

Floristic Study of the Overton Park Forest,
Memphis, Shelby County, Tennessee

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Overview

Overton Park in Memphis, Shelby County, Tennessee, is approximately 348 acres (Kessler, undated drawing), much of which was originally forested. It was established in 1901 as the first public park in the City of Memphis. It is bounded on the north by North Parkway, the east by East Parkway, the south by Poplar Avenue and on the west by Kenilworth Street and McLean Boulevard. When the park was created, the Overton Park Forest covered 200 acres according to its designer, George E. Kessler. The Overton Park Forest currently covers approximately 142 acres located in the eastern one-half of the park. This report is based upon the 125 acres that is currently open to the public, and does not include 17 acres of forest located inside the Memphis Zoo's fence.

Historically, paved roads transecting the park were open to motor vehicular traffic. In 1972, the city experimented with Bicycle Days on the interior roads (no automobiles or motorcycles) with just pedestrians and bicycles allowed to access these areas. In 1974, the term "People's Day" was used and signs were erected on swinging gates for the weekends. Finally, on April 13, 1987, the permanent traffic ban for the interior park roads was enacted by the Memphis Park Commission, and the gates were permanently closed to vehicular traffic. A network of dirt trails also traverses the forested portion of the park and small concrete bridges dating from the late 1920's are found in multiple locations along this trail system. However, much of the forest within the park remains un-impacted by roads and trails, especially in the north-central part.

Summary of Findings

A total of 332¹ flowering plant species from 85 plant families were found to be inhabiting the Overton Park Forest. Of these 245 are native species and 87 are non-native. Only native or naturalized (growing and reproducing without aid) plants were recorded. Plants that were obviously planted and are not spreading on their own were not included. Considering the relatively small area occupied by the forest, the lack of significant topographic variation and the removal of wetland/stream-side habitat created when Lick Creek was channelized many years ago, this is an amazing number of plant species. It clearly points to the biological richness and age of the forest. Two plant species, goldenseal (*Hydrastis canadensis*) and oceanblue phacelia (*Phacelia ranunculacea*), both listed on the

¹ *The following species have been reported to have been found in Overton Park Forest. However, none of these were found during this effort. There is certainly a possibility that some of these were missed in this survey and if any are found and verified, they should be added to the list.*

Aplectrum hymale

Polygonum hydropiper

Polygonum hydropiperoides

Tipularia discolor

Centaurea maculosa

Agastache foenicium

Aster ericoides

Eupatorium coelestinum

Zizia aurea

Coreopsis tinctoria

Aster divaricatis

Erigeron pulchellus

Erythronium albidum

Hydrocotyle sp.

Lobelia siphilitica

Mertensia virginica

Vicia sativa

Fragaria virginica

Tennessee Natural Heritage Program (TNHP) Rare Plant List (2008), were found in the forest. Both plants are designated as species of Special Concern by the TNHP. In addition, two trees occur which are very likely Tennessee State Champion Trees. These are Shumard oak (*Quercus shumardii*) and pawpaw (*Asimina triloba*). Unofficial measurements of the Shumard oak showed it to be approximately 62.7 inches DBH (diameter at breast height), 125 feet tall, with a spread of about 105 feet. The pawpaw is 8.7 inches DBH, and approximately 50 feet tall, with a 30 foot spread. (It will be necessary to contact the TNHP to get verification of these two trees as state champions).

Methods

Pedestrian surveys were performed within Overton Part Forest an average of once a week from August 2008 through July 2009. An estimated 175 to 200 hours were spent in the forest. Trails and the trail-less portions of the forest were walked randomly. Specimens of plant species that could not be identified in the field (e.g., sedges, grasses, asters) were collected dried in a plant press and identified later with the aid of a dissecting microscope and taxonomic keys. About 200 hours were spent reviewing literature, speaking to knowledgeable individuals, pressing and identifying plants, recording plant species on a master list and writing this report.

Previous Related Studies

Two earlier ecological studies of the Overton Park Forest were conducted, neither of which focused on the existing flora of the forest. The earlier report, *Ecological Assessment and Management Recommendations for the Overton Park Forest* (James M. Guldin, 1987), focused primarily on the assessment of the condition of the forest at that time and management recommendations. In his report, among other things, Guldin recommends that an “. . . accurate ecological inventory of the woody and non-woody vegetation. . .” should be performed.

The *Overton Park Baseline Documentation* (Appalachian Ecological Consultants, 1999), as the title suggests was intended to establish an ecological baseline from which further studies could be made and compared. This study recorded only 86 plants species in the Overton Park Forest. Its author broke the forest down into three recognized forest types and indicated areas of human disturbance.

Purpose

This work is the first floristic study of the forested portion and the areas immediately surrounding the forested portion within of Overton Park. Its purpose is to create a baseline documentation of all of the vascular plant species² which currently grow in the park. This not only provides a current view of the breadth of plant species diversity in the forested part of the park, but also supplies the foundation upon which to base future management of the Overton Park Forest

² *Vascular plants are higher plants which have vascular tissue to transport water and nutrients. They include most of what we think about when we consider plants, including trees, shrubs, vines, grasses, sedges, rushes and wildflowers, among others. Non-vascular plants include mosses, lichens, etc.*

Significance of Overton Park Forest

Overton Park Forest is an extremely rare virgin or old-growth forest³. It is especially unique when considering the urban location of this forest. It is not only important as a part of Memphis' natural history, reflecting what the area was like prior to human perturbation, but is also of great importance regionally. Its importance was clearly seen by George Kessler who developed the original landscape plan for Overton Park:

“In Overton Park you have saved the other chief characteristics of this region by preserving in the forest conditions of the virgin forest upon that property. Nowhere in the United States, except in the Pacific Northwest, will you find tree growth as luxuriant as in the Western Tennessee and Eastern Arkansas forests, and in the two hundred acres of virgin forest in Overton Park you have a property which, as a heritage to the public for the enjoyment of nature, equals in value the cost of the entire park system to the present time.” -George E. Kessler, 1911. (*Overton Park*, William Bearden, 2004)

Very few virgin forests exist in the Mid-South region and certainly none within a city the size of Memphis. Its towering trees, which form the overstory, are the most obvious and prominent characteristic of this forest. Many of the trees have no branches for 50 or 60 feet from their bases. Many of those trees reach heights well over 100 feet and measure four to five feet or larger in diameter at breast height. A large number of these trees are likely greater than 200 years of age⁴. (See **Table 1** below for a sampling of some of the larger trees in the forest.)

Old-growth forests are characterized by large, old, live trees, large snags (standing dead trees) and large fallen trees. In these kinds of forests, normally only sporadic, individual tree death occurs. When this happens, gaps are created within the canopy which allow sunlight to reach the forest floor, allowing for the growth and maturation of younger canopy species trees, the further development of understory species (shrubs and smaller trees) and the proliferation of the groundcover layer (wildflowers and other herbaceous and small woody plants). These forests typically display several layers of vegetation, providing greater habitat diversity and concomitant species diversity (than a non-virgin forest). Further, old-growth forests usually have few early successional species (mostly annuals). (*Eastern Old-Growth Forests - Prospects for Rediscovery and Recovery* (Mary Byrd Davis, ed., 1996)). Overton Park Forest fits the entire description of an old-growth forest well.

It should be understood that an old-growth forest is not defined merely by its trees. Although many of the trees are estimated to be over 200 years old, trees grow, mature and die over time. Like all forests, this is a biotic community composed of a myriad of plants and animals, based in the soil from which its plants grow. The soil under the Overton Park Forest is mapped as Memphis silt loam, 2 to 5 percent slopes (*Soil Survey Shelby County, Tennessee*, 1989). It is a well-drained, primarily silt loam for at least the first nine feet below

³ In this report, the terms *old-growth* and *virgin forest* are used interchangeably. Specific definitions for these two terms vary and usually overlap.

⁴ In order to accurately determine the ages of the older trees, they would need to be cored and analyzed by a competent professional.

the surface. This was evident when work was being done in early 2008 to develop the 4-acre section of the forest within the Memphis Zoo's jurisdiction. During construction of a building, the first 8 to 9 feet of soil had to be removed because it lacked the necessary engineering characteristics needed to build the planned structure. However, this same silt loam provides a nearly ideal substrate for the food base in this old growth forest.

Trees are the most visually dominant forest component. However, they comprise only 20% of the total number of plant species growing in Overton Park Forest. That is, four times as many plant species which are not trees grow in the forest. The animal portion of this forest contains the more obvious mammals, birds, reptiles and amphibians (vertebrates), but a much larger number (of both species and individuals) of invertebrates including insects, spiders, worms, etc., many of which are organisms of decay (detrital animals), which break down the organic matter constantly raining down in the forest and constitute much of the base of the forest's food net. All of these organisms combined (plants and animals) are the biotic community of the forest. This forest has almost certainly been occupying this location, with very little human disturbance (tree harvesting, etc.), since the last ice age some 10,000 to 12,000 years ago.

Disturbance

Signs of human perturbations are apparent locally throughout the forest, but significantly, many areas have survived to the present time with little apparent disturbance. Indications of disturbance include a few areas containing anthropomorphic debris near the edges of the forest which have been (and likely currently are) used by homeless people, some vegetational destruction along the main trails by people using the trails, and scattered areas occupied heavily by invasive plant species. Of the latter, some of these areas are significant in size. Most commonly observed invasive species include Chinese privet (*Ligustrum sinense*), creeping euonymus (*Euonymus fortunei*), English ivy (*Hedera helix*), Japanese honeysuckle (*Lonicera japonica*), and periwinkle (*Vinca major*). Also observed were a few remaining small populations of kudzu (*Pueraria lobata*)⁵. The presence of these species is important because they are non-native, spread rapidly, and destroy (by replacing) native plants which previously occupied those areas. Most of the non-native species occupy areas immediately adjacent to trails and forest edges. This is due to the disturbance in those areas. A complete list of the most aggressive non-native species is given in **Table 2** below.

Natural disturbances involving downed trees, mostly due to wind damage, exist sporadically throughout the forest. However, these downed trees are an important part of any healthy forest, providing significant habitat for many forest organisms. On the ground, they are quickly attacked by insects and other organisms of decay (detrital organisms) which, over time, break the fallen tree into its basic nutrients, which then can be taken up by living plants, continuing the cycle. Many of the organisms which work to recycle these trees become food for other organisms in the forest. Also, very importantly, fallen trees create openings where sunlight can penetrate to the forest floor and allow shade-intolerant plant species to grow, increasing plant species diversity and therefore, providing more habitat. Except for removing portions that block sanctioned trails, all downed trees should be left where they fall to return to the elements.

⁵ Dr. David Kesler of Rhodes College was contacted upon finding these small populations of kudzu. He immediately applied Transline, an herbicide specific to kudzu, to those areas.

Two triangular areas bordered by paved roads/trails within the park are now being allowed to revert through natural vegetational succession. These areas, due to their generally tree-less condition harbor a number of plant species not found elsewhere in the park, thus adding to the plant species diversity of the park.

Forest Composition

Overstory

By far the most striking and obviously unique component of the Overton Park forest is the canopy of mature hardwood trees. That canopy includes a large number of trees of great age. Although, as mentioned above, coring of the trees would be necessary to determine their age more accurately, this author estimates the age of many of the larger trees will easily exceed 200 years.

On the low ridges, dominant canopy species are southern red oak (*Quercus falcata*) and tulip poplar (*Liriodendron tulipifera*), with white oak (*Quercus alba*), bitternut hickory (*Carya cordiformis*), black cherry (*Prunus serotina*) and sassafras (*Sassafras albidum*) occurring with them. On lower sites, cherrybark oak (*Quercus pagoda*) and sweetgum (*Liquidambar styraciflua*) become important members of the canopy.

Understory

Most commonly observed understory species were hop hornbeam (*Ostrya virginiana*), red maple (*Acer rubrum*), redbud (*Cercis canadensis*), pawpaw (*Asimina triloba*) and flowering dogwood (*Cornus florida*). Also regularly observed were American hornbeam (*Carpinus caroliniana*), red buckeye (*Aesculus pavia*), spicebush (*Lindera benzoin*), hazelnut (*Corylus americana*) and Hearts-a-bursting (*Euonymus americanus*).

Lianas (woody vines)

Eight species of grapes (in the genus *Vitis*) grow within the forest. This is a very high number considering the size of the forest and its relatively small topographic variation. The tops of many of the canopy trees are festooned with grapes that are as old as the trees that support them. These vines are a great asset to the Overton Park Forest, providing fruit, cover and structure (nesting) for wildlife, while causing no harm to the trees on which they rest. Another genus of woody vines that expresses the remarkable plant species diversity of the forest is *Smilax*, the cat-briers or green-briers. Four different species of these mostly prickly vines were documented in this study, an unusually high number. Other commonly occurring woody vines include rattan vine (*Berchemia scandens*) and poison ivy (*Toxicodendron radicans*).

Ground Cover/Herbaceous

Commonly occurring ground cover species in the spring are toothwort (*Dentaria laciniata*), wake-robin (*Trillium recurvatum*), smooth yellow violet (*Viola pennsylvanica*), celandine poppy (*Stylophorum diphyllum*), mayapple (*Podophyllum peltatum*) wild ginger (*Asarum canadense*) and woodland bluegrass (*Poa sylvestris*). Commonly observed species

in summer and fall include arrow-leaved aster (*Aster sagittifolius*), white avens (*Geum canadensis*), Virginia knotweed (*Polygonum virginianum*), bellflower (*Campanula americana*) and cut-leaf coneflower (*Rudbeckia laciniata*).

Rare/Unusual Plant Species Found in Overton Park Forest

Two rare wildflower species were recorded during the field work at the park (*Tennessee Natural Heritage Program*, 2008). These are goldenseal (*Hydrastis canadensis*) and oceanblue phacelia (*Phacelia ranunculacea*). Goldenseal was found in a number of locations in the forest, while oceanblue phacelia occurs in a small area near the Lick Creek channel. Specifics on their status follows:

Hydrastis canadensis - **State Status** S-CE; **State Rank** S3; **Global Rank** G4
Phacelia ranunculacea - **State Status** S; **State Rank** S2S3; **Global Rank** G4

State Status

S– Special concern species - means any species or subspecies of plant that is uncommon in Tennessee, or has unique or highly specific habitat requirements or scientific value and therefore requires careful monitoring of its status.

CE– Commercially exploited - plants that are being taken from the wild in large numbers and propagation or cultivation is insufficient to meet market demand. These plants are of long-term conservation concern but the division does not recommend they be included in the normal environmental review process

State Rank

S2– Very rare and imperiled within the state, six to twenty occurrences and less than 3000 individuals, or few remaining individuals, or because of some factor(s) making it vulnerable to extirpation from Tennessee.

S3– Rare and uncommon in the state, from 21 to 100 occurrences.

Global Rank

G4– Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery. Thus, the plant is of long-term concern.

Other Significant Findings

Eleven species of oaks were documented from the Overton Park Forest and its immediate surrounding area. Two of these (pin oak and post oak) were seen only in the park area on the east side of the forest. However, considering their age and the identity of the other trees in that park area, it is most likely that they were part of the original forest composition. Further, as is the nature of any study, these species could have been overlooked in the main part of the forest due to the short time over which this study was conducted.

Another group of plants that showed an astonishing diversity were the grapes. A total of eight species in the grape family (all woody vines) were identified during the study. Again, this is a very high number of species in this family to be found in such a small area with limited topographic variation. Further, thirteen species of ferns were found during the study. This is many more than expected. Finally, four species of catbrier grow in the forest. Like the oaks and grapes, this diversity of species within the genus (*Smilax*) clearly demonstrates the richness of the Overton Park Forest.

Recommendations

Assuming that no development will be done in the forest in the future, by far the greatest threat to the health and integrity of Overton Park Forest is invasive, non-native plant species. Because they are not native and therefore, did not evolve with the native plants in the forest, these plant species have few, if any controls (competition from native species, insects and diseases) on their growth. Therefore, they grow at the expense of the native species in the forest and effectively eliminate native species from the forest. It is essential that the invasive species problem be addressed because these plants will continue to occupy greater and greater portions of the forest and more and more native species will be lost. To demonstrate what can be expected with the elimination of these threats, most of the kudzu has already been eliminated in this forest and, in areas where this aggressive plant had been, there now are almost entirely native species.

To return the forest to near its pre-disturbance condition, aggressive, persistent and long-term efforts should be made to eliminate as many of these non-native species as possible. (A list of those species which pose the greatest threat to the Overton Park Forest is given in Appendix A, below.) Killing can be done most easily, effectively and safely on species that remain green during the winter when most of the rest of the plants in the forest are dormant and, therefore, will not be harmed by the herbicide. A list of recommended contacts for information concerning the use and timing of herbicide is given at the bottom of this section. English ivy and euonymus growing up trees need to be carefully cut low on the tree trunks and their woody stems treated with 50/50 glyphosate (sometimes sold as Roundup). Stumps of all other invasive woody species which, due their larger size, need to be cut rather than pulled, should be sprayed with the same herbicide mixture. This has been proven to be effective in eliminating re-sprouting of those plants in most cases. Smaller Chinese privet can be pulled by hand. All other “evergreen” invasive plants will need to be sprayed when temperature and wind conditions are right at the appropriate time of year - late winter-early spring. Focused, guided (by someone familiar with the plants growing in the forest) and persistent eradication is necessary to effectively eliminate these species from the forest. This will not only remove these destructive species which are currently occupying ever-increasing areas within the forest, but also provide areas for native species to begin to proliferate and re-occupy those areas. Periodic surveys should be made to make sure that these invasive species have indeed been killed and have not returned.

To provide additional protection for this very unique forest, it is recommended that some formal recognition should be given it. This recognition would be given to help insure that the forest will be protected in perpetuity. The source of this designation might come from the state of Tennessee (the Tennessee Natural Heritage Program or perhaps the Tennessee Historic Preservation Commission). Also, the City of Memphis and/or Shelby County may be able to offer more serious protection through regulation written for the specific purpose of protecting this incredible piece of the city’s heritage.

Recommended Contacts for the Use and Timing of Herbicides:

U.S. Department Of Agriculture, Natural Resources Conservation Service, Suite 5, Box 22, 7777. Walnut Grove Road Memphis, TN 38120. Phone: (901) 544-0228, Ext. 3

Shelby County Extension, Agricenter International, 7777 Walnut Grove Rd. Suite B Box 21, Memphis, TN 38120; Phone - (901) 752-1207

UT Extension Administrative Office, UT Extension, 2621 Morgan Circle, 121 Morgan Hall
Knoxville, TN 37996; Phone: 865-974-7115

West Tenn Urban Forester, Shawn Posey, 7777 Walnut Grove Rd., PO Box 30, Memphis,
TN 38120; Phone - (901) 754-5185; shawn.posey@tn.gov

EFETAC , Stephanie L. Worley Firley, Eastern Forest Environmental Threat Assessment
Center, 200 Weaver Boulevard, Asheville, NC 28804; Phone - (828) 257-4380,
sworleyfirley@fs.fed.us, <http://www.forestthreats.org>

Conclusion

Overton Park Forest is a unique resource which cannot be replaced. It is invaluable to the city and to the region as an outstanding example of old growth forest. Because it is within an urban setting, it is even more exceptional. Everything possible should be done to assure that it is protected in perpetuity. This conclusion was reached by all earlier studies. This forest is indeed extraordinary and unequalled.

To satisfy both the scientist and non-scientist, the vascular flora of Overton Park Forest are given in two formats: one by common name (**Appendix A**) and one by scientific name (**Appendix B**) (both attached). Plant families are listed alphabetically as are the species found within each family.

Literature Cited

- Appalachian Ecological Consultants. 1999. *Overton Park Baseline Documentation*. Unpublished report.
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Acknowledgment

A great debt of gratitude is owed Naomi Van Tol without whose knowledge of the location, the history and many of the unusual aspects of the forest, this work would be much less complete. Her assistance was invaluable.

Table 1
Sampling of a few of the larger trees in Overton Park Forest⁶

	<u>DBH (inches)</u>	<u>Height (feet)</u>	<u>Spread (feet)</u>
Black oak (<i>Quercus velutina</i>)	45.1	105	80
Cherrybark oak (<i>Quercus pagoda</i>)	62.7	125	105
Hop Hornbeam (<i>Ostrya virginiana</i>)	11.6	60	33
Tulip poplar (<i>Liriodendron tulipifera</i>)	57.2	115	65
Tulip poplar (<i>Liriodendron tulipifera</i>)	48.0	110	70
White oak (<i>Quercus alba</i>)	52.2	110	75

Table 2
Aggressive Non-native Plant Species Found in the Forest

Celastrus orbiculatus (oriental bittersweet)
Euonymus fortunei (euonymus)*
Hedera helix (English ivy)*
Ligustrum sinense (Chinese privet)*
Lonicera japonica (Japanese honeysuckle)*
Pueraria lobata (kudzu)
Sapium sebiferum (Chinese tallow tree)
Vinca major (great periwinkle)*
Poncirus trifoliata (trifoliolate orange)
Liriope muscaria (liriope)*
Ophiopogon japonicus (mondo grass)*

* “evergreen” plant species that can be sprayed with herbicide when deciduous native plant are dormant

⁶ DBH was measured using a DBH tape; height and spread were estimated.

Appendix A

Plants Occurring in Overton Park Forest - By Common Name

PTERIDOPHYTA - Ferns

ASPLENIACEAE - Spleenwort Family

- Broad beech fern - *Thelypteris hexagonoptera*
- Christmas fern - *Polystichum acrostichoides*
- Common woodsia - *Woodsia obtusa*
- Ebony spleenwort - *Asplenium platyneuron*
- Fragile fern - *Cystopteris fragilis*
- Lady fern - *Athyrium filix-femina*
- Resurrection fern - *Polypodium polypodioides*
- Sensitive fern - *Onoclea sensibilis*
- Silvery spleenwort - *Athyrium thelypteroides*
- Southern lady fern - *Athyrium filix-femina* var. *asplenioides*

OPHIOGLOSSACEAE - Adder's-Tongue Fern Family

- Grape fern - *Botrychium dissectum* var. *obliquum*
- Rattlesnake fern - *Botrychium virginianum*

POLYPODIACEAE - Polypody Family

- Resurrection fern - *Polypodium polypodioides* var. *michauxianum*

SPERMATOPHYTA - Seed-bearing Plants

***GYMNOSPERMAE* - Naked seeded Plants**

CUPRESSACEAE - Cypress family

- Eastern red cedar - *Juniperus virginiana*

***ANGIOSPERMAE* - Flowering Plants**

ACANTHACEAE - Acanthus Family

- Dicliptera - *Dicliptera brachiata*

ACERACEAE - Maple family

- Box elder - *Acer negundo*
- Red maple - *Acer rubrum*
- Silver maple - *Acer saccharinum*
- Sugar maple - *Acer saccharum*

AIZOACEAE - Ice Plant Family

- Carpet weed - *Mollugo verticillata*

AMARANTHACEAE - Pigweed family

Red-rooted pigweed - *Amaranthus retrofllexus*

Spiny pigweed - *Amaranthus spinosus*

ANACARDIACEAE - Cashew Family

Smooth sumac - *Rhus glabra*

Poison ivy - *Toxicodendron radicans*

ANNONACEAE - Custard Apple Family

pawpaw - *Asimina triloba*

APIACEAE - Carrot Family

Black snakeroot - *Sanicula canadensis*

Chervil - *Chaerophyllum procumbens*

Honewort - *Cryptotaenia canadensis*

Sweet cicely - *Osmorhiza longistylis*

Torilis - *Torilis japonica**

APOCYNACEAE - Dogbane family

Climbing dogbane - *Trachelospermum difforme*

Great periwinkle - *Vinca major*

AQUIFOLIACEAE - Holly Family

American holly - *Ilex opaca*

Chinese holly - *Ilex cornuta*

Deciduous holly - *Ilex decidua*

ARACEAE - Arum Family

Green dragon - *Arisaema dracontium*

Italian arum - *Arum italicum*

Jack-in-the-pulpit - *Arisaema triphyllum*

ARALIACEAE - Aralia Family

English ivy - *Hedera helix*

Hercules club - *Aralia spinosa*

ARISTOLOCHIACEAE - Birthwort Family

Wild ginger - *Asarum canadense*

ASCLEPIADACEAE - Milkweed Family

Bluevine - *Cynanchum laeve*

Carolina climbing milkweed - *Matelea carolinensis*

Climbing milkweed - *Matelea gonocarpa*

ASTERACEAE Sunflower Family

Aster, arrow-leaved, *Aster sagittifolius*

Aster, frost - *Aster pilosus*

Aster, lowland - *Aster simplex*

Aster, side-flowered - *Aster lateriflorus*
Aster, slender - *Aster exilis*
Bear's-foot - *Polymnia uvedalia*
Butter-weed - *Senecio glabellus*
Camphor-weed - *Pluchea camphorata*
Climbing hempweed - *Mikania scandens*
Cut-leaf coneflower - *Polymnia uvedalia*
Dandelion - *Taraxicum officinale*
Elephant-foot - *Elephantopus carolinianus*
False aster - *Boltonia asteroides* var. *recognita*
Fireweed - *Erechtites hieracifolia*
Fleabane, annual - *Erigeron annuus*
Fleabane, Philadelphia - *Erigeron philadelphicus*
Fleabane, prairie - *Erigeron strigosus*
Goldenrod, Canada - *Solidago canadensis*
Goldenrod, rough-leaved - *Solidago rugosa*
Goldenrod, woodland - *Solidago caesia*
Late boneset - *Eupatorium serotinum*
Mare's-tail - *Conyza canadensis*
Pink thoroughwort - *Eupatorium incarnatum*
Ragweed, common - *Ambrosia artemisiifolia*
Ragweed, giant - *Ambrosia trifida*
Sow thistle, Common - *Sonchus oleraceus*
Sow thistle, Spiny - *Sonchus asper*
Spanish needles - *Bidens bipinnata*
White crownbeard - *Verbesina virginica*
White snake-root - *Eupatorium rugosum*
Wild lettuce, biennial - *Lactuca biennis*
Wild lettuce, Canada - *Lactuca canadensis*

BALSAMINACEAE - Balsam Family

Jewelweed - *Impatiens capensis*

BERBERIDACEAE - Barberry Family

Mahonia - *Mahonia beadei*
Nandina - *Nandina domestica*
May-apple - *Podophyllum peltatum*

BETULACEAE- Birch Family

American hornbeam - *Carpinus caroliniana*
Hazelnut - *Corylus americana*
Hophorn beam - *Ostrya virginiana*
River birch - *Betula nigra*

BIGNONIACEAE - Bignonia Family

Cross-vine - *Bignonia capreolata*
Trumpet creeper - *Campsis radicans*

Catalpa - *Catalpa speciosa*
Princess tree - *Paulonia tomentosa*

BORAGINACEAE - Borage Family

Hound's tongue - *Cynoglossum virginianum*

BRASSICACEAE - Mustard Family

Common peppergrass - *Lepidium virginicum*
Shepherd's purse - *Capsella bursa-pastoris*
Spring cress - *Cardamine bulbosa*
Spring cress- *Cardamine hirsuta*
Toothwort - *Dentaria laciniata*

CAMPANULACEAE - Harebell Family

American bellflower - *Campanula americana*
Venus' looking-glass - *Triodanis perfoliata* var. *biflora*

CAPRIFOLIACEAE - Honeysuckle Family

Coralberry - *Symphoricarpos orbiculatus*
Elderberry - *Sambucus canadensis*
Honeysuckle, coral- *Lonicera sempervirens*
Honeysuckle, Japanese - *Lonicera japonica*
Southern black haw - *Viburnum rufidulum*
Tartarian honeysuckle - *Lonicera tartarica*

CARYOPHYLLACEAE - Pink Family

Chickweed, common- *Stellaria media*
Chickweed, mouse-eared- *Cerastium nutans*
Starry campion - *Silene stellata*

CELASTRACEAE - Staff-tree Family

Burning bush - *Euonymus alatus*
Creeping euonymus - *Euonymus fortunei*
Hearts-a-bursting - *Euonymus americanus*
Oriental bittersweet - *Celastrus orbiculatus*

CHENOPODIACEAE - Goosefoot Family

Lamb's quarters - *Chenopodium album*
Mexican tea - *Chenopodium ambrosioides*

COMMELINACEAE - Spiderwort Family

Common dayflower - *Commelina communis*
Diffuse dayflower - *Commelina diffusa*

CONVOLVULACEAE - Morning-glory Family

Common morning-glory - *Ipomoea purpurea*
Dichondra - *Dichondra caroliniensis*

Dodder - *Cuscuta gronovii*

CORNACEAE - Dogwood Family

Dogwood, flowering - *Cornus florida*

Dogwood, rough-leaved - *Cornus drummondii*

Dogwood, stiff - *Cornus foemina*

CUCURBITACEAE - Cucumber Family

Watermelon - *Citrullus vulgaris*

Creeping cucumber - *Melothria pendula*

CYPERACEAE - Sedge Family

Flat-sedge, round - *Cyperus rotundus*

Flat-sedge, sweet-scented - *Cyperus densicaespitosus*

Sedge - *Carex leavenworthii*

Sedge - *Carex oligocarpa*

Sedge - *Carex oxylepis*

Sedge - *Carex pennsylvanica*

Sedge - *Carex rosea*

Sedge - *Carex texensis*

DIOSCOREACEAE - Yam Family

Yam, Chinese - *Dioscorea batatas*

Yam, wild - *Dioscorea quaternata*

EBENACEAE - Ebony Family

Persimmon - *Diospyros virginiana*

ELAEAGNACEAE - Oleaster Family

Autumn olive - *Elaeagnus pungens*

EUPHORBIACEAE - Spurge Family

Chamber bitter - *Phyllanthus urinaria*

Chinese tallow-tree - *Sapium sebiferum*

Spurge - *Chamaesyce humistrata*

Three-seeded mercury - *Acalypha rhomboidea*

Three-seeded mercury, slender - *Acalypha gracilens*

FABACEAE - Bean family

Clover, alsike - *Trifolium hybridum*

Clover, low hop - *Trifolium campestre*

Clover, red - *Trifolium pratense*

Hog peanut - *Amphicarpa bracteata*

Kudzu - *Pueraria lobata*

Lespedeza, Japanese - *Kummerowia striata*

Locust, black - *Robinia pseudoacacia*

Locust, honey - *Gleditsia triacanthos*

Mimosa tree - *Albizia julibrissin*
Redbud - *Cercis canadensis*
Tick trefoil, pointed - *Desmodium glutinosum*
Tick trefoil, panicled - *Desmodium paniculatum*
Tick trefoil, white-flowered - *Desmodium pauciflorum*
Vetch, common - *Vicia sativa*
Wild sensitive plant - *Cassia nictitans*
Wisteria - *Wisteria sinensis*

FAGACEAE - Beech Family

Oak, black - *Quercus velutina*
Oak, cherrybark - *Quercus pagoda*
Oak, chinquapin - *Quercus muhlenbergii*
Oak, northern red - *Quercus rubra*
Oak, pin (park) - *Quercus palustris*
Oak, post (park) - *Quercus stellata*
Oak, Shumard - *Quercus shumardii*
Oak, southern red *Quercus falcata*
Oak, water - *Quercus nigra*
Oak, white - *Quercus alba*
Oak, willow - *Quercus phellos*

GERANIACEAE - Geranium Family

Carolina crane's bill - *Geranium carolinianum*
Wild geranium - *Geranium maculatum*

GINKGOACEAE - Ginkgo Family

Ginkgo - *Ginkgo biloba*

HAMAMELIDACEAE Witch-hazel Family

Sweetgum - *Liquidambar styraciflua*

HIPPOCASTANACEAE - Horse Chestnut Family

Red buckeye - *Aesculus pavia*

HYDROPHYLLACEAE - Water-leaf Family

Large leaf water leaf - *Hydrophyllum macrophyllum*
Oceanblue phacelia - *Phacelia ranunculacea*

JUGLANDACEAE - Walnut Family

Hickory, bitternut - *Carya cordiformis*
Hickory, mockernut - *Carya tomentosa*
Hickory, shagbark - *Carya ovata*
Hickory, Texas - *Carya texana*
Pecan - *Carya illinoensis*
Back walnut - *Juglans nigra*

JUNCACEAE -Rush Family

Path rush - *Juncus tenuis*

Wood-rush - *Luzula multiflora*

LAMIACEAE - Mint Family

Bee-balm - *Monarda fistulosa*

Beefsteak plant - *Perilla frutescens*

Deadnettle, spotted - *Lamium maculatum*

Deadnettle, purple - *Lamium purpureum*

Ground ivy - *Glechoma hederacea* var. *micrantha*

Henbit - *Lamium amplexicaule*

Lyre-leaf sage - *Salvia lyrata*

Self-heal - *Prunella vulgaris*

LAURACEAE - Laurel Family

Sassafras - *Sassafras albidum*

Spicebush - *Lindera benzoin*

LILIACEAE - Lily Family

Daylily - *Hemerocallis fulva*

Large-flowered bellwort - *Uvularia grandiflora*

Liriope - *Liriope muscari*

Mondo grass- *Ophiopogon japonicus*

Narcissus - *Narcissus pseudo-narcissus*

Poet's narcissus - *Narcissus poeticus*

Solomon's seal - *Polygonatum biflorum*

Solomon's seal, false - *Smilacina racemosa*

Star of Bethlehem - *Ornithogalum umbellatum*

Wake-robin - *Trillium recurvatum*

Wild onion - *Allium canadense*

Wild garlic - *Allium vineale*

LYTHRACEAE - Loosestrife Family

Crepe myrtle - *Lagerstroemia indica*

MAGNOLIACEAE - Magnolia Family

Magnolia, southern - *Magnolia grandiflora*

Tulip poplar - *Liriodendron tulipifera*

MALVACEAE - Mallow Family

Carolina bristlemallow - *Modiola caroliniana*

Rose-of-Sharon - *Hibiscus syriacus*

Sida - *Sida rhombifolia*

MELIACEAE - Mahogany family

Chinaberry tree - *Melia azederach*

MENISPERMACEAE - Moonseed Family

Carolina moonseed - *Cocculus carolinus*

Moonseed - *Menispermum canadense*

MORACEAE - Mulberry family

Crab-weed - *Fatoua villosa*

Mulberry, red - *Morus rubra*

Mulberry, white - *Morus alba*

Mulberry, paper - *Broussonetia papyrifera*

Osage orange - *Maclura pomifera*

NYSSACEAE - Gum Family

Black gum - *Nyssa sylvatica*

OLEACEAE - Ash Family

Ah, green - *Fraxinus pennsylvanica*

Ash, white - *Fraxinus americana*

Chinese privet - *Ligustrum sinense*

Forsythia - *Forsythia viridissima*

OXALIDACEAE - Sorrell Family

Sorrell - *Oxalis dillenii*

Sorrell, red - *Oxalis rubra*

PAPAVERACEAE - Poppy Family

Celandine poppy - *Stylophorum diphyllum*

PASSIFLORACEAE - Passionflower Family

Yellow passionflower - *Passiflora lutea* var. *glabriflora*

PHYTOLACCACEAE - Poke Family

Poke-weed - *Phytolacca americana*

PLANTAGINACEAE - Plantain Family

Plantain, blackseed - *Plantago rugelii*

Plantain, lance-leaf - *Plantago lanceolata*

PLATANACEAE - Plane-tree Family

Sycamore - *Platanus occidentalis*

POACEAE- Grass Family

Bald bromegrass - *Bromus racemosus*

Barnyardgrass - *Echinochloa crusgalli*

Beadgrass - *Paspalum pubiflorum*

Bearded shorthusk - *Brachyelytrum erectum*

Bermuda grass - *Cynodon dactylon*

Bluegrass, woodland - *Poa sylvestris*

Bluegrass, annual - *Poa annua*

Broom-sedge - *Andropogon virginicus*
Crab grass - *Digitaria sanguinalis*
Deer-tongue panicum - *Dichanthelium clandestinum*
Foxtail, yellow - *Setaria glauca*
Foxtail, giant - *Setaria faberi*
Giant cane - *Arundinaria gigantea*
Goose grass - *Eleusine indica*
Grease grass - *Tridens flavus*
Inland sea oats - *Chasmanthium latifolium*
Japanese chess - *Bromus japonicus*
Johnson grass - *Sorghum halepense*
Junglerice - *Echinochloa colonum*
Longleaf woodoats - *Chasmanthium sessiliflorum*
Manna grass - *Glyceria striata*
Nepal grass - *Microstegium vimineum*
Nimblewill - *Muhlenbergia schreberi*
Panic grass - *Panicum anceps*
Prairie wedgescale - *Sphenopholis obtusata*
Rice cutgrass - *Leersia oryzoides*
Stinkgrass - *Eragrostis cilianensis*
Tall fescue - *Festuca arundinacea*
Tufted lovegrass - *Eragrostis pectinacea*
Twoflower melicgrass - *Melica mutica*
White-grass - *Leersia virginica*
Wildrye, Canada- *Elymus canadensis*
Wildrye, riverbank - *Elymus riparius*
Wildrye, Virginia - *Elymus virginicus*

POLEMONIACEAE - Phlox Family

Jacob's ladder - *Polemonium reptans*
Woodland phlox - *Phlox divaricata* var. *laphamii*

POLYGONACEAE - Smartweed Family

Dock, curly - *Rumex crispus*
Dock, bitter - *Rumex obtusifolius*
Knotweed, Virginia - *Polygonum virginianum*
Knotweed - *Polygonum aviculare*
Smartweed, climbing - *Polygonum scandens*
Smartweed, common - *Polygonum pensylvanicum*
Smartweed, creeping - *Polygonum cespitosum* var. *longisetum*
Smartweed, denseflowered - *Polygonum densiflorum*
Smartweed, spotted - *Polygonum punctatum*

PORTULACACEAE - Purslane Family

Little hogweed - *Portulaca oleracea*
Spring beauty - *Claytonia virginica*

RANUNCULACEAE - Buttercup Family

Doll's-eyes - *Actaea pachypoda*
Golden seal - *Hydrastis canadensis*
Meadow rue - *Thalictrum dioicum*
Small-flowered buttercup - *Ranunculus abortivus*
Virgin's bower - *Clematis virginiana*

RHAMNACEAE - Buckthorn Family

Rattan vine - *Berchemia scandens*

ROSACEAE - Rose Family

Barren strawberry - *Duchesnia indica*
Beaked agrimony - *Agrimonia rostellata*
Carolina plum - *Prunus caroliniana*
Common cinquefoil - *Potentilla simplex*
Hawthorn - *Crataegus* sp.
Highbush blackberry - *Rubus argutus*
Japanese quince - *Chaenomeles japonica*
Multiflora rose - *Rosa multiflora*
Serviceberry - *Amelanchier arborea*
Slender parsley piert - *Alchemilla microcarpa*
Southern dewberry - *Rubus trivialis*
White avens - *Geum canadense*
Wild black cherry - *Prunus serotina*
Wild crab apple - *Malus coronaria*

RUBIACEAE - Madder Family

Bedstraw - *Galium circaezans*
Bluet - *Hedyotis purpurea*
Button-weed, common - *Diodia teres*
Button-weed, Virginia - *Diodia virginiana*
Cleavers - *Galium aparine*
Field madder - *Sherardia arvensis*

RUTACEAE -Rue Family

Trifoliate orange - *Poncirus trifoliata*

SALICACEAE - Willow Family

Black willow - *Salix nigra*
Eastern cottonwood - *Populus deltoides*

SAXIFRAGACEAE - Saxifrage Family

Common hydrangea - *Hydrangea arborescens*
Mock orange - *Philadelphus inodorous*

SCROPHULARIACEAE - Figwort Family

Japanese mazus - *Mazus pumilus*
Late figwort - *Scrophularia marilandica*
Neckweed - *Veronica peregrina*
Persian speedwell - *Veronica persica*
Square-stemmed monkey flower - *Mimulus alatus*

SIMARUBACEAE - Quassia Family

Tree-of-heaven - *Ailanthus altissima*

SMILACACEAE -Catbrier Family

Catbrier, glaucous - *Smilax glauca*
Catbrier, hispid - *Smilax hispida*
Catbrier, roundleaf - *Smilax rotundifolia*
Catbrier, Small's - *Smilax smallii*

SOLANACEAE - Potato Family

Ground-cherry - *Physalis pruinosa*
Horse nettle - *Solanum americanum*

TILIACEAE - Linden Family

American basswood - *Tilia americana*
Basswood - *Tilia heterophylla*

ULMACEAE - Elm Family

Elm, American - *Ulmus americana*
Elm, slippery - *Ulmus rubra*
Hackberry - *Celtis occidentalis*
Sugarberry - *Celtis laevigata*

URTICACEAE -Nettle Family

Nettle, false - *Boehmeria cylindrica*
Nettle, wood - *Laportea canadensis*
Clearweed - *Pilea pumila*

VERBENACEAE - Verbena Family

Lopseed - *Phryma leptostachya*

VIOLACEAE - Violet Family

Johnny-jump-up - *Viola rafinesquii*
Violet, butterfly - *Viola papilionacea*
Violet, common - *Viola sororia*
Violet, smooth yellow- *Viola pubescens* var. *eriocarpa*

VITACEAE - Grape Family

Grape, fox - *Vitis vulpina*
Grape, raccoon - *Ampelopsis cordata*
Grape, riverbank - *Vitis riparia*

Grape, summer - *Vitis aestivalis*

Grape, winter - *Vitis cinerea*

Muscadine - *Vitis rotundifolia*

Pepper vine - *Ampelopsis arborea*

Virginia creeper - *Parthenocissus quinquefolia*

Appendix B

(Species marked with an asterisk (*) are non-native)

PTERIDOPHYTA

ASPLENIACEAE

Asplenium platyneuron - ebony spleenwort

Athyrium filix-femina var. *asplenioides* - southern lady fern

Athyrium filix-femina - lady fern

Athyrium thelypteroides - silvery spleenwort

Cystopteris fragilis - fragile fern

Onoclea sensibilis - sensitive fern

Polypodium polypodioides - resurrection fern

Polystichum acrostichoides - Christmas fern

Thelypteris hexagonoptera - broad beech fern

Woodsia obtusa - common woodsia

OPHIOGLOSSACEAE

Botrychium dissectum var. *obliquum* - grape fern

Botrychium virginianum - rattlesnake fern

POLYPODIACEAE

Polypodium polypodioides var. *michauxianum* - resurrection fern

GYMNOSPERMAE

CUPRESSACEAE

Juniperus virginiana - eastern red cedar

ANGIOSPERMAE

ACANTHACEAE

Dicliptera brachiata - dicliptera

ACERACEAE

Acer negundo - box elder

Acer rubrum - red maple

Acer saccharinum - silver maple

Acer saccharum - sugar maple

AIZOACEAE

Mollugo verticillata - carpet weed*

AMARANTHACEAE

Amaranthus retroflexus - red-rooted pigweed*

Amaranthus spinosus - spiny pigweed*

ANACARDIACEAE

Rhus glabra - smooth sumac

Toxicodendron radicans - poison ivy

ANNONACEAE

Asimina triloba - pawpaw

APIACEAE

Chaerophyllum procumbens - chervil

Cryptotaenia canadensis - honewort

Osmorhiza longistylis - sweet cicely

Sanicula canadensis - Canadian black snakeroot

Torilis japonica - torilis*

APOCYNACEAE

Trachelospermum difforme - climbing dogbane

Vinca major - great periwinkle*

AQUIFOLIACEAE

Ilex decidua - deciduous holly

Ilex opaca - American holly

Ilex cornuta - Chinese holly*

ARACEAE

Arisaema dracontium - green dragon

Arisaema triphyllum - jack-in-the-pulpit

Arum italicum - Italian arum*

ARALIACEAE

Aralia spinosa - Hercules club

Hedera helix - English ivy*

ARISTOLOCHIACEAE

Asarum canadense - wild ginger

ASCLEPIADACEAE

Cynanchum laeve - bluevine

Matelea carolinensis - climbing milkweed

Matelea gonocarpa - climbing milkweed

ASTERACEAE

Ambrosia artemisiifolia - common ragweed

Ambrosia trifida - giant ragweed

Aster exilis - slender aster

Aster lateriflorus - side-flowered aster

Aster pilosus - frost aster

Aster Sagittifolius - arrow-leaved aster

Aster simplex - lowland aster

Bidens bipinnata - Spanish needles
Boltonia asteroides var. *recognita* - false aster
Conyza canadensis - mare's-tail
Elephantopus carolinianus - elephant-foot
Erechtites hieracifolia - fireweed
Erigeron annuus - annual daisy fleabane
Erigeron philadelphicus - Philadelphia daisy fleabane
Erigeron strigosus - prairie fleabane
Eupatorium incarnatum - pink thoroughwort
Eupatorium rugosum - white snake-root
Eupatorium serotinum - late boneset
Lactuca biennis - wild lettuce
Lactuca canadensis - Canada wild lettuce
Mikania scandens - climbing hempweed
Pluchea camphorata - camphor-weed
Polymnia uvedalia - bear's-foot
Rudbeckia laciniata - cut-leaf coneflower
Senecio glabellus - butter-weed
Solidago caesia - woodland goldenrod
Solidago canadensis - tall goldenrod
Solidago rugosa - rough-leaved goldenrod
Sonchus asper - sow thistle*
Sonchus oleraceus - sow thistle*
Taraxicum officinale - dandelion*
Verbesina virginica - white crownbeard

BALSAMINACEAE

Impatiens capensis - jewelweed

BERBERIDACEAE

Mahonia beadei - mahonia*
Nandina domestica - nandina*
Podophyllum peltatum - may-apple

BETULACEAE

Betula nigra - river birch
Carpinus caroliniana - American hornbeam
Corylus americana - hazelnut
Ostrya virginiana - hophorn beam

BIGNONIACEAE

Bignonia capreolata - cross-vine
Campsis radicans - trumpet creeper
Catalpa speciosa - catalpa
Paulonia tomentosa - princess tree*

BORAGINACEAE

Cynoglossum virginianum - hound's tongue

BRASSICACEAE

Capsella bursa-pastoris - shepherd's purse*

Cardamine bulbosa - spring cress

Cardamine hirsuta - spring cress*

Dentaria laciniata - toothwort

Lepidium virginicum - common peppergrass

CAMPANULACEAE

Campanula americana - American bellflower

Triodanis perfoliata var. *biflora* - Venus' looking-glass

CAPRIFOLIACEAE

Lonicera japonica - Japanese honeysuckle*

Lonicera sempervirens - coral honeysuckle

Lonicera tartaria - Tartarian honeysuckle*

Sambucus canadensis - elderberry

Symphoricarpos orbiculatus - coralberry

Viburnum rufidulum -southern black haw

CARYOPHYLLACEAE

Cerastium nutans - mouse-eared chickweed

Silene stellata - starry campion

Stellaria media - common chickweed*

CELASTRACEAE

Celastrus orbiculatus - oriental bittersweet*

Euonymus alatus - burning bush*

Euonymus americanus - hearts-a-bursting

Euonymus fortunei - creeping euonymus*

CHENOPODIACEAE

Chenopodium album - lamb's quarters

Chenopodium ambrosioides - Mexican tea*

COMMELINACEAE

Commelina communis - common dayflower*

Commelina diffusa - diffuse dayflower

CONVOLVULACEAE

Cuscuta gronovii - dodder

Dichondra caroliniensis - dichondra

Ipomoea purpurea - common morning-glory*

CORNACEAE

Cornus drummondii - rough-leaf dogwood

Cornus florida - flowering dogwood

Cornus foemina - still dogwood

CUCURBITACEAE

Citrullus vulgaris - watermelon*

Melothria pendula - creeping cucumber

CYPERACEAE

Carex leavenworthii - sedge

Carex oligocarpa - sedge

Carex oxylepis - sedge

Carex pennsylvanica - sedge

Carex rosea - sedge

Carex texensis - sedge

Cyperus densicaespitosus

Cyperus rotundus - round flat-sedge

DIOSCOREACEAE

Dioscorea batatas - Chinese yam*

Dioscorea quaternata - wild yam

EBENACEAE

Diospyros virginiana - persimmon

ELAEAGNACEAE

Elaeagnus pungens -autumn olive*

EUPHORBIACEAE

Acalypha gracilens - slender three-seeded mercury

Acalypha rhomboidea - three-seeded mercury

Chamaesyce humistrata - spurge

Phyllanthus urinaria - chamber bitter*

Sapium sebiferum - Chinese tallow-tree*

FABACEAE

Albizia julibrissin - mimosa tree*

Amphicarpa bracteata - hog peanut

Cassia nictitans - wild sensitive plant

Cercis canadensis - redbud

Desmodium glutinosum - pointed tick trefoil

Desmodium paniculatum - paniced tick trefoil

Desmodium pauciflorum - white-flowered tick trefoil

Gleditsia triacanthos - honey locust

Kummerowia striata - Japanese lespedeza*

Pueraria lobata - kudzu*

Robinia pseudoacacia - black locust

Trifolium campestre - low hop clover

Trifolium hybridum - Alsike clover*

Trifolium pratense - red clover

Vicia sativa - common vetch*

Wisteria sinensis - wisteria*

FAGACEAE

Quercus alba - white oak

Quercus falcata - southern red oak

Quercus muhlenbergii - chinquapin oak

Quercus nigra - water oak

Quercus pagoda - cherrybark oak

Quercus palustris - pin oak (park)

Quercus phellos - willow oak

Quercus rubra - northern red oak

Quercus shumardii - Shumard oak

Quercus stellata - post oak (park)

Quercus velutina - black oak

GERANIACEAE

Geranium carolinianum –Carolina crane's bill

Geranium maculatum - wild geranium

GINKGOACEAE

Ginkgo biloba - ginkgo*

HAMAMELIDACEAE

Liquidambar styraciflua - sweetgum

HIPPOCASTANACEAE

Aesculus pavia - red buckeye

HYDROPHYLLACEAE

Hydrophyllum macrophyllum - large leaf water leaf

Phacelia ranunculacea - oceanblue phacelia

JUGLANDACEAE

Carya cordiformis - bitternut hickory

Carya illinoensis - pecan

Carya ovata - shagbark hickory

Carya texana - Texas hickory

Carya tomentosa - mockernut hickory

Juglans nigra - black walnut

JUNCACEAE

Juncus tenuis - path rush

Luzula multiflora - wood rush

LAMIACEAE

Glechoma hederacea var. *micrantha* - ground ivy*

Lamium amplexicaule - henbit*

Lamium maculatum - spotted dead nettle*

Lamium purpureum - purple dead nettle*

Monarda fistulosa - bee-balm

Perilla frutescens - beefsteak plant*

Prunella vulgaris - self-heal

Salvia lyrata - lyre-leaf sage

LAURACEAE

Lindera benzoin - spicebush

Sassafras albidum - sassafras

LILIACEAE

Allium canadense - wild onion

Allium vineale - wild garlic*

Hemerocallis fulva - daylily*

Liriope muscari - liriope*

Narcissus poeticus - poet's narcissus*

Narcissus pseudo-narcissus - narcissus*

Ophiopogon japonicus - mondo grass*

Ornithogalum umbellatum - star of Bethlehem*

Polygonatum biflorum - Solomon's seal

Smilacina racemosa - false Solomon's seal

Trillium recurvatum - wake-robin

Uvularia grandiflora - large-flowered bellwort

LYTHRACEAE

Lagestroemia indica - crepe myrtle*

MAGNOLIACEAE

Liriodendron tulipifera - tulip poplar

Magnolia grandiflora - southern magnolia

MALVACEAE

Hibiscus syriacus - rose-of-Sharon*

Modiola caroliniana - Carolina bristlemallow

Sida rhombifolia - sida

MELIACEAE

Melia azederach - Chinaberry tree*

MENISPERMACEAE

Cocculus carolinus - Carolina moonseed

Menispermum canadense - moonseed

MORACEAE

Broussonetia papyrifera - paper mulberry*

Fatoua villosa - crab-weed*

Maclura pomifera - Osage orange

Morus alba - white mulberry*

Morus rubra - red mulberry

NYSSACEAE

Nyssa sylvatica - black gum

OLEACEAE

Forsythia viridissima - forsythia*

Fraxinus americana - white ash

Fraxinus pennsylvanica - green ash

Ligustrum sinense - Chinese privet*

OXALIDACEAE

Oxalis dillenii - sorrel

Oxalis rubra - red sorrel*

PAPAVERACEAE

Stylophorum diphyllum - celandine poppy

PASSIFLORACEAE

Passiflora lutea var. *glabriflora* - small passion flower

PHYTOLACCACEAE

Phytolacca americana - poke-weed

PLANTAGINACEAE

Plantago lanceolata - lance-leaf plantain*

Plantago rugelii - plantain

PLATANACEAE

Platanus occidentalis - sycamore

POACEAE

Andropogon virginicus - broom-sedge

Arundinaria gigantea - giant cane

Brachyelytrum erectum - bearded shorthusk

Bromus japonicus - Japanese chess*

Bromus racemosus - bald brome grass*

Chasmanthium latifolium - inland sea oats

Chasmanthium sessiliflorum - longleaf woodoats

Cynodon dactylon - Bermuda grass*

Dichanthelium clandestinum - deer-tongue panicum

Digitaria sanguinalis - crab grass*

Echinochloa colonum - jungle rice*

Echinochloa crusgalli - barnyard grass*
Eleusine indica - goose grass*
Elymus canadensis - Canada wild rye
Elymus riparius - riverbank wildrye
Elymus virginicus - Virginia wild rye
Eragrostis cilianensis - lovegrass*
Eragrostis pectinacea - lovegrass
Festuca arundinacea - tall fescue*
Glyceria striata - manna grass
Leersia oryzoides - rice cutgrass
Leersia virginica - white grass
Melica mutica - melic grass
Microstegium vimineum - Nepal grass*
Muhlenbergia schreberi - nimblewill
Panicum anceps - panic grass
Paspalum pubiflorum - beadgrass
Poa annua - annual bluegrass
Poa sylvestris - woodland bluegrass
Setaria faberi - giant foxtail*
Setaria glauca - yellow foxtail*
Sorghum halepense - Johnson grass*
Sphenopholis obtusata - prairie wedgescale
Tridens flavus - grease grass

POLEMONIACEAE

Phlox divaricata var. *laphamii* - woodland phlox
Polemonium reptans - Jacob's ladder

POLYGONACEAE

Polygonum aviculare - knotweed*
Polygonum cespitosum var. *longisetum* - creeping smartweed*
Polygonum densiflorum - dense-flowered smartweed
Polygonum pensylvanicum - common smartweed
Polygonum punctatum - spotted smartweed
Polygonum scandens - climbing smartweed
Polygonum virginianum - Virginia knotweed
Rumex crispus - curly dock*
Rumex obtusifolius - bitter dock*

PORTULACACEAE

Claytonia virginica - spring beauty
Portulaca oleracea - little hogweed*

RANUNCULACEAE

Actaea pachypoda - doll's-eyes
Clematis virginiana - virgin's bower
Hydrastis canadensis - golden seal

Ranunculus abortivus - small-flowered buttercup

Thalictrum dioicum - meadow rue

RHAMNACEAE

Berchemia scandens - rattan vine

ROSACEAE

Agrimonia rostellata - beaked agrimony

Alchemilla microcarpa - slender parsley piert*

Amelanchier arborea - service-berry

Chaenomeles japonica - Japanese quince*

Crataegus sp. - hawthorn

Duchesnia indica - barren strawberry*

Geum canadense - white avens

Malus coronaria - wild crab apple

Potentilla simplex - common cinquefoil

Prunus caroliniana - Carolina plum*

Prunus serotina - wild black cherry

Rosa multiflora - multiflora rose*

Rubus argutus - highbush blackberry

Rubus trivialis - southern dewberry

RUBIACEAE

Diodia teres - common button-weed

Diodia virginiana - Virginia buttonweed

Galium aparine - cleavers

Galium circaezans - bedstraw

Hedyotis purpurea - bluet

Sherardia arvensis - field madder*

RUTACEAE

Poncirus trifoliata - trifoliolate orange*

SALICACEAE

Populus deltoides - eastern cottonwood

Salix nigra - black willow

SAXIFRAGACEAE

Hydrangea arborescens - common hydrangea

Philadelphus inodorous - mock orange

SCROPHULARIACEAE

Mazus pumilus - Japanese mazus*

Mimulus alatus - square-stemmed monkey flower

Scrophularia marilandica - late figwort

Veronica peregrina - neckweed

Veronica persica - Persian speedwell*

SIMARUBACEAE

Ailanthus altissima - tree-of-heaven*

SMILACACEAE

Smilax glauca - glaucous catbrier

Smilax hispida - hispid catbrier

Smilax rotundifolia - roundleaf catbrier

Smilax smallii - Small's catbrier

SOLANACEAE

Physalis pruinosa - ground-cherry

Solanum americanum - horse nettle

TILIACEAE

Tilia americana - American basswood

Tilia heterophylla - basswood

ULMACEAE

Celtis laevigata - sugarberry

Celtis occidentalis - hackberry

Ulmus americana - American elm

Ulmus rubra - slippery elm

URTICACEAE

Boehmeria cylindrica - false nettle

Laportea canadensis - wood nettle

Pilea pumila - clearweed

VERBENACEAE

Phryma leptostachya - lopseed

VIOLACEAE

Viola papilionacea - butterfly violet

Viola pubescens var. *eriocarpa* - smooth yellow violet

Viola rafinesquii - johnny-jump-up

Viola sororia - common violet

VITACEAE

Ampelopsis arborea - pepper vine

Ampelopsis cordata - raccoon grape

Parthenocissus quinquefolia - Virginia creeper

Vitis aestivalis - summer grape

Vitis cinerea - winter grape

Vitis riparia - riverbank grape

Vitis rotundifolia - muscadine

Vitis vulpina - fox grape