SURVEY OF THE VASCULAR FLORA OF THE BOEHLER SEEPS AND SANDHILLS PRESERVE

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Located in Atoka County of south-central Oklahoma, The Nature Conservancy’s Boehler Seeps and Sandhills Preserve comprises sandhills, acidic hillside seeps, marshes, intermittent and permanent streams, and shallow lakes. The sandhills are the site of the highest quality, old-growth vegetation of the Western Gulf Coastal Plains (S. Orzell, pers. comm. to Ian Butler). The flora is a unique assemblage of plants that is present nowhere else in the state and considered globally rare. Approximately 400 species are believed to be present (Jones 1993). More than 20 rare species have been reported to occur in the area, including some that are globally rare (Oklahoma Natural Heritage Inventory 1997). *Eriocaulon kornickianum*, for example, is designated G2 and S1. Other rare species in the preserve include *Penstemon murrayanus* (G4, S1S3), *Polygonella americana* (G5, S1S2), and *Paronychia drummondii* (G4G5, S1S2).

Prior to this study, our knowledge of the vascular plant species in the preserve was incomplete. Although several partial lists of its flora had been compiled, a systematic survey of the area to inventory all of the plants had not been conducted. Such information is essential for understanding the ecology of the site and making decisions about its management. This study was undertaken to provide this information. Specific objectives were to: (1) compile a list of the terrestrial and aquatic vascular plant species present and (2) prepare a set of herbarium specimens to document the preserve’s flora. This note summarizes my findings and provides a reference to the information compiled in Gatti Clark (1997).

BOEHLER SEEPS AND SANDHILLS PRESERVE

The preserve is a 235 ha site located in southern Atoka County, Oklahoma, approximately 11 miles north of Boswell (S25 & 26, T4S, R13W; Boswell NW Quad). It comprises two tracts bisected by a paved country road and is located in the watersheds of Muddy Boggy and Clear Boggy Creeks. Situated in the Dissected Coastal Plain Geomorphic Province and Western Coastal Plain Land Resource Area (Johnson et al. 1979, USDA Natural Resources Conservation Service 1992), its underlying strata are Cretaceous in age. Also underlying the preserve is the Antlers Sandstone Aquifer that is composed primarily of non-marine sand and clay, and marine limestone and clay up to 915 m thick and is saturated with water that has a moderate to high mineral content (Johnson et al. 1979). The water table is generally within 1-1.3 m of the surface, with seeps occurring where it reaches the surface (Jones 1993, pers. comm.). Soil series of the site are the Bernow-Romia complex, 8-12% slopes; Boggy fine sandy loam; and Larue loamy fine sand, 0-8% slopes (Shingleton and Watterson 1979). All are susceptible to erosion by both water and wind. Precipitation in the area of the preserve

Clark, L. G.

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occurs primarily in the spring and summer, and averages 119 cm per year (Ruffner 1980). The average growing season is 255 days; mean maximum annual temperature is 24.5°C and mean minimum is 11°C; the average number of days below 0°C is 52 (Ruffner 1980).

Vegetation of the area is Oak-Hickory Forest (Duck and Fletcher 1943) with several communities present. Quercus stellata, Carya texana, and Sideroxylon lanuginosum spp. Lanuginosum (=Bumelia lanuginose) dominate and form an almost continuous canopy in the drier areas. Typically a thick leaf layer is present on the ground, and understory vegetation is sparse. Juniperus virginiana and Pinus echinata, while not dominant, can be found scattered throughout the preserve. Common woody understory species are Nyssa sylvatica, Vaccinium arboresum, Berberenia scandens, and Vitis rotundifolia. Herbaceous understory taxa include Galium arkansanum, G. obtusum, Tephrosia virginia, Carex spp., Cyperus spp., and Juncus spp. Scattered throughout the preserve and most conspicuous are glades dominated by Aristida desmantha and Selaginella rupesris. Other glades are present and are dominated by various grasses, such as Panicum spp., mosses, and forbs, such as Gaillardia aestivalis and Hieracium longipilum. At the glade edges, trees other than the forest dominants are encountered, in particular Quercus incana. Its saplings are occasionally found in the centers of the glades.

Hassel and Boehler Lakes are small, shallow bodies of water maintained by beaver dams. Both have dense stands of emergent and floating-leaved species at their edges and open water in their centers. Dominant taxa include Typha angustifolia, Nuphar lutea, and Nymphaea odorata. Often quite abundant, free-floating species are Azolla caroliniana and Utricularia biflora. Two types of seeps are present in the preserve. One has water percolating slowly to the surface and accumulating in one area because of the topography. The ground surface has a spongy feel because of the thick carpet of vegetation, primarily mosses; Sphagnum lescurii and Polytrichum commune in particular dominate. Occupying natural drainage ways, the second type is characterized by water flowing away from the seepage point. Ferns, sedges, and rushes typically are in abundance along these watercourses. Between the lakes and the seeps are marshes dominated by Osmunda regalis, O. cinnamonea, Cephalanthus occidentalis, Scirpus spp., Rhynchospora spp., and Cyperus spp. Associated with Boehler Lake are rather deep drainages that resemble sloughs. They have less vegetation and are often banked by large trees such as Quercus falcata, Q. nigra, and Q. phellos.

**METHOD OF SURVEY**

A systematic collection of the terrestrial and aquatic vascular plants occurring in the preserve was conducted during the 1994 and 1995 growing seasons. The area was divided into three survey units using roads and fences as boundaries. Each unit was traversed on foot several times during the growing season. Plants were collected in both the flowering and fruiting stages, and prepared using standard herbarium techniques (Radford et al. 1974). One set of 440 voucher herbarium specimens (Appendix H) was prepared and deposited in the Oklahoma State University Herbarium (OKLA). Specimens previously collected by Conservancy personnel were identified and included in the inventory (Gatti Clark 1997, Appendices I and J). Identification was accomplished using the resources of the herbarium. Nomenclature used was based primarily on that of Waterfall (1969), Correll and Johnston (1979), and Gray’s Manual of Botany (Fernald 1950). Common names were taken from Correll and Johnston (1979) and Taylor and Taylor (1994).
FLORA OF THE PRESERVE

Three hundred forty-five species in 225 genera and 84 families were encountered in this survey or by previous workers (Gatti Clark 1997, Appendices H, I, and J). Three families, Asteraceae (56 taxa), Poaceae (41 taxa), and Cyperaceae (35 taxa), composed 38% of the preserve’s vascular flora. Other large families were the Fabaceae (21 taxa), Apiaceae (11 taxa), Lamiaceae (10 taxa), and Scrophulariaceae (10 taxa). The largest genera present were Carex, represented by 17 species, and Panicum, represented by 12 species.

Species designated by the U.S. Fish and Wildlife Service (1996) as endangered, threatened, or candidate (formally category 1) were not encountered. Species ranked by the ONHI (1997) as S1 or S2 and present in the preserve included the previously mentioned Eriocaulon kornickianum (G2, S1), Penstemon murrayanus (G4, S1S3), Polygonella americana (G5, S1S2), and Paronychia drummondii (G4G5, S1S2). Other rare species are listed in the table.

Although demonstrably secure globally and ranked G4 or G5 by ONHI, several species of interest were found in the preserve. The insectivorous Drosera brevifolia and the mycotrophic/parasitic Monotropa hypopithys were encountered. Lycopodiella appressa (=Lycopodium appressum) is reported for the site but was not seen in this study or in collections of The Nature Conservancy personnel (L. K. Magrath, pers. comm.).

With 22 rare taxa reported for the site, monitoring of the Bluejack Oak sandhills and seep communities should continue. The communities and its assemblage of plants at Boehler Seeps and Sandhills Preserve are rare within the state and deserve continued study.

LITERATURE CITED


Duck, L. G. and J. B. Fletcher. 1943. A Game Type Map of Oklahoma. State of Oklahoma Game and Fish Department, Division of Wildlife Restoration. Oklahoma Biological Survey, Norman, OK.


Taylor, R. J. and C. E. S. Taylor. 1994. *An Annotated List of the Ferns, Fern Allies, Gymnosperms, and Flowering Plants of Oklahoma*. 3rd ed. Published by authors, Durant, OK.


Table  Taxa of Boehler Seeps and Sandhills Preserve that are ranked as rare by the Oklahoma Natural Heritage Inventory (ONHI)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>ONHI Rankings*</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Agalinis tenuifolia</em> (Vahl.) Raf.</td>
<td>slender leaved agalinis</td>
<td>G5 S2S3</td>
</tr>
<tr>
<td><em>Aristolochia reticulata</em> Jacq.</td>
<td>netleaved snakeroot</td>
<td>G4 S2</td>
</tr>
<tr>
<td><em>Azolla caroliniana</em> Willd.</td>
<td>mosquito fern</td>
<td>G5 S2</td>
</tr>
<tr>
<td><em>Brasenia schreberi</em> J. F. Gmel.</td>
<td>water-shield</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Carex hyalina</em> Boott</td>
<td>whitesheath sedge</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Carex swanii</em> (Fernald) Mack.</td>
<td>swan sedge</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Carya myristiciformis</em> (Michx. f.) Nutt.</td>
<td>nutmeg hickory</td>
<td>G5 S2S3</td>
</tr>
<tr>
<td><em>Drosera brevifolia</em> Pursh</td>
<td>sundew</td>
<td>G5 S2S3</td>
</tr>
<tr>
<td><em>Dulichium arundinaceum</em> (L.) Britton</td>
<td>threeway sedge</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Eriocaulon kornickianum</em> van Heur and Müll.Arg.</td>
<td>small pipewort</td>
<td>G2 S1</td>
</tr>
<tr>
<td><em>Galium arkansanum</em> A. Gray</td>
<td>Arkansas bedstraw</td>
<td>G5 S1S2</td>
</tr>
<tr>
<td><em>Houstonia micrantha</em> (Shinners) Terrell (=Hedyotis australis W.H. Lewis &amp; D.M. Moore)</td>
<td>bluet</td>
<td>G4G5 S1S2</td>
</tr>
<tr>
<td><em>Iris virginica</em> L.</td>
<td>southern blue flag</td>
<td>G5 S2?</td>
</tr>
<tr>
<td><em>Monotropa hypopithys</em> L.</td>
<td>pinesap</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Paronychia drummondii</em> Torr. &amp; A. Gray</td>
<td>Drummond's nailwort</td>
<td>G4G5 S1S2</td>
</tr>
<tr>
<td><em>Penstemon murrayanus</em> Hook.</td>
<td>cupleaf beardtongue</td>
<td>G4 S1S3</td>
</tr>
<tr>
<td><em>Platanthera flava</em> (L.) Lindl.</td>
<td>pale green orchid</td>
<td>G4 S1</td>
</tr>
<tr>
<td><em>Polygonella americana</em> (Fisch. &amp; C.A. Mey.) Small</td>
<td>southern jointweed</td>
<td>G5 S1S2</td>
</tr>
<tr>
<td><em>Quercus incana</em> Bartram</td>
<td>bluejack oak</td>
<td>G5 S1S2</td>
</tr>
<tr>
<td><em>Rhynchospora caduca</em> Elliott</td>
<td>anglestem beakrush</td>
<td>G5 S1</td>
</tr>
<tr>
<td><em>Saccharum giganteum</em> (Walter) Pers. (=Erianthus giganteus (Walter) P. Beauv.)</td>
<td>giant plumegrass</td>
<td>G5 S1S2</td>
</tr>
<tr>
<td><em>Sacciolepis striata</em> (L.) Nash</td>
<td>American cupscale</td>
<td>G5 S2</td>
</tr>
</tbody>
</table>

*ONHI Global Rankings:

G2 - Imperiled globally because of its rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors demonstrably making it vulnerable to extinction throughout its range.

G4 - Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 - Demonstrably secure globally though it may be quite rare in parts of its range, especially at the periphery.

S1 - Critically imperiled in Oklahoma because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor of its biology making it especially vulnerable to extinction.

S2 - Imperiled in Oklahoma because of extreme rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors making it very vulnerable to extinction throughout its range.

S3 - Rare and local in Oklahoma (thought it may be abundant at some of its locations); in the range of 21-100 occurrences.
APPENDIX

Vascular Plant Collections from Boehler Seeps and Sandhills Preserve

arranged by family. Collections of L. C. Gatti Clark and

The Nature Conservancy personnel.

[Ed. Notes: All plants are collected by L. Gatti Clark, unless indicated by an asterisk * for the Nature Conservancy or a tilde ~ for plants collected by both. Nomenclature has been updated using the PLANTS Database (plants.usda.gov/plants).]

FERN ALLIES
Selaginellaceae – Spikemoss Family

Selaginella rupestris (L.) Spring     rock spikemoss

FERNS
Azollaceae – Azolla Family

Azolla caroliniana Willd.      mosquito fern

Dryopteridaceae – Wood Fern Family

Onoclea sensibilis L.     sensitive fern
Woodsia obtusa (Spreng.) Torr.     blunt-lobed cliff fern

Ophioglossaceae – Adder’s-Tongue Family

Botrychium virginianum (L.) Sw.     rattlesnake fern

Osmundaceae – Royal Fern Family

Osmunda cinnamomea L.     cinnamon fern
~ Osmunda regalis L. var. spectabilis (Willd.) A. Gray     royal fern

GYMNOSPERMS
Cupressaceae – Cypress Family

Juniperus virginiana L.     eastern redcedar

Pinaceae – Pine Family

~ Pinus echinata Mill.     shortleaf pine

ANGIOSPERMS
Liliopsida – Monocots
Alismataceae – Water Plantain Family

Alisma subcordatum Raf.     water plantain
Echinodorus tenellus (Mart.ex Schult. f.) Buchenau     lanceleaf burweed
Sagittaria latifolia Willd.     wapato, duck potato

Commelinaceae – Spiderwort Family

Commelina erecta L.     erect day flower
Tradescantia ohiensis Raf.     Ohio spiderwort
Cyperaceae – Sedge Family

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex bicknellii Britton</td>
<td>Bicknell’s sedge</td>
</tr>
<tr>
<td>Carex blanda Dewey</td>
<td>loose flowered sedge</td>
</tr>
<tr>
<td>Carex cherokeensis Schwein.</td>
<td>Cherokee sedge</td>
</tr>
<tr>
<td>* Carex complanata Torr. &amp; Hook.</td>
<td>sedge</td>
</tr>
<tr>
<td>Carex crinita Lam.</td>
<td>fringed sedge</td>
</tr>
<tr>
<td>* Carex digitalis Wild.</td>
<td>sedge</td>
</tr>
<tr>
<td>Carex frankii Kunth</td>
<td>Frank’s sedge</td>
</tr>
<tr>
<td>Carex granularis Muhl. ex Wild.</td>
<td>meadow sedge</td>
</tr>
<tr>
<td>Carex gravida L.H. Bailey</td>
<td>heavy sedge</td>
</tr>
<tr>
<td>Carex hyalina Boott</td>
<td>whitesheath sedge</td>
</tr>
<tr>
<td>Carex lupulina Muhl. Ex Wild.</td>
<td>hop sedge</td>
</tr>
<tr>
<td>* Carex muehlenbergii Schkuhr ex Wild.</td>
<td>Muhlenberg’s sedge</td>
</tr>
<tr>
<td>Carex normalis Mack.</td>
<td>sedge</td>
</tr>
<tr>
<td>Carex retroflexa Muhl. ex Wild.</td>
<td>reflexed sedge</td>
</tr>
<tr>
<td>* Carex squarrosa L.</td>
<td>sedge</td>
</tr>
<tr>
<td>Carex swanii (Fernald) Mack.</td>
<td>swan sedge</td>
</tr>
<tr>
<td>Carex vulpinoidea Michx.</td>
<td>fox sedge</td>
</tr>
<tr>
<td>~ Cyperus echinatus (L.) Alph. Wood</td>
<td>globe flatsedge</td>
</tr>
<tr>
<td>(≡C. ovularis (Michx.) Torr.)</td>
<td></td>
</tr>
<tr>
<td>Cyperus retroflexus Buckley</td>
<td>one-flower flatsedge</td>
</tr>
<tr>
<td>(≡C. uniflorus Torr. &amp; Hook., non Thunb.)</td>
<td></td>
</tr>
<tr>
<td>* Cyperus strigosus L.</td>
<td>false nutgrass</td>
</tr>
<tr>
<td>Cyperus virens Michx.</td>
<td>green flatsedge</td>
</tr>
<tr>
<td>Dulichium arundinaceum (L.) Britton</td>
<td>threeway sedge</td>
</tr>
<tr>
<td>Eleocharis acicularis var. acicularis (L.) Roem. &amp; Schult. (≡E. acicularis (L.) Roem. &amp; Schult. var. gracilescens)</td>
<td>needle spikesedge</td>
</tr>
<tr>
<td>~ Eleocharis compressa Sull.</td>
<td>flatstem spikesedge</td>
</tr>
<tr>
<td>Eleocharis engelmannii Steud.</td>
<td>Engleman’s spikesedge</td>
</tr>
<tr>
<td>~ Eleocharis lanceolata Fernald</td>
<td>blunt spikesedge</td>
</tr>
<tr>
<td>(≡E. obtusa (Willd.) Schultes var. lanceolata (Fernald) Gilly)</td>
<td>dwarf spikesedge</td>
</tr>
<tr>
<td>Eleocharis parvula (Roem. &amp; Schult.) Link ex Bluff, Nees. &amp; Schauer (≡E. parvula (Roem. &amp; Schult.) Link var. anachaeta (Torr.) Svens.</td>
<td>slender spikesedge</td>
</tr>
<tr>
<td>Eleocharis tenuis (Willd.) Schult. var. verrucosa (Svens.) Svens.</td>
<td></td>
</tr>
<tr>
<td>~ Isolepis carinata Hook. &amp; Arn. ex Torr.</td>
<td>bulrush</td>
</tr>
<tr>
<td>(≡Scirpus koiolepis (Steud.) Gleason)</td>
<td></td>
</tr>
<tr>
<td>* Lipocarpha aristulata (Coville) G. Tucker (≡Hemicarpha aristulata (Coville) Smyth)</td>
<td>hemicarpa</td>
</tr>
<tr>
<td>Rhynchospora caduca Elliott</td>
<td>anglestem beakrush</td>
</tr>
<tr>
<td>~ Rhynchospora capitellata (Michx.) Vahl</td>
<td>false bogrush</td>
</tr>
<tr>
<td>Rhynchospora glomerata (L.) Vahl</td>
<td>clustered beakrush</td>
</tr>
<tr>
<td>Scleria ciliata Michx.</td>
<td>fringed nutrush</td>
</tr>
<tr>
<td>Scleria triglomerata Michx.</td>
<td>whip nutrush</td>
</tr>
</tbody>
</table>
Eriocaulaceae – Pipewort Family
   ~ *Eriocaulon kornickianum* van Heurch & Müll. Arg. small pipewort

Iridaceae – Iris Family
   *Iris virginica* L. southern blue flag
   *Sisyrinchium angustifolium* Mill. blue-eyed grass

Juncaceae – Rush Family
   *Juncus acuminatus* Michx. jointed rush
   ~ *Juncus coriaceus* Mack. leathery rush
   *Juncus effusus* L. bog rush
   ~ *Juncus marginatus* Rostk. grassleaf rush
   ~ *Juncus scirpoides* Lam. needlepod rush
   *Juncus tenuis* Willd. tender rush
   *Luzula bulbosa* (Alph. Wood) Smyth & Smyth bulb woodrush

Lemnaceae – Duckweed Family
   *Spirodela polyrrhiza* (L.) Schleid. duck meat

Liliaceae – Lily Family
   ~ *Allium canadense* L. wild onion
   ~ *Hypoxis hirsuta* (L.) Coville yellow stargrass

Orchidaceae – Orchid Family
   *Platanthera flava* (L.) Lindl. pale green orchid

Poaceae – Grass Family
   *Agrostis perennans* (Walter) Tuck. autumn bentgrass
   *Andropogon gerardii* Vitman big bluestem
   *Andropogon ternarius* Michx. splitbeam bluestem
   *Aira elegans* Willd. ex Kunth annual silver hairgrass
   *Aristida desmantha* Trin. & Rupr. curly threeawn
   *Bouteloua hirsuta* Lag. hairy grama
   *Bromus arvensis* L. (=*B. japonicus* Thunb.) Japanese threeawn
   *Bromus catharticus* Vahl rescue grass
   *Bromus hordeaceus* L. soft chess
   ~ *Cenchrus spinifex* Cav. (=*C. incertus* M. A. Curtis) sandbur
   ~ *Chasmanthium latifolium* (Michx.) Yates inland seaoats
   ~ *Chasmanthium sessiliflorum* (Poir.) Yates spike-inland seaoats
      (=*C. laxum* (L.) Yates spp. *sessiliflorum* (Poir.) L. Clark)
   *Danthonia spicata* (L.) P. Beauv. ex Roem. & Schult. poverty oatgrass
   ~ *Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark wooly panicum
      var. *fasciculatum* (Torr.) Freckmann
      (=*Panicum lanuginosum* Eliott, non Bosc ex Spreng.)
   *Dichanthelium boscii* (Poir.) Gould & C.A. Clark Bosc panicum
      (=*Panicum boscii* Poir.)
**Dichanthelium depauperatum** (Muhl.) Gould
(=Panicum depauperatum Muhl.)
**Dichanthelium dichotomum** (L.) Gould var. dichotomum
(=Panicum dichotomum L.)
**Dichanthelium linearifolium** (Scribn. ex Nash) Gould
(=Panicum linearifolium Scribn.)
~ **Dichanthelium oligosanthes** (Schult.) Gould var. oligosanthes
(=Panicum oligosanthes Schult.)
**Dichanthelium ravenelli** (Scribn. & Merr.) Gould
(=Panicum ravenelii Scribn. & Merr.)
**Dichanthelium sphaerocarpon** (Elliott) Gould var. sphaerocarpon
(=Panicum sphaerocarpon Elliott)

~ **Elymus virginicus** L.
* **Eragrostis capillaris** (L.) Nees
* **Eragrostis hirsuta** (Michx.) Nees
**Eragrostis secundiflora** J. Presl
**Eragrostis spectabilis** (Pursh) Steud.
**Gymnopogon ambiguus** (Michx.) Britton, Sterns & Poggenb.
**Leersia oryzoides** (L.) Sw.
~ **Panicum anceps** Michx.
**Panicum dichotomiflorum** Michx.
* **Paspalum laeve** Michx.
~ **Paspalum setaceum** Michx.
* **Saccharum giganteum** (Walter) Pers.
(=Erianthus giganteus (Walter) P. Beauv.)
**Sacciolepis striata** (L.) Nash
**Setaria parviflora** (Poir.) Kerguélen
(=S. geniculata (Willd.) P. Beauv., nom. illeg.)
~ **Sorghum halepense** (L.) Pers.
**Sphenopholis obtusata** (Michx.) Scribn.
~ **Steinchisma hians** (Elliott) Nash (=Panicum hians Elliott)
~ **Tridens flavus** (L.) Hitchc.
**Vulpia octoflora** (Walter) Rydb.
**Zizaniopsis miliacea** (Michx.) Döll. & Asch.

Potemogetonaceae – Pondweed Family

**Potamogeton pulcher** Tuck.

Smilacaceae – Catbriar Family

**Smilax bona-nox** L.
**Smilax rotundifolia** L.

Typhaceae – Cattail Family

**Typha angustifolia** L.

Clark, L. G.
Magnoliopsida - Dicots

Acanthaceae – Acanthus Family

*Ruellia humilis* Nutt. fringed leaf ruellia

Amaranthaceae – Amaranth Family

*Froelichia floridana* (Nutt.) Moq. snake cotton

Anacardiaceae – Sumac Family

*Rhus aromatic* Aiton lemon sumac
*Rhus copallinum* L. (=*R. copallina* L., orth. var.) winged sumac
*Toxicodendron radicans* (L.) Kuntze poison ivy

Apiaceae – Carrot Family

*Chaerophyllum tainturieri* Hook. hairy fruit wild chervil
*~Daucus pusillus* Michx. southwestern carrot
*Eryngium prostratum* Nutt. ex DC. creeping eryngo
*Hydrocotyle verticillata* Thunb. whorled pennywort
*~Ptilimnium capillaceum* (Michx.) Raf. threadleaf mockbishopweed
*~Sanicula canadensis* L. black snakeroot
*Sanicula odorata* (Raf.) K.M. Pryer & L.R. Phillippe cluster snakeroot (=*S. gregaria* E.P. Bicknell)
*Spermolepis divaricata* (Walter) Raf. ex Ser. forked scaleseed
*Spermolepis echinata* (Nutt. ex DC.) A. Heller bristly scaleseed
*Spermolepis inermis* (Nutt. ex DC.) Mathias & Constance spreading scaleseed
*Torils arvensis* (Huds.) Link hedge parsley

Apocynaceae – Dogbane Family

*Apocynum cannabinum* L. Indianhemp

Aquifoliaceae – Holly Family

*Ilex decidua* Walter deciduous holly

Aristolochiaceae – Birthwort Family

*~Aristolochia reticulata* Jacq. netleaved snakeroot

Asclepiadaceae – Milkweed Family

*Asclepias tuberosa* L. butterfly milkweed
*Asclepias verticillata* L. whorled milkweed
*Asclepias viridis* Walter green milkweed
*Matelea biflora* (Raf.) Woodson twoflower milkvine

Asteraceae – Sunflower Family

*~Achillea millefolium* L. yarrow
*~Ambrosia artemisiifolia* L. common ragweed
*Ambrosia bidentata* Michx. lanceleaf ragweed
*~Ambrosia trifida* L. giant ragweed
*~Antennaria parlinii* Fernald plainleaf pussytoes
Astranthium integrifolium (Michx.) Nutt.  
* Bidens aristosa (Michx.) Britton  
Centaurea americana Nutt.  
* Chaetopappa asteroides Nutt. ex DC.  
~ Chrysopsis pilosa Nutt.  
* Cirsium altissimum (L.) Hill  
Cirsium horridulum Michx.  
* Conoclinium coelestinum (L.) DC.  
(=Eupatorium coelestinum L.)  
~ Conyza canadensis (L.) Cronquist  
~ Coreopsis grandiflora Hogg ex Sweet  
~ Croptilon divaricatum (Nutt.) Raf.  
(=Haplopappus divaricatus (Nutt.) A. Gray)  
~ Echinacea pallida (Nutt.) Nutt.  
~ Elephantopus carolinianus Raeusch.  
* Erechtites hieracifolia (L.) Raf. ex DC.  
~ Erigeron strigosus Muhl. ex Willd.  
* Eupatorium perfoliatum L.  
Evax prolifera Nutt. ex DC.  
Evax verna Raf. var. verna (=E. multicaulis DC.)  
Gaillardia aestivalis (Walter) H. Rock  
~ Gamochaeta purpurea (L.) Cabrera (=Gnaphalium purpureum L.)  
* Helenium amarum (Raf.) H. Rock  
* Helianthus angustifolius L.  
~ Helianthus hirsutus Raf.  
Heterotheca villosa (Pursh) Shinners var. villosa  
(=Chrysopsis villosa (Pursh.) Nutt. ex DC.)  
~ Hieracium gronovii L.  
Hieracium longipilum Torr.  
Hymenopappus scabiosaeus L’Her.  
~ Krigia cespitosa (Raf.) K. L. Chambers  
~ Krigia dandelion (L.) Nutt.  
Krigia virginica (L.) Willd.  
Lactuca canadensis L.  
* Lactuca sativa L.  
Liatris aspera Michx.  
* Liatris elegans (Walter) Michx.  
Liatris squarrosa (L.) Michx.  
* Mikania scandens (L.) Willd.  
Packera obovata (Muhl. ex Willd.) W.A. Weber & A. Love  
(=Senecio obovatus Muhl. ex Willd. var. rotundus Britton)  
* Pluchea camphorata (L.) DC.  
Pseudognaphalium obtusifolium (L.) Hilliard & B.L. Burtt  
ssp. obtusifolium (=Gnaphalium obtusifolium L.)  
~ Pyrrhopappus carolinianus (Walter) DC.  
* Rudbeckia grandiflora (D. Don) J.F. Gmel. ex DC.  
~ Rudbeckia hirta L.
Solidago canadensis L.  
* Solidago missouriensis Nutt.

* Solidago odora Aiton
* Solidago rugosa Mill.
~ Solidago ulmifolia Muhl. ex Willd.

* Symphyotrichum patens (Aiton) G.L. Nesom var. patens
  (=Aster patens Aiton)
* Symphyotrichum subulatum (Michx) G.L. Nesom
  (=Aster subulatus Michx.)
~ Verbesina helianthoides Michx.
* Vernonia baldwinii Torr.

Balsaminaceae – Touch-Me-Not Family 
  Impatiens capensis Meerb.

Berberidaceae – Barberry Family 
  Podophyllum peltatum L.

Bignoniaceae – Trumpet Creeper Family 
  Campsis radicans (L.) Seem. ex Bureau

Boraginaceae – Borage Family 
  ~ Lithospermum caroliniense (Walter ex J.F. Gmel.) MacMill.
  Myosotis verna Nutt.

Brassicaceae – Mustard Family 
  Cardamine pensylvanica Muhl. ex Willd.
  ~ Lepidium virginicum L.

Buddlejaceae – Butterfly-Bush Family 
  Polypremum procumbens L.

Cabombaceae – Water Shield Family 
  Brasenia schreberi J. F. Gmel.

Callitrichaceae – Water-Starwort Family 
  Callitriche heterophylla Pursh

Campanulaceae – Bellflower Family 
  ~ Triodanis perfoliata (L.) Nieuwl.

Caprifoliaceae – Honeysuckle Family 
  Lonicera japonica Thunb.
  Symphoricarpos orbiculatus Moench
  Viburnum rufidulum Raf.
Caryophyllaceae – Pink Family

*Arenaria serpyllifolia* L.  thyme-leaved sandwort
*Paronychia drummondii* Torr. & A. Gray  Drummond’s nailwort
*Stellaria media* (L.) Vill.  chickweed

Ceratophyllaceae – Hornwort Family

*Ceratophyllum demersum* L.  coontail

Cistaceae – Rockrose Family

*Lechea villosa* Elliott  pinweed

Clusiaceae – Mangosteen Family

~ *Hypericum drummondii* (Grev. & Hook.) Torr. & A. Gray  nits-and-lice
~ *Hypericum hypericoides* (L.) Crantz  St. Andrew’s cross
~ *Hypericum prolificum* L. (=H. spathulatum (Spach.) Steud.  St. John’s wort

Convolvulaceae – Morning Glory Family

~ *Ipomoea pandurata* (L.) G. Mey.  wild potatovine
~ *Stylisma pickeringii* (Torr. ex M.A. Curtis) A. Gray  stylisma

Cornaceae – Dogwood Family

*Cornus florida* L.  flowering dogwood
*Nyssa sylvatica* Marsh.  black gum

Droseraceae – Sundew Family

~ *Drosera brevifolia* Pursh  sundew

Ericaceae – Heath Family

~ *Vaccinium arboreum* Marsh.  farkleberry

Euphorbiaceae – Spurge Family

*Acalypha rhomboidea* Raf.  rhombic copperleaf
*Acalypha virginica* L.  three seeded Mercury
*Chamaesyce serpens* (Kunth) Small (=*Euphorbia serpens* Kunth)  round-leaved spurge
*Nidoscolus texanus* (Müll. Arg.) Small  Texas bullnettle
*Croton capitatus* Michx.  woolly croton
*Croton glandulosus* L.  sand croton
*Croton willdenowii* G.L. Webster (=*Crotonopsis elliptica* Willd.)  rush-foil
~ *Stillingia sylvatica* L.  queen’s delight

Fabaceae – Pea Family

*Apios americana* Medik.  ground nut
*Astragalus distortus* Torr. & A. Gray  bentpod milkvetch
* Baptisia bracteata* Muhl. ex Elliott  plains wild indigo
*Baptisia leucophaea* Nutt. var. *leucophaea* (Nutt.) Kartesz & Gandhi (=*B. leucophaea* Nutt.)  white wild indigo
*Cercis canadensis* L.  redbud

Clark, L. G.
Clitoria mariana L.
Dalea phleoides (Torr. & A. Gray) Shinners var. phleoides
(=Petalostemon phleoides Torr. & A. Gray)
Desmodium paniculatum (L.) DC. var. paniculatum
desmodium sessilifolium (Torr.) Torr. & A. Gray
Desmodium viridiflorum (L.) DC.
Galactia regularis (L.) Britton, Sterns & Poggenb.
Gleditsia triacanthos L. (=Caesalpinioideae Family)
Lespedeza stuevei Nutt.
Mimosa nutallii (DC. ex Britton & Rose) B.L. Turner
(=Schrankia nutallii (DC. ex Britton & Rose) Standl.)
Mimosa microphylla Dryand. (=Schrankia ucinata Willd.)
* Orbexilum pendunculatum (Mill.) Rydb. var. psoralioides
  (Walter) Isely (=Psoralea psoralioides (Walt.) Cory)
* Orbexilum simplex (Nutt. ex Torr. & A. Gray) Rydb.
  (=Psoralea simplex (Nutt. ex Torr. & A. Gray) Rydb.)
  Pediomelum digitatum (Nutt. ex Torr. & A. Gray) Isely
  (=Psoralea digitata Nutt. ex Torr. & A. Gray)
* Pediomelum hypogaeum (Nutt. ex Torr. & A. Gray) Rydb.
  var. subulatum (Bush) J. Grimes (=Psoralea subulata Bush)
  Rhynchosia latifolia Nutt. ex Torr. & A. Gray
  Strophostyles helvola (L.) Elliott
  Stylosanthes biflora (L.) Britton, Sterns & Poggenb.
  ~ Tephrosia virginiana (L.) Pers.
  ~ Trifolium campestre Schreb.
  Vicia sativa L.

Fagaceae – Beech Family
Quercus falcata Michx.
Quercus falcata Michx
(=Q. falcata Michx. var. triloba (Michx.) Nutt)
* Quercus incana Bartram
~ Quercus nigra L.
* Quercus phellos L.
Quercus stellata Wangenh.
Quercus velutina Lam.

Fumariaceae – Fumitory Family
Corydalis micrantha (Engelm. ex A. Gray) A. Gray

Geraniaceae – Geranium Family
Geranium carolinianum L.

Clark, L.G.
Hydrophyllaceae – Waterleaf Family
* Hydrolea ovata Nutt. ex Choisy hairy hydrolea
~ Phacelia strictiflora (Engelm. & A. Gray) A. Gray var. robbinsii Constance prairie blue curls

Juglandaceae – Walnut Family
Carya myristiciformis (Michx. f.) Nutt. nutmeg hickory
Carya texana Buckley black hickory

Lamiaceae – Mint Family
* Lycopus virginicus L. Virginia bugleweed
~ Monarda punctata L. horsemint
    Monarda russeliana Nutt. ex Sims. red spotted horsemint
~ Prunella vulgaris L. heal-all
~ Pycnanthemum albescens Torr. & A. Gray whiteleaf mountainmint
* Pycnanthemum tenuifolium Schrad. narrowleaf mountainmint
~ Salvia lyrata L. lyreleaf age
    Scutellaria elliptica Muhl. ex Spreng. hairy skullcap
* Scutellaria laterifolia L.
    Scutellaria parvula Michx. var. missouriensis (Torr.) sideflowering skullcap
    Goodman & C.A. Lawson skullcap
    (=S. parvula Michx. var. leonardii (Epling) Fernald)

Lauraceae – Laurel Family
Sassafras albidum (Nutt.) Nees sassafras
    (=S. albidium (Nutt.) Nees var. molle (Raf.) Fernald

Lentibulariaceae – Bladderwort Family
Utricularia gibba L. (=U. biflora Lam.) twoflower bladderwort

Lythraceae – Loosestrife Family
Rotala ramosior (L.) Koehne toothcup

Melastomaceae – Melastome Family
Rhedia mariana L. meadow beauty

Menyanthaceae – Buckbean Famiy
Nymphoides peltata (S.G. Gmel.) Kuntze yellow floating heart

Monotropaceae – Indian Pipe Family
~ Monotropa hypopithys L. pinesap

Nymphaeaceae – Water Lily Family
Nuphar lutea (L.) Sm. yellow pond lily
    Nymphaea odorata Aiton American water lily

Clark, L. G.
Onagraceae – Evening Primrose Family
   * **Ludwigia alternifolia** L. bushy seedbox
   * **Oenothera laciniata** Hill cutleaf evening primrose

Oxalidaceae – Wood Sorrel Family
   * **Oxalis stricta** L. yellow wood sorrel
   * **Oxalis violacea** L. violet wood sorrel

Plantaginaceae – Plantain Family
   * **Plantago lanceolata** L. buckhorn plantain
   * **Plantago patagonica** Jacq. wooly plantain
   * **Plantago virginica** L. palesseed plantain
   * **Plantago wrightiana** Decne. Wright’s plantain

Polemoniaceae – Phlox Family
   * **Phlox glaberrima** L. smooth phlox
   * **Phlox pilosa** L. prairie phlox

Polygalaceae – Milkwort Family
   * **Polygala sanguinea** L. blood polygala

Polygonaceae – Buckwheat Family
   ~ **Eriogonum longifolium** Nutt. longleaf eriogonum
   ~ **Eriogonum multiflorum** Benth. heartsepal wild buckwheat
   ~ **Polygonella americana** (Fisch. & C.A. Mey.) Small southern jointweed
   ~ **Polygonum hydropiperoides** Michx. mild water pepper
   ~ **Polygonum persicaria** L. lady’s thumb
   ~ **Polygonum sagittatum** L. arrowvine
   ~ **Rumex hastatus** Baldw. heartwing sorrel

Primulaceae – Primrose Family
   ~ **Hottonia inflata** Elliott American featherfoil
   * **Lysimachia lanceolata** Walter lanceleaf loosestrife

Ranunculaceae – Buttercup Family
   * **Delphinium carolinianum** Walter prairie larkspur
   * **Ranunculus laxicaulis** (Torr. & A. Gray) Darby spearwort

Rhamnaceae – Buckthorn Family
   * **Berchemia scandens** (Hill.) K. Koch rattan vine
   * **Ceanothus americanus** L. New Jersey tea
   * **Frangula caroliniana** (Walter) A. Gray buckthorn
   (=**Rhamnus caroliniana** Walter)

Rosaceae – Rose Family
   * **Crataegus spathulata** Michx. littlehip hawthorn
   * **Potentilla simplex** Michx. old-field cinquefoil
Prunus serotina Ehrh.  black cherry
Rubus occidentalis L.  blackberry
Rubus ostryifolius Rydb.  highbush blackberry

Rubiaceae – Madder Family

Cephalanthus occidentalis L.  buttonbush
Diodia teres Walter  rough buttonweed
~ Galium arkansanum A. Gray  Arkansas bedstraw
Galium circaezans Michx.  woods bedstraw
~ Galium obtusum Bigelow  bluntleaf bedstraw
Galium pilosum Aiton  hairy bedstraw
Houstonia micrantha (Shinners) Terrell  bluet
 (=Hedyotis australis W.H. Lewis & D.M. Moore)

Rubiaceae – Madder Family

Sideroxylon lanuginosum Michx. ssp. lanuginosum  chittamwood
 (=Bumelia lanuginosa (Michx.) Pers.)

Scrophulariaceae – Figwort family

* Agalinis tenuifolia (Vahl.) Raf.  slenderleaf agalinus
* Castilleja coccinea (L.) Spreng.  Indian paintbrush
Castilleja indivisa Engelm.  Indian paintbrush
Collinsia violacea Nutt.  violet collinsia
Gratiola virginiana L.  Virginia hedgehyssop
Nuttallanthus canadensis (L.) D.A. Sutton  blue toadflax
 (=Linaria canadensis (L.) Chaz.)
Lindernia dubia (L.) Pennell  yellowseed false pimpernell
Pedicularis canadensis L. ssp. canadensis  common lousewort
 (=P. canadensis L. var. dobbsii Fernald)
* Penstemon laxiflorus Pennell  loose flower penstemon
Penstemon murrayanus Hook.  cupleaf penstemon

Solanaceae – Potato Family

Physalis heterophylla Nees.  clammy ground cherry
Solanum carolinense L.  Carolina horsenettle

Ulmaceae – Elm Family

Celtis tenuifolia Nutt.  dwarf hackberry

Urticaceae – Nettle Family

~ Boehmeria cylindrica (L.) Sw.  false nettle

Valerianaceae – Valerian Family

~ Valerianella radiata (L.) Dufr.  common beaked cornsalad

Verbenaceae – Verbena Family

Callicarpa americana L.  American beautyberry

Clark, L. G.
*Phryma leptostachya* L.

*Verbena simplex* Lehm.

**Violaceae – Violet Family**

*Viola villosa* Walter

**Vitaceae – Grape Family**

*Ampelopsis arborea* (L.) Koehne

*Parthenocissus quinquefolia* (L.) Planch.

*Vitis aestivalis* Michx.

*Vitis rotundifolia* Michx.

lopseed

narrow-leaved verbena

wooly violet

peppervine

Virginia creeper

pigeon grape

muscadine