

The Vascular Flora of the Oklahoma Centennial Botanical Garden site Osage County, Oklahoma

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This paper is a report on the results of an inventory of the vascular plants at the future site of the Oklahoma Centennial Botanical Garden in Osage County, Oklahoma. We collected a total of 293 taxa in 208 genera and 68 families. The families Poaceae and Asteraceae had the greatest number of species with 50 and 44 species respectively. Forty-one species of woody plants were present. Forty-four non-native species were present, representing 15% of the flora. No species tracked by the Oklahoma Natural Heritage Inventory were present.

INTRODUCTION

The objective of this study was to complete a floristic inventory at the future site of the Oklahoma Centennial Botanical Garden (OCBG) in southeast Osage County (36.2017°N to 36.2109°N and 96.0555°W and 96.0678°W). Construction of the OCBG is scheduled to begin in late 2007 on 87 hectares (215 acres). The master plan, developed by Marshall Tyler Rausch of Pittsburgh, Pennsylvania, includes a Mexican Garden, Oklahoma Wildflower Garden, Cross Timbers Prairie and Woodland, Folk Garden, Horticultural Therapy Garden, Children's Garden, Demonstration Gardens, and others. In addition, a 17-acre lake, an amphitheater, a visitor center, education buildings, and a conservatory will be constructed (Oklahoma Centennial Botanical Garden 2007).

The OCBG site is located in the Claremore Cuesta plains geomorphic province of southeastern Osage County (Curtis and Ham 1979). Surface geology is predominantly Pennsylvanian sandstone and shale (Branson and Johnson 1979). Soils belong to the Niotaze-Darnell Association, described as moderately deep and shallow,

gently sloping to steep, loamy soils over shale and sandstone (Bourlier et al. 1979). The climate is Subtropical Humid (Cf) (Trewartha 1968). Summers are warm and humid. Mean July temperature is 27.5°C (81.5°F). Winters are relatively short and mild with a mean January temperature of 1.5°C (34.7°F). Mean annual precipitation is 111.7 cm (43.8 in) (Oklahoma Climatological Survey, 2007). Elevation ranges from 259 to 302 m (849.5 to 990.6 ft). Potential natural vegetation at OCBG is post oak-blackjack forest and tallgrass prairie (Duck and Fletcher 1943). Historical land use of the site has included livestock grazing and oil exploration.

METHODS

Three collection sites were visited monthly for floristic sampling. The predominant vegetation association at these sites was classified according to Hoagland (2000). Additional collections were also made opportunistically throughout the OCBG. Collecting began in July of 2006 and continued through July of 2007. Vouchers for non-native species were made from naturalized populations only, thus

excluding cultivated and ornamental plants. Specimens were processed following standard procedures and deposited at the Robert Bebb Herbarium at the University of Oklahoma (OKL). Manuals used for specimen identification included Waterfall (1973) and Steyermark (1963). Origin, either native or introduced to North America, was determined using the Plants Database (USDA-NRCS, 2007). Nomenclature follows the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS 2007).

RESULTS AND DISCUSSION

A total of 293 taxa of vascular plants in 68 families and 208 genera were collected at the OCBG (Appendix). Of the angiosperms, 92 species were Liliopsida and 199 were Magnoliopsida (Table). There was one species of Pteridophyta and one of Coniferophyta. Forty-one species were trees, shrubs, and woody vines. The Poaceae with 50 taxa, and the Asteraceae with 44 taxa, were the largest families. The genera *Symphotrichum* (formerly *Aster*) and *Cyperus* had the most species, with seven and six species respectively. One hundred and seven taxa were annuals, 2 were biennials and 184 were perennials.

Forty-four species (15% of the flora) in 25 families were non-native to Oklahoma. The percentage of non-native species at the OCBG is high when compared to other floristic surveys from Oklahoma, which range from 6.6%-15% (Hoagland and Buthod 2004; Hoagland and Johnson 2005). The greatest numbers of non-native species occurred in the Poaceae, with eleven and Fabaceae, with eight. No species tracked by the Oklahoma Natural Heritage Inventory (2007) were encountered.

Collection sites selected at OCBG occurred within four vegetation associations. A description of each vegetation category follows:

1. *Quercus stellata-Quercus marilandica* forest association [QSQM]

This vegetation association occupied a small percentage of the OCBG. Common associated species included *Amelanchier arborea*, *Antennaria plantaginifolia*, *Baptisia bracteata* var. *leucophaea*, *Danthonia spicata*, *Helianthus hirsutus*, *Hypericum hypericoides*, *Symphotrichum patens*, *Myosotis verna*, *Opuntia humifusa*, *Sideroxylon lanuginosum*, *Smilax rotundifolia*, *Ulmus alata*, and *Viburnum rufidulum*.

2. *Schizachyrium scoparium-Sorghastrum nutans* [SSN]

This herbaceous grassland vegetation association occupied the greatest area at the OCBG. Soils were typically shallow with exposed cobble. Associated species included *Amorpha canescens*, *Arnoglossum plantagineum*, *Callirhoe alcaeoides*, *Coreopsis grandiflora*, *Cyperus echinatus*, *Echinacea atrorubens*, *Krameria lanceolata*, *Lespedeza cuneata*, *Minuartia drummondii*, and *Pediomelum linearifolium*.

3. Wetland and aquatic vegetation [WETL]

Wetland vegetation was restricted to a small stream bisecting the site and its associated beaver pond. Common associates included *Alisma subcordatum*, *Ammannia auriculata*, *Callitriche heterophylla*, *Cephalanthus occidentalis*, *Eclipta prostrata*, *Fimbristylis autumnalis*, *Juncus brachycarpus*, *Ludwigia palustris*, *Nelumbo lutea*, *Polygonum pennsylvanicum*, *Sagittaria ambigua*, and *Samolus ebracteatus*.

4. Disturbed areas and old-field vegetation [DAOF]

Disturbed areas coincided with roadways and oil extraction sites. Common associated species included *Achillea millefolium*, *Aegilops cylindrica*, *Capsella bursa-pastoris*, *Carduus nutans*, *Convolvulus arvensis*, *Daucus pusillus*, *Juniperus virginiana*, *Lamium amplexicaule*, *Rhus copallinum*, *R. glabra*, and *Torilis arvensis*.

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Table Summary of floristic collections from the Oklahoma Centennial Botanical Garden site, Osage County, Oklahoma. Format follows Palmer et al. (1995).

Taxonomic Group	Taxa	Native	Non-native
Pteridophyta	1	1	0
Coniferophyta	1	1	0
Magnoliophyta	291	247	44
Magnoliopsida	199	165	34
Liliopsida	92	82	10
Total	293	249	44



Figure Oklahoma Centennial Botanical Garden site, Osage County, Oklahoma.

APPENDIX

Annotated species list for the Oklahoma Centennial Botanical Garden, Osage County, Oklahoma. The first entry is habitat (QSQM=*Quercus stellata*-*Quercus marilandica* forest association, SSSN=*Schizachyrium scoparium*-*Sorghastrum nutans* grassland association, WETL=wetland and aquatic vegetation, DAOF=disturbed areas and old-field vegetation); followed by the life history (A=annual, B=biennial, P=perennial); habit (T=tree, S=shrub, V=woody vine, H=herb, G=graminoid); and collection number. Exotic species are denoted with an asterisk. Voucher specimens were deposited at the Robert Bebb Herbarium of the University of Oklahoma (OKL).

Pteridophyta**Aspleniaceae**

Asplenium platyneuron (L.) B.S.P. (ebony spleenwort) QSQM; P; H; OBG-152

Coniferophyta**Cupressaceae**

Juniperus virginiana L. (Eastern red cedar) QSQM; P; T; OBG-231

Magnoliophyta**Magnoliopsida****Acanthaceae**

Ruellia humilis Nutt. (fringeleaf wild petunia) SSSN; P; H; OBG-285

R. strepens L. (limestone wild petunia) QSQM; P; H; OBG-153

Amaranthaceae

Amaranthus albus L. (prostrate pigweed) DAOF; A; H; OBG-012

Anacardiaceae

Rhus aromatica Ait. (fragrant sumac) QSQM; P; S; OBG-184

R. copallinum L. (flameleaf sumac) SSSN; P; S; OBG-247

R. glabra L. (smooth sumac) SSSN; P; S; OBG-255

Toxicodendron radicans L. (Kuntze) (poison ivy) QSQM; P; S; OBG-334

Apiaceae

Chaerophyllum tainturieri Hook. (hairyfruit chervil) DAOF, QSQM, SSSN; A; H; OBG-198

*Daucus carota** (Queen Anne's lace) DAOF; B; H; OBG-296

D. pusillus Michx. (American wild carrot) DAOF, SSSN; A; H; OBG-254

Ptilimnium nuttallii (DC.) Britt. (laceflower) SSSN; A; H; OBG-304

Spermolepis divaricata (Walt.) Raf. ex Ser. (roughfruit scaleseed) SSSN; A; H; OBG-305

*Torilis arvensis** (Huds.) Link (spreading hedgeparsley) DAOF; A; H; OBG-256

Aquifoliaceae

Ilex decidua Walt. (possumhaw) QSQM; P; S; OBG-144

Asclepiadaceae

Asclepias viridis Walt. (green antelopehorn) SSSN; P; H; OBG-032

Asteraceae

Achillea millefolium L. (common yarrow) DAOF, SSSN; P; H; OBG-219

Ambrosia psilostachya DC. (Cuman ragweed) DAOF; P; H; OBG-079

Amphiachyris dracunculoides (DC.) Nutt. (prairie broomweed) DAOF, SSSN; A; H; OBG-097

Antennaria plantaginifolia (L.) Richards. (woman's tobacco) QSQM; P; H; OBG-187

Arnoglossum plantagineum Raf. (groovestem Indian plantain) SSSN; P; H; OBG-221

*Carduus nutans** L. (nodding plumeless thistle) DAOF; B; H; OBG-208

Cirsium altissimum (L.) Hill (tall thistle) SSSN; P; H; OBG-114

- C. undulatum* (Nutt.) Spreng. (wavyleaf thistle) DAOF, SSSN; P; H; OBG-279
- Conyza canadensis* (L.) Cronq. (Canadian horseweed) DAOF; A; H; OBG-091
- C. ramosissima* Cronq. (dwarf horseweed) DAOF; A; H; OBG-089
- Coreopsis grandiflora* Hogg ex Sweet (largeflower tickseed) SSSN; P; H; OBG-300
- C. tinctoria* Nutt. (golden tickseed) DAOF, SSSN; A; H; OBG-059
- Echinacea atrorubens* Nutt. (Topeka purple coneflower) SSSN; P; H; OBG-284
- Eclipta prostrata* (L.) L. (false daisy) WETL; A; H; OBG-073
- Erigeron strigosus* Muhl. ex Willd. (prairie fleabane) DAOF, SSSN; A; H; OBG-015
- Eupatorium serotinum* Michx. (lateflowering thoroughwort) QSQM; P; H; OBG-062
- Euthamia gymnospermoides* Greene (Texas goldentop) SSSN; P; H; OBG-148
- Gamochaeta purpurea* (L.) Cabrera (spoonleaf purple everlasting) -QSQM; P; H; OBG-237
- Grindelia lanceolata* Nutt. (narrowleaf gumweed) DAOF, SSSN; P; H; OBG-048
- G. papposa* Nesom & Suh (Spanish gold) DAOF, SSSN; A; H; OBG-020
- Helenium amarum* (Raf.) H. Rock (yellowdicks) DAOF; A; H; OBG-106
- Helianthus hirsutus* Raf. (hairy sunflower) QSQM; P; H; OBG-121
- Iva angustifolia* Nutt. ex DC. (narrowleaf marshelder) WETL; A; H; OBG-125
- Krigia caespitosa* (Raf.) Chambers (weedy dwarfdandelion) QSQM; A; H; OBG-240
- Packera plattensis* (Nutt.) W.A. Weber & A. Löve (prairie groundsel) QSQM; P; H; OBG-192
- Pluchea camphorata* (L.) DC. (camphor pluchea) WETL; P; H; OBG-011
- Pseudognaphalium obtusifolium* (L.) Hilliard & Burt (rabbit tobacco) DAOF, SSSN; A; H; OBG-002
- Pyrrhopappus carolinianus* (Walt.) DC. (Carolina desert chicory) DAOF, SSSN; A; H; OBG-280
- Rudbeckia hirta* L. (blackeyed Susan) SSSN; A; H; OBG-251
- Solidago speciosa* Nutt. (showy goldenrod) SSSN; P; H; OBG-132
- S. ulmifolia* Muhl. ex Willd. (elmleaf goldenrod) QMQV; P; H; OBG-049
- Sonchus asper** (L.) Hill (spiny sowthistle) DAOF; A; H; OBG-185
- Symphotrichum cordifolium* (L.) Nesom (common blue wood aster) QSQM; P; H; OBG-130
- S. ericoides* (L.) Nesom var. *ericoides* (white heath aster) DAOF, SSSN; P; H; OBG-154
- S. lanceolatum* (Willd.) Nesom var. *lanceolatum* (white panicle aster) QSQM, SSSN; P; H; OBG-133
- S. oblongifolium* (Nutt.) Nesom (aromatic aster) SSSN; P; H; OBG-129
- S. patens* (Ait.) Nesom (late purple aster) QSQM, SSSN; P; H; OBG-100
- S. praealtum* (Poir.) Nesom var. *praealtum* (willowleaf aster) SSSN; P; H; OBG-134
- S. subulatum* (Michx.) Nesom (Eastern annual saltmarsh aster) DAOF, SSSN, WETL; A; H; OBG-105
- Taraxacum officinale** G.H. Weber ex Wiggers (common dandelion) DAOF; P; H; OBG-180
- Verbesina virginica* L. (white crownbeard) QSQM; P; H; OBG-096
- Vernonia arkansana* DC. (Arkansas ironweed) QSQM; P; H; OBG-007
- V. baldwinii* Torr. (Baldwin's ironweed) DAOF, SSSN; P; H; OBG-024
- Xanthium strumarium* L. (rough cocklebur) WETL; A; H; OBG-064

Boraginaceae

- Myosotis verna* Nutt. (spring forget-me-not) QSQM; A; H; OBG-267

Brassicaceae

- Brassica nigra** (L.) W.D.J. Koch (black mustard) DAOF; A; H; OBG-195
- Capsella bursa-pastoris** (L.) Medik. (shepherd's purse) DAOF; A; H; OBG-327

- Cardamine parviflora* L. var. *arenicola* (Britt.)
O.E. Schulz (sand bittercress) QSQM; A;
H; OBG-194
*Erysimum repandum** L. (spreading wallflower)
DAOF; A; H; OBG-197
Lepidium densiflorum Schrad. (common
pepperweed) DAOF, SSSN; A; H; OBG-
190

Cactaceae

- Opuntia humifusa* (Raf.) Raf. (devil's tongue)
QSQM, SSSN; P; S; OBG-169

Callitrichaceae

- Callitriche heterophylla* Pursh (twoheaded
water-starwort) WETL; A; H; OBG-216

Campanulaceae

- Triodanis biflora* (Ruiz & Pavón) Greene
(clasping Venus' looking-glass) SSSN; A;
H; OBG-241

Caprifoliaceae

- Lonicera japonica** Thunb. (Japanese
honeysuckle) QSQM; P; V; OBG-214
Sambucus nigra L. ssp. *canadensis* (L.) R. Bolli
(common elderberry) QSQM; P; S; OBG-
265
Symphoricarpos orbiculatus Moench
(coralberry) QSQM; P; S; OBG-082
Viburnum rufidulum Raf. (rusty blackhaw)
QSQM; P; S; OBG-189

Caryophyllaceae

- Arenaria serpyllifolia** L. (thymeleaf sandwort)-
DAOF; A; H; OBG-242
*Cerastium pumilum** W. Curtis (European
chickweed) DAOF; A; H; OBG-191
*Dianthus armeria** L. (Deptford pink) DAOF,
SSSN; A; H; OBG-235
Minuartia drummondii (Shinners) McNeill
(Drummond's stitchwort) SSSN; A; H;
OBG-273
*Stellaria media** (L.) Vill. (common chickweed)
DAOF; A; H; OBG-176

Clusiaceae

- Hypericum hypericoides* (L.) Crantz (St.
Andrew's cross) QSQM; P; H; OBG-098
H. punctatum Lam. (spotted St. Johnswort)
QSQM; P; H; OBG-295

Convolvulaceae

- Convolvulus arvensis** L. (field bindweed)
DAOF; P; H; OBG-253

Cornaceae

- Cornus drummondii* C.A. Mey. (roughleaf
dogwood) QSQM; P; T; OBG-232

Cuscutaceae

- Cuscuta cuspidata* Engelm. (cusp dodder)
DAOF; P; H; OBG-131

Ebenaceae

- Diospyros virginiana* L. (common persimmon)
QSQM; P; T; OBG-213

Euphorbiaceae

- Acalypha monococca* (Engelm. ex Gray) L.
Mill. & Gandhi (slender threeseed mercury)
SSSN; A; H; OBG-281
A. virginica L. (Virginia threeseed mercury)
QSQM; A; H; OBG-119
Chamaesyce maculata (L.) Small (spotted
sandmat) DAOF; A; H; OBG-023
Croton capitatus Michx. (hogwort) DAOF,
SSSN; A; H; OBG-084
C. monanthogynus Michx. (prairie tea) DAOF,
SSSN; A; H; OBG-146
C. willdenowii G. L. Webster (Willdenow's
croton) SSSN; A; H; OBG-043a
Euphorbia dentata Michx. (toothed spurge)
QSQM; A; H; OBG-102
E. heterophylla L. (Mexican fireplant) QSQM;
A; H; OBG-081
E. spathulata Lam. (warty spurge) SSSN; A; H;
OBG-277
Phyllanthus caroliniensis Walt. (Carolina leaf-
flower) DAOF; A; H; OBG-072

Fabaceae

- Amorpha canescens* Pursh (leadplant) SSSN; P; S; OBG-150
- A. fruticosa* L. (desert false indigo) SSSN, WETL; P; S; OBG-076
- Baptisia bracteata* Muhl. ex Ell. var. *leucophaea* (Nutt.) Kartesz & Gandhi (longbract wild indigo) SSSN; P; H; OBG-193
- Cercis canadensis* L. (Eastern redbud) QSQM; P; T; OBG-208
- Chamaecrista nictitans* (L.) Moench (partridge pea) DAOF, SSSN; A; H; OBG-087
- Crotalaria sagittalis* L. (arrowhead rattlebox) SSSN; P; H; OBG-043
- Dalea purpurea* Vent. (violet prairie clover) SSSN; P; H; OBG-258
- Galactia volubilis* (L.) Britt. (downy milkpea) QSQM; P; H; OBG-103
- Gleditsia triacanthos* L. (honeylocust) QSQM; P; T; OBG-115
- Kummerowia stipulacea** (Maxin.) Makino (Korean clover) DAOF; A; H; OBG-090
- Lathyrus hirsutus** L. (Caley pea) DAOF; A; H; OBG-282
- Lespedeza cuneata** (Dum.-cours.) G. Don (Chinese lespedeza) DAOF, SSSN; P; H; OBG-107
- L. repens* (L.) W. Bart. (creeping lespedeza) QSQM; P; H; OBG-156
- L. violacea* (L.) Pers. (violet lespedeza) QSQM; P; H; OBG-035
- L. virginica* (L.) Britt. (slender lespedeza) QSQM; P; H; OBG-022
- Medicago lupulina** L. (black medick) DAOF; A; H; OBG-172
- Melilotus officinalis** (L.) Lam. (yellow sweetclover) DAOF; A; H; OBG-060
- Mimosa nuttallii* (DC.) B.L. Turner (Nuttall's sensitive-briar) SSSN; P; H; OBG-264
- Pediomelum linearifolium* (Torr. & Gray) J. Grimes (narrowleaf Indian breadfruit) SSSN; P; H; OBG-299
- Stylosanthes biflora* (L.) B.S.P. (sidebeak pencilflower) SSSN; P; H; OBG-252
- Trifolium dubium** Sibthorp (suckling clover) DAOF; A; H; OBG-243

*T. pratense** L. (red clover) DAOF; A; H; OBG-290

*Vicia villosa** Roth (winter vetch) DAOF; A; H; OBG-288

Fagaceae

- Quercus muehlenbergii* Engelm. (chinkapin oak) QSQM; P; T; OBG-145
- Q. shumardii* Buckl. (Shumard's oak) QSQM; P; T; OBG-139
- Q. stellata* Wangenh. (post oak) QSQM; P; T; OBG-083
- Q. velutina* Lam. (blackjack oak) QSQM; P; T; OBG-335

Gentianaceae

Sabatia campestris Nutt. (Texas star) SSSN; A; H; OBG-283

Geraniaceae

Geranium carolinianum L. (Carolina geranium) DAOF, SSSN; A; H; OBG-275

Haloragaceae

*Myriophyllum aquaticum** (Vell.) Verdc. (parrot feather watermilfoil) WETL; P; H; OBG-202

Juglandaceae

- Carya illinoensis* (Wangenh.) K. Koch (pecan) QSQM; P; T; OBG-135
- C. texana* Buckl. (black hickory) QSQM; P; T; OBG-128

Krameriaceae

Krameria lanceolata Torr. (trailing krameria) SSSN; P; H; OBG-250

Lamiaceae

- Hedeoma drummondii* Benth. (Drummond's false pennyroyal) SSSN; P; H; OBG-276
- Lamium amplexicaule** L. (henbit deadnettle) DAOF; A; H; OBG-181
- L. purpureum** L. (purple deadnettle) DAOF; A; H; OBG-182
- Monarda fistulosa* L. (wild bergamot) QSQM; P; H; OBG-260

Prunella vulgaris L. (common selfheal) QSQM;
P; H; OBG-257

Pycnanthemum tenuifolium Schrad.
(narrowleaf mountain mint) QSQM; P; H;
OBG-249

Salvia azurea Michx. ex Lam. (azure blue
sage) SSSN; P; H; OBG-093

Scutellaria parvula Michx. (small skullcap)
SSSN; P; H; OBG-302

Teucrium candense L. (Canada germander)
WETL; P; H; OBG-101

Linaceae

Linum medium (Planch.) Britt. (stiff yellow flax)
SSSN; A; H; OBG-031

L. sulcatum Riddell (grooved flax) SSSN; A; H;
OBG-030

Lythraceae

Ammannia auriculata Willd. (eared redstem)
WETL; A; H; OBG-013

Cuphea viscosissima Jacq. (blue waxweed)
WETL; A; H; OBG-058

Malvaceae

Callirhoe alcaeoides (Michx.) Gray (light
poppymallow) SSSN; P; H; OBG-270

Menispermaceae

Cocculus carolinus (L.) DC. (Carolina
coralbead) QSQM; P; H; OBG-226

Nelumbonaceae

Nelumbo lutea Willd. (American lotus) WETL;
P; H; OBG-287

Oleaceae

Fraxinus americana L. (white ash) QSQM; P;
T; OBG-155

*Ligustrum quihoui** Carr. (waxy leaf privet)
QSQM; P; S; OBG-143

*L. sinense** Lour. (Chinese privet) QSQM; P; S;
OBG-046

Onagraceae

Gaura villosa Torr. (wooly beeblossom) SSSN;
P; H; OBG-010

Ludwigia palustris (L.) Ell. (marsh seedbox)
WETL; P; H; OBG-001

L. peploides (Kunth) Raven (floating primrose-
willow) WETL; P; H; OBG-067

Oenothera linifolia Nutt. (threadleaf evening-
primrose) SSSN; A; H; OBG-220

Oxalidaceae

Oxalis stricta L. (common yellow oxalis) DAOF,
SSSN; P; H; OBG-095

O. violacea (violet woodsorrel) QSQM, SSSN;
P; H; OBG-199

Passifloraceae

Passiflora incarnata L. (purple passionflower)
SSSN; P; H; OBG-248

Plantaginaceae

Plantago aristata Michx. (largebraced plantain)
QSQM; A; H; OBG-225

P. virginica L. (Virginia plantain) SSSN; A; H;
OBG-271

Polygalaceae

Polygala incarnata L. (procession flower)
SSSN; A; H; OBG-274

Polygonaceae

Polygonum pennsylvanicum L. (Pennsylvania
smartweed) WETL; A; H; OBG-298

P. punctatum Ell. (dotted smartweed) WETL; A;
H; OBG-071

*Rumex crispus** L. (curly dock) DAOF, WETL;
P; H; OBG-209

Portulacaceae

Phemeranthus parviflorum (Nutt.) Kiger
(sunbright) SSSN; P; H; OBG-033

*Portulaca oleracea** L. (little hogweed) DAOF;
A; H; OBG-108

Primulaceae

Samolus ebracteatus Kunth (limewater
brookweed) WETL; P; H; OBG-137

Ranunculaceae

Delphinium carolinianum Walt. (Carolina larkspur) SSSN; P; H; OBG-229

Rosaceae

- Amelanchier arborea* (Michx. f.) Fern. (common serviceberry) QSQM; P; T; OBG-183
Crataegus mollis Scheele (Arnold hawthorn) QSQM; P; S; OBG-167
C. viridis L. (green hawthorn) QSQM; P; S; OBG-186
Prunus mexicana S. Wats. (Mexican plum) QSQM; P; T; OBG-110
P. serotina Ehrh. (black cherry) QSQM; P; T; OBG-045
*Rosa multiflora** Thunb. ex Murr. (multiflora rose) QSQM; P; V; OBG-263
R. setigera Michx. (climbing rose) SSSN; P; V; OBG-292
Rubus sp. (blackberry) DAOF, QSQM; P; V; OBG-204

Rubiaceae

- Cephalanthus occidentalis* L. (common buttonbush) WETL; P; S; OBG-050
Diodia teres Walt. (poorjoe) SSSN; A; H; OBG-070
Galium aparine L. (stickywilly) DAOF, QSQM; A; H; OBG-233
G. pilosum Ait. var. *punctulosum* (Michx.) Torr. & Gray (hairy bedstraw) QSQM; P; H; OBG-061
G. virgatum Nutt. (southwestern bedstraw) SSSN; A; H; OBG-233
Houstonia pusilla Schoepf (tiny bluet) SSSN; A; H; OBG-174
*Sherardia arvensis** L. (blue fieldmadder) DAOF; A; H; OBG-177

Salicaceae

- Populus deltoides* Bartr. ex Marsh. (Eastern cottonwood) WETL; P; T; OBG-118
Salix nigra Marsh. (black willow) WETL; P; T; OBG-051

Sapotaceae

Sideroxylon lanuginosum Michx. (gum bully) QSQM; P; T; OBG-052

Scrophulariaceae

- Bacopa rotundifolia* (Michx.) Wettst. (disk waterhyssop) WETL; P; H; OBG-109
Castilleja indivisa Engelm. (entireleaf Indian paintbrush) SSSN; A; H; OBG-200
Lindernia dubia (L.) Pennell (yellowseed false pimpernel) WETL; A; H; OBG-078
Nuttallanthus canadensis (L.) D.A. Sutton (Canada toadflax) SSSN; A; H; OBG-272
*Veronica polita** Fries (gray field speedwell) DAOF; A; H; OBG-173

Solanaceae

- Physalis pubescens* L. (husk tomato) SSSN; A; H; OBG-014
Solanum americanum P. Mill. (American black nightshade) QSQM; A; H; OBG-017
S. carolinense L. (Carolina horsenettle) DAOF, SSSN; P; H; OBG-075
S. elaeagnifolium Cav. (silverleaf nightshade) DAOF, SSSN; P; H; OBG-116
S. rostratum Dunal (buffalobur nightshade) DAOF; A; H; OBG-075

Ulmaceae

- Ulmus alata* Michx. (winged elm) QSQM; P; T; OBG-245
U. rubra Muhl. (slippery elm) QSQM; P; T; OBG-246

Valerianaceae

Valerianella radiata (L.) Dufr. (beaked cornsalad) SSSN; A; H; OBG-268

Verbenaceae

- Verbena bracteata* Cav. ex Lag. & Rodr. (bigbract verbena) DAOF, SSSN; A; H; OBG-113
V. stricta Vent. (hoary verbena) DAOF; P; H; OBG-278
V. urticifolia L. (white vervain) QSQM; P; H; OBG-141

Vitaceae

- Parthenocissus quinquefolia* (L.) Planch.
(Virginia creeper) QSQM; P; V; OBG-222
Vitis cinerea (Engelm.) Millard (graybark grape)
QSQM; P; V; OBG-297

Zygophyllaceae

- Tribulus terrestris** L. (puncturevine) DAOF; A;
H; OBG-019

Liliopsida**Alismataceae**

- Alisma subcordatum* Raf. (American water
plantain) WETL; P; H; OBG-286
Sagittaria ambigua J.G. Sm. (Kansas
arrowhead) -WETL; P; H; OBG-266
S. latifolia Willd. (broadleaf arrowhead) -WETL
; P; H; OBG-027

Commelinaceae

- Commelina erecta* L. (whitemouth dayflower)
DAOF, SSSN; P; H; OBG-028
Tradescantia ohiensis Raf. (bluejacket) SSSN;
P; H; OBG-236

Cyperaceae

- Carex aggregata* Mackenzie (glomerate sedge)
QSQM; P; G; OBG-328
C. blanda Dewey (Eastern woodland sedge)
QSQM; P; G; OBG-326
C. festucacea Schkuhr ex Willd. (fescue sedge)
QSQM; P; G; OBG-330
C. frankii Kunth (Frank's sedge) -WETL; P; G;
OBG-163
C. microdonta Torr. & Hook. (littletooth sedge)
SSSN; P; G; OBG-203
Cyperus croceus Vahl (Baldwin's flatsedge)
SSSN; P; G; OBG-166
C. echinatus (L.) Wood (globe flatsedge)
SSSN; P; G; OBG-099
C. odoratus L. (fragrant flatsedge) WETL; A; G;
OBG-164
C. squarrosus L. (bearded flatsedge) DAOF; A;
G; OBG-065
C. strigosus L. (strawcolored flatsedge) SSSN;
P; G; OBG-161

- C. virens* Michx. (green flatsedge) WETL; P; G;
OBG-147
Eleocharis lanceolata Fern. (daggerleaf
spikerush) WETL; A; G; OBG-325
E. obtusa (Willd.) J.A. Schultes (blunt
spikerush) WETL; A; G; OBG-127
E. palustris (L.) Roemer & J.A. Schultes
(common spikerush) WETL; P; G; OBG-
324
Fimbristylis autumnalis (L.) Roemer & J.A.
Schultes (slender fimbry) WETL; A; G;
OBG-069
F. puberula (Michx.) Vahl (hairy fimbry) WETL;
P; G; OBG-322
F. vahlii (Lam.) Link (Vahl's fimbry) WETL; A;
G; OBG-063
Isolepis carinata Hook. & Arn. ex. Torr. (keeled
bulrush) WETL; A; G; OBG-239
Rhynchospora globularis (Chapman) Small
(globe beaksedge) -WETL; P; G; OBG-323
Scirpus pendulus Muhl. (rufous bulrush) WETL;
P; G; OBG-244

Iridaceae

- Sisyrinchium campestre* Bickn. (prairie blue-
eyed grass) SSSN; P; H; OBG-201

Juncaceae

- Juncus brachycarpus* Engelm. (whiteroot rush)
WETL; P; G; OBG-318
J. diffusissimus Buckl. (slimpod rush) WETL; P;
G; OBG-055
J. interior Wieg. (inland rush) SSSN; P; G;
OBG-321
J. marginatus Rostk. (grassleaf rush) WETL; P;
G; OBG-319
J. tenuis Willd. (poverty rush) WETL; P; G;
OBG-168

Lemnaceae

- Lemna minor* L. (common duckweed) WETL;
P; H; OBG-332
Wolffia columbiana (Columbian watermeal)
WETL; P; H; OBG-333

Liliaceae

- Allium canadense* (meadow garlic) SSSN; P; H; OBG-188
Erythronium mesochoreum Knerr (midland fawnlily) QSQM; P; H; OBG-301
Hypoxis hirsuta (L.) Coville (common goldstar) SSSN; P; H; OBG-217
Nothoscordum bivalve (L.) Britt. (crowpoison) SSSN; P; H; OBG-179

Orchidaceae

- Spiranthes vernalis* Engelm. & Gray (spring ladies'-tresses) SSSN; P; H; OBG-291

Poaceae

- Aegilops cylindrica** Host (jointed goatgrass) DAOF; A; G; OBG-210
Agrostis hyemalis (Walt.) B.S.P. (winter bentgrass) SSSN; P; G; OBG-307
A. perennans (Walt.) Tuckerman (upland bentgrass) QSQM; P; G; OBG-306
Andropogon gerardii Vitman (big bluestem) SSSN; P; G; OBG-112
A. virginicus L. (Virginia wildrye) SSSN; P; G; OBG-117
Aristida dichotoma Michx. (churchmouse threeawn) SSSN; A; G; OBG-038
Bothriochloa laguroides (DC.) Herter (silver beardgrass) DAOF, SSSN; P; G; OBG-005
*Bromus catharticus** Vahl (rescuegrass) DAOF; A; G; OBG-206
*B. tectorum** L. (cheatgrass) DAOF; A; G; OBG-309
Buchloe dactyloides (buffalograss) SSSN; P; G; OBG-218
Danthonia spicata (L.) Beauv. ex Roemer & J.A. Schultes (poverty oatgrass) QSQM; P; G; OBG-207
Dichanthelium acuminatum (Sw.) Gould & C.A. Clark var. *fasciculatum* (Torr.) Freckmann (Western panicgrass) QSQM; P; G; OBG-124
D. depauperatum (Muhl.) Gould (starved panicgrass) QSQM; P; G; OBG-311
D. malacophyllum (Nash) Gould (softleaf rosette grass) QSQM; P; G; OBG-120
D. scoparium (Lam.) Gould (velvet panicum) QSQM; P; G; OBG-317
D. villosissimum (Nash) Freckmann (whitehair rosette grass) QSQM; P; G; OBG-310
Digitaria cognata (J.A. Schultes) Pilger (Carolina crabgrass) DAOF; P; G; OBG-003
D. sanguinalis (L.) Scop. (hairy crabgrass) DAOF; A; G; OBG-004
*Echinochola crus-galli** (L.) Beauv. (barnyardgrass) WETL; A; G; OBG-025
*Eleusine indica** (L.) Gaertn. (Indian goosegrass) DAOF; A; G; OBG-068
Elymus virginicus L. (Virginia wildrye) QSQM, SSSN; P; G; OBG-312
*Eragrostis barrelieri** Daveau (Mediterranean lovegrass) DAOF; A; G; OBG-008
E. intermedia A.S. Hitchc. (plains lovegrass) QSQM; P; G; OBG-021
E. spectabilis (Pursh) Steud. (purple lovegrass) DAOF, SSSN; P; G; OBG-018
Hordeum pusillum Nutt. (little barley) SSSN; A; G; OBG-211
Leersia oryzoides (L.) Sw. (rice cutgrass) WETL; P; G; OBG-314
L. virginica Willd. (whitegrass) -WETL; P; G; OBG-140
*Lolium perenne** L. (perennial ryegrass) DAOF; P; G; OBG-230
Muhlenbergia sobolifera (Muhl. ex Willd.) Trin. (rock muhly) QSQM; P; G; OBG-029
Panicum anceps Michx. (beaked panicgrass) QSQM, SSSN; P; G; OBG-104
P. dichotomiflorum Michx. (fall panicgrass) WETL; A; G; OBG-122
P. philadelphicum Bernh. ex Trin. (Philadelphia panicgrass) SSSN; A; G; OBG-123
P. rigidulum Bosc ex Nees (redtop panicgrass) WETL; P; G; OBG-162
P. virgatum L. (switchgrass) SSSN; P; G; OBG-094
Paspalum pubiflorum Rupr. ex Fourn. (hairyseed paspalum) SSSN, WETL; P; G; OBG-053
Phalaris caroliniana Walt. (Carolina canarygrass) WETL; A; G; OBG-228

*Poa annua** L. (annual bluegrass) QSQM; A; G; OBG-178
Schedonnardus paniculatus (Nutt.) Trel. (tumblegrass) DAOF, SSSN; P; G; OBG-057
*Schedonorus phoenix** (Scop.) Holub DAOF; P; G; OBG-238
Schizachyrium scoparium (Michx.) Nash (little bluestem) SSSN; P; G; OBG-149
Setaria parviflora (Poir.) Kerguelen (marsh bristlegrass) WETL; P; G; OBG-158
*S. pumila** (Poir.) Roemer & J.A. Schultes (yellow foxtail) DAOF; A; G; OBG-009
Sorghastrum nutans (L.) Nash (Indian grass) SSSN; P; G; OBG-336
*Sorghum halepense** (L.) Pers. (Johnsongrass) DAOF, SSSN; P; G; OBG-111
Sphenopholis obtusata (Michx.) Scribn. (prairie wedgescale) QSQM; P; G; OBG-308
Sporobolus cryptandrus (Torr.) Gray (sand dropseed) SSSN; P; G; OBG-016

Steinchisma hians (Ell.) Nash (gaping grass) WETL; P; G; OBG-262
Tridens strictus (Nutt.) Nash (longspike tridens) DAOF, SSSN; P; G; OBG-044
Vulpia ellioatea (Raf.) Fern. (squirreltail fescue) SSSN; A; G; OBG-315
V. octoflora (Walt.) Rydb. (sixweeks fescue) SSSN; A; G; OBG-315

Potamogetonaceae

Potamogeton diversifolius Raf. (waterthread pondweed) WETL; P; H; OBG-160

Smilacaceae

Smilax rotundifolia L. (roundleaf greenbriar) QSQM; P; V; OBG-223
S. tamnoides L. (bristly greenbriar) QSQM; P; V; OBG-224

Typhaceae

Typha domingensis Pers. (southern cattail) - WETL; P; H; OBG-126