyardgrass
- \**Eleusine indica* (L.) Gaertn. - A; G; DAOF; RS-109; Unit 11 Indian Goosegrass
- Eragrostis hirsuta* (Michx.) Nees - P; G; DAOF; RS-131; Unit 38 Bigtop Lovegrass
- Eragrostis spectabilis* (Pursh) Steud. - P; G; DAOF; RS-199; Unit 9 Purple Lovegrass
- Eriochloa contracta* Hitchc. - A; G; DAOF; RS-141; Unit 13 Prairie Cupgrass
- Glyceria septentrionalis* Hitchc. - P; G; WETL; RS-073; Unit 9 Floating Mannagrass
- †*Leptochloa panicoides* (J. Presl) Hitchc. - A; G; WETL; RS-189; Unit 30E Amazon Sprangletop
- Panicum dichotomiflorum* Michx. - A; G; DAOF; RS-221; Unit 30E Fall Panicgrass
- Panicum virgatum* L. - P; G; DAOF; RS-100; Unit 10 Switchgrass
- \**Paspalum urvillei* Steud. - P; G; DAOF; RS-270; Otter Lake Vasey's Grass
- Poa autumnalis* Muhl. ex Elliott - P; G; DAOF; RS-095; Unit 35 Autumn Bluegrass
- †*Saccharum giganteum* (Walter) Pers. - P; G; WETL; RS-260; Unit 26 Sugarcane Plumegrass
- \**Schedonorus arundinaceus* (Schreb.) Dumort - P; G; DAOF; RS-026; Unit 30E Tall Fescue
- Sorghastrum nutans* (L.) Nash - P; G; DAOF; RS-173; Unit 20 Indiangrass
- Sphenopholis obtusata* (Michx.) Scribn. - P; G; WETL; RS-039; Unit 8 Prairie Wedgescale
- Steinchisma hians* (Elliott) Nash - P; G; WETL; RS-184; Unit 5 Gaping Grass
- Tridens strictus* (Nutt.) Nash - P; G; DAOF; RS-156; Unit 9 Longspike Tridens
- Tripsacum dactyloides* (L.) L. - P; G; DAOF; RS-171; Unit 16W Eastern Gamagrass

\**Triticum aestivum* L. - A; G; DAOF; RS-069; Unit 9 Common wheat

\**Vulpia myuros* (L.) C.C. Gmel. - A; G; DAOF; RS-058; Teal Lake Annual fescue

#### POLYGALACEAE

*Polygala sanguinea* L. - A; F; DAOF; RS-121; Unit 34 Purple milkwort

#### POLYGONACEAE

*Brunnichia ovata* (Walter) Shinnery - P; V; WETL; RS-098; Unit 10 Buckwheat vine

*Persicaria amphibia* (L.) Delarbre - P; F; WETL; RS-222; Unit 38 Longroot smartweed

†*Persicaria glabra* (Willd.) M. Gómez - A; F; WETL; RS-228; Unit 38 Denseflower knotweed

#### PONTEDERIACEAE

†*Heteranthera multiflora* (Griseb.) C.N. Horn - A; F; WETL; RS-238; Unit 27A Mudplantain

#### PORTULACACEAE

\**Portulaca oleracea* L. - A; F; DAOF; RS-202; Unit 31 Common purslane

#### POTAMOGETONACEAE

*Potamogeton diversifolius* Raf. - P; F; WETL; RS-055; Unit 44 Waterthread pondweed

*Potamogeton nodosus* Poir. - P; F; WETL; RS-056; Unit 27A Longleaf pondweed

*Potamogeton pusillus* L. ssp. *pusillus* - P; F; WETL; RS-275; Bittern Lake Lesser pondweed

#### RANUNCULACEAE

\**Ranunculus sardous* Crantz - A; F; DAOF; RS-038; Unit 8 Hairy buttercup

*Ranunculus longirostris* Godr. - P; F; WETL; RS-287; Unit 10 Longbeak buttercup

*Thalictrum thalictroides* (L.) Eames & B. Boivin - P; F; QACA; RS-091; Unit 35 Rue anemone

#### ROSACEAE

*Crataegus spathulata* Michx. - P; T; QACA; RS-258; Unit 4 Littlehip hawthorn

*Potentilla simplex* Michx. - P; F; DAOF; RS-028; Unit 39 Common Cinquefolia

RUBIACEAE

\**Sherardia arvensis* L. - A; F; DAOF; RS-017; Unit 6 Field Madder

RUTACEAE

*Zanthoxylum clava-herculis* L. - P; T; DAOF; RS-164; Unit 9 Hercules-club

SALICACEAE

*Populus deltoides* W. Bartram ex Marshall ssp. *deltoides* - P; T; QNQP; RS-020; Unit 15 Eastern Cottonwood

SAPOTACEAE

*Sideroxylon lanuginosum* Michx. ssp. *lanuginosum* - P; T; QACA; RS-235; Unit 58 Gum ~~Bumelia~~ Bumelia

SOLANACEAE

*Physalis pubescens* L. - A; F; DAOF; RS-138; Unit 19 Husk Tomato

SPHENOCLEACEAE

\**Sphenoclea zeylanica* Gaertn. - A; F; WETL; RS-273; Unit 31 Chickenspike

TYPHACEAE

*Typha angustifolia* L. - P; F; WETL; RS-285; Unit 26 Narrowleaf Cattail

ULMACEAE

*Ulmus alata* Michx. - P; T; QACA; RS-154; Unit 9 Winged Elm

VERBENACEAE

*Verbena brasiliensis* Vell. - A; F; DAOF; RS-210; Unit 8 Brazilian Vervain

Table 1: Summary of collections from the Red Slough Wildlife Management Area, McCurtain County, Oklahoma. Presented are totals from 1999 (Hoagland and Johnson 2004), the present study, and a list generated by combining the two studies. Format follows Palmer and Richardson (2012).

Classification	Number of Taxa		
	Combined	1999	2010
Families	114	90	66
Genera	318	227	151
Species	517	340	177
Infraspecific taxa	19	3	16
Tracked taxa	32	15	17
Exotic taxa	53	24	31
Perennials	376	256	124
Annuals	153	79	67
Biennials	5	8	2

Table 2. Taxa tracked by the Oklahoma Natural Heritage Inventory that occur at the Red Slough Wildlife Management Area. Taxa are ranked according to level of imperilment at the subnational (S) and global (G) levels on a scale of 1 to 5: a 1 represents a taxon that is imperiled, and a 5 represents a taxon that is secure. Q = questionable or unresolved taxonomy, T = indicate infraspecific taxa (Groves et al. 1995).

Taxa		G rank	S rank
<i>Acmella repens</i>	Asteraceae	G5	S1
<i>Aeschynomene indica</i>	Fabaceae	G5	S1
<i>Axonopus furcatus</i>	Poaceae	G5	S1
<i>Carya myristiciformis</i>	Juglandaceae	G4	S1
<i>Euthamia leptcephala</i>	Asteraceae	G5	S1
<i>Heteranthera multiflora</i>	Pontederiaceae	G4	S1
<i>Hypericum lobocarpum</i>	Hypericaceae	G4Q	S1
<i>Leptochloa panicoides</i>	Poaceae	G5	S1
<i>Limnobium spongia</i>	Hydrocharitaceae	G4	S1
<i>Morella cerifera</i>	Myricaceae	G5	S1
<i>Persicaria glabra</i>	Polygonaceae	G5	S1
<i>Physostegia intermedia</i>	Lamiaceae	G5	S1
<i>Saccharum giganteum</i>	Poaceae	G5	S1
<i>Spiranthes odorata</i>	Orchidaceae	G5	S1
<i>Spiranthes praecox</i>	Orchidaceae	G5	S1
<i>Symphyotrichum dumosum</i> var. <i>dumosum</i>	Asteraceae	G5T3T5	S3
<i>Thalia dealbata</i>	Marantaceae	G4	S3

Figure 1: Location of the Red Slough Wildlife Management Area, McCurtain County, Oklahoma.

