



Vegetation Community Monitoring at Congaree National Park, 2010

Natural Resource Data Series NPS/SECN/NRDS—2012/259



ON THE COVER

Carolina wild petunia (*Ruellia caroliniensis*) at Congaree National Park, June 2010.
Photograph by Sarah L. Corbett.

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Natural Resource Report NPS/SECN/NRDS—2012/259

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

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All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

This report received informal peer review by subject-matter experts who were not directly involved in the collection, analysis, or reporting of the data.

Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols.

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List of Terms

- Absolute cover:** The total amount of ground surface that is covered by each species or group. Describes the amount of cover that each species or group represents in a stratum. Expressed as a percentage. Can exceed 100% due to overlap. The total cover of each species or group divided by the total possible cover for a plot.
- Canopy species:** Woody species known to occur in the midstory or overstory of the canopy, or shrub species that grow greater than or equal to 4 cm DBH and measureable at breast height (1.4 m).
- Canopy stratum:** The structural zone above 1.1 m (i.e., elbow height of a typical observer as per densiometer instructions) and consists of all live and dead plant material that affects the amount of light penetrating to the ground. This includes individual elements whose cover is also potentially measured and accounted for in the shrub- or groundcover-stratum measurements, but exceeds 1.1 m in height, is detected by the densiometer, and contributes to canopy cover. Also referred to as the midstory, overstory, or sub-canopy.
- Cover:** The vertical projection of the outermost extent of a species, or the extent of the shadow cast by the species if the sun were directly overhead. Foliar cover.
- DBH:** Diameter at breast height, or 1.4 m above the ground's surface.
- Frequency:** The number of times a species or group is detected in a plot, expressed as a percentage. Provides information on regularity at which a species or group is encountered.
- Groundcover stratum:** The structural zone that consists of all non-woody species (i.e., forbs and graminoids), and all woody species (i.e., shrubs and trees) with a DBH of less than 1 cm and seedlings 30 cm or less in height.
- Relative cover:** The cover of each species or group as a function of all other plant species that occurred in a plot. Describes the percentage of cover that each species represents out of the total vegetative cover in a stratum. Expressed as a percentage. Always sums to 100%. The total cover of each species or group divided by the sum of the cover of all other species that occur in a plot.
- Seedlings:** Woody dicotyledonous plants less than 30 cm in height.
- Shrub stratum:** All woody species greater than 30 cm in height with a DBH of 1–4 cm.
- Stratum:** A structural size category of vegetation at a site. These are the canopy, shrub, and groundcover layers.

Executive Summary

In 2009, the National Park Service (NPS) Southeast Coast Network (SECN) Inventory and Monitoring Network began collecting vegetation community data as part the NPS Vital Signs monitoring program. Information collected under this Vital Sign will be used to help managers make better informed decisions by understanding trends and variability related to plant species, frequency of occurrence, percent cover, diversity, and distribution in the groundcover, shrub, and canopy strata.

Within each stratum, vegetation communities were sampled using a hybrid of methods used by the North Carolina Vegetation Survey nested-subplot design (Peet et al. 1998) within a circular plot similar to the Forest Inventory and Analysis protocol (Bechtold and Patterson 2005). This report summarizes vegetation community data collected at Congaree National Park in 2010.

1. Data were collected at 30 spatially-balanced random locations at the Park. . The findings below apply only to portions of the park that meet the following site selection criteria:
 - a) Sites are located within park boundaries and ownership.
 - b) Sites must be sampleable within safety guidelines.
 - c) Sites cannot be located in wholly non-natural areas, open water, or areas where application of the methods is inappropriate (such as marshes).
2. Sampling activities occurred at the Park from 6/12 to 7/3/2010.
3. Monitoring efforts resulted in the addition of six species, subspecies, or varieties to the park's species list.
4. Absolute canopy cover across the park was approximately 83%.
5. Water tupelo (*Nyssa aquatica*) had the largest average diameter at breast height of any canopy species at the park.
6. Boxelder (*Acer negundo*) was the most frequently detected seedling species.
7. Paw-paw (*Asimina triloba*) was the most frequently occurring species in the shrub stratum.
8. Paw-paw had the highest absolute and relative cover in the shrub stratum.
9. *Smilax* spp. and poison ivy (*Toxicodendron radicans* ssp. *radicans*) were the most frequently occurring species in the groundcover stratum.
10. Giant cane (*Arundinaria gigantea* ssp. *gigantea*) had the highest absolute and relative cover in the groundcover stratum.
11. The full dataset, and associated metadata, can be acquired from the data store at <http://science.nature.nps.gov/nrdata/>

Introduction

Overview

Vegetation communities provide many ecosystem services. Among their many functions, they are an important component of food webs and wildlife habitat for many species, and serve as a carbon sink, produce oxygen, cycle nutrients and energy through an ecosystem, influence the local climate, improve water quality, and moderate flooding and erosion. Plant communities also respond to multiple stressors such as changes in air quality, hydrology, disturbance regimes, and climate. Determining trends in vegetation communities is vital to understanding the ecological processes occurring at a site, and identifying stressors and their impacts.

Vegetation communities are dynamic entities with constant changes in composition, cover, distribution, and structure that reflect stressor response, natural or anthropogenic in origin. Disturbance is the primary stressor and regulating mechanism of SECN vegetation communities. The timing, type, and extent of the disturbance generally evoke a distinguishable response in the species composition, diversity, and structure of the landscape (Foster et al. 1998, Turner et al. 1990). The primary natural-disturbance processes in SECN parks are fire and weather (e.g., hurricanes, drought). Anthropogenic influences include fire suppression, landscape fragmentation, altered hydrology, and non-native species introduction.

The SECN is composed of a diverse assemblage of vegetation communities. Approximately 180 vegetation associations (i.e., fine-resolution floristic description), as defined by the National Vegetation and Classification System (FGDC 2008), occur in the SECN. These communities vary widely in distribution, species composition, and structure, and include sparsely vegetated primary dune communities, late successional old-growth bottomland hardwood forest communities, and highly diverse herbaceous-dominated mesic pine savannah communities.

Given the widespread anthropogenic influences in SECN parks and the importance of vegetation communities, quantifying trends in plant cover, frequency, diversity, and distribution is a high priority (DeVivo et al. 2008). Evaluating trends in these metrics provides measures for assessing the ecological integrity and sustainability of southeastern ecosystems, and identifying the need for specific management activities on our park lands. The National Park Service Omnibus Management Act of 1998, and other reinforcing policies and regulations, require park managers “to establish baseline information and to provide information on the long-term trends in the condition of National Park System resources” (Title II, Sec. 204). The vegetation-community monitoring data summarized herein is a tool to assist park managers in fulfilling this mandate.

This report summarizes data collected as a part of the SECN’s Vegetation Community Vital Signs monitoring efforts.

Monitoring Objective

- Determine trends in plant species frequency, percent cover, diversity, and distribution in the groundcover, shrub, and canopy strata.

Methods

Study Area

Congaree National Park (CONG) is located in central South Carolina approximately 30 km (18.6 mi) southeast of the capital city of Columbia (Figure 1). The 10,845-ha (26,800 ac) park is bordered to the south by the Congaree River and the Wateree River to the east. The Park is the largest contiguous bottomland-hardwood forest remaining in the United States. As such, it consists of a variety of aquatic and terrestrial community types, and, correspondingly, hosts an exceptional diversity of flora and fauna. Because the Park is predominantly a floodplain, the vegetation communities are primarily driven by hydrologic process (i.e., hydroperiod) and soil type, and range from bald cypress (*Taxodium distichum*)- and water/swamp tupelo (*Nyssa aquatica/biflora*)-dominated communities to loblolly pine and longleaf pine (*Pinus taeda* and *P. palustris*) communities, and old pine plantations, that occur along the northern edge of the Park. The majority of the Park's vegetation communities, however, have a strong component of sugarberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), and laurel oak (*Quercus laurifolia*) (American Geographic Data, Inc. 2001).

Due to the unique properties of the Park, it has been designated an International Biosphere Reserve, National Natural Landmark, Globally Important Bird Area, and also includes a 6,075-ha (15,010 ac) of congressionally-designated Wilderness Area. Further, the Park is renowned for its numerous national- and state-champion trees.

Given the location of CONG within the watershed, the Park is subject to a variety of aquatic-based stressors (i.e., pollutants) from upstream sources. Further, an unmanaged feral hog population (*Sus scrofa*) occurs at the Park and causes widespread rooting and herbivory damage. The Park has an active fire-management program to reintroduce this critical ecological process and restore and maintain the upland communities (i.e., those dominated by *Pinus* spp.).

CONG has 865 known vascular-plant species, subspecies, and varieties (NPSpecies 2011), including six species, subspecies, and varieties added to the species based on these monitoring efforts (Appendix A, Table 2).

Sampling Design

To allow for park-wide inference, the park's administrative boundary was used as the sampling frame, which was divided into a systematic 0.5-ha grid; the center point of each grid cell served

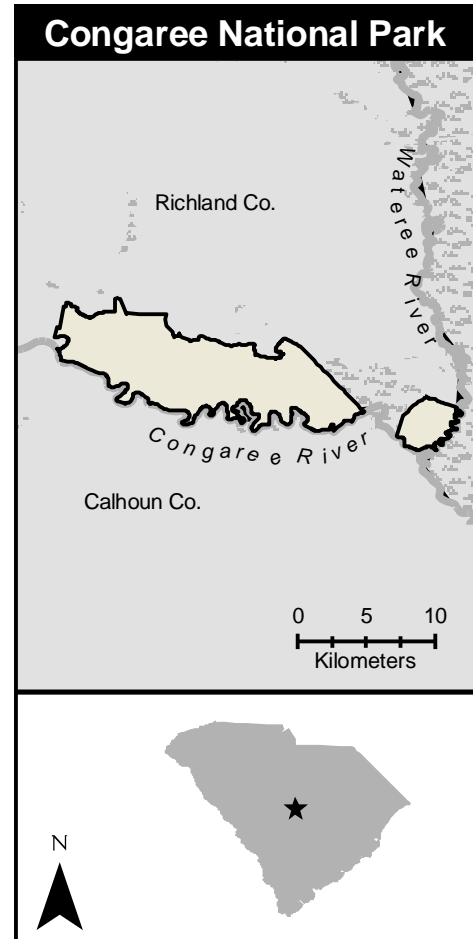


Figure 1. Location of Congaree National Park.

as the potential sampling site and the grid cell served as the macroplot. A spatially-balanced sample was drawn from this grid using the Reversed Randomized Quadrant-Recursive Raster (RRQRR) algorithm (Theobald et al. 2007). Alternate points were used when selection criteria (i.e., including safety and access issues) were not met. A sample size of 30 was chosen after consideration of park size, hypothesized variability, and logistical issues regarding travel time and conducting monitoring activities in five to six park units per year. The Park was sampled from 6/12/2010 to 7/3/2010.

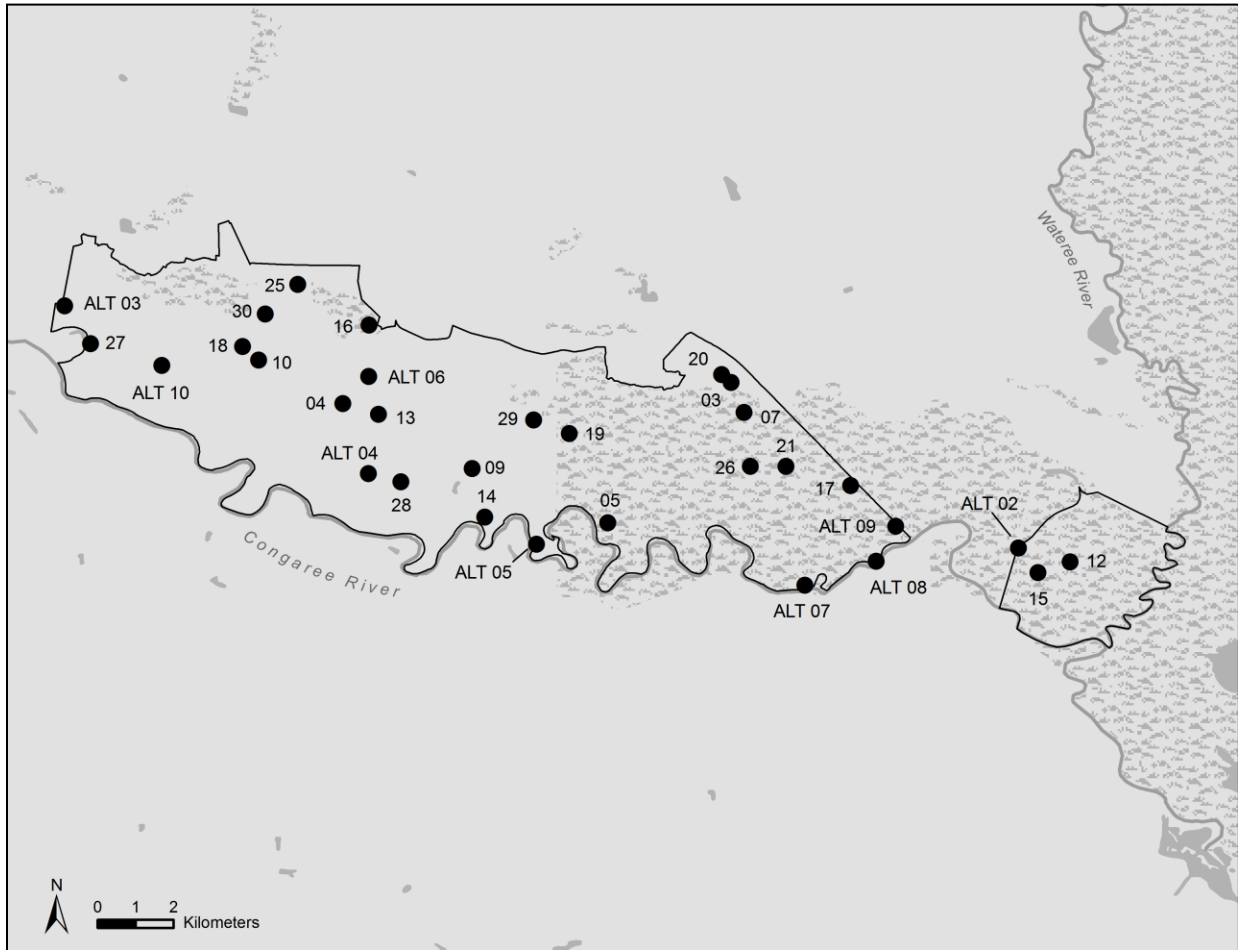


Figure 2. Spatially-balanced random sampling locations at Congaree National Park, 2010.

Taxonomic Standards

Species nomenclature for this report follow the current NPSpecies database accessible through the Integration of Resource Management Applications (IRMA) portal (<https://irma.nps.gov/App/Portal/Home>), which represents the most recent updates from the Integrated Taxonomic Information System (ITIS; <http://www.itis.gov>). Standards used for the botanical taxonomy in this report and for all work conducted by the Southeast Coast Network are in accordance with those set forth in by ITIS (<http://irma.nps.gov/content/help/taxonomy/FAQ.aspx>).

Occasionally, if the available characteristics of a plant did not facilitate identification to genus, species, variety, or subspecies, the lowest level of taxonomy identifiable (i.e., the most refined) was used. For example, species of *Dicanthelium* are extremely difficult to identify to species when they lack floral or fruiting structures. In this case, the specimen may only be identified to genus as *Dicanthelium* sp. In the event that a species has more than one variety or subspecies that occurs for a park and the specific variety or subspecies cannot be identified in the field, only the genus and species name were used. For example, several varieties of *Pteridium aquilinum* are known. If for some reason the observer was only able to identify the plant as *Pteridium aquilinum* and not further to variety, only *Pteridium aquilinum* was reported. In these cases, the identified and reported name may not be included in the existing park species list from NPSpecies, only the sub-species or varieties are included in the park species list. Because the genus or species is already known to occur in the park, the general taxonomy will not appear in the “new vascular plant species” (Table 2). In the event a family name, generic name, or genera and species name only (no variety, subspecies, etc.) is used, the most recent taxonomy represented in ITIS is used for these general terms.

Sampling Methodology

Vegetation community measures were divided into three strata based upon diameter at breast height (DBH) of woody species: canopy, shrub, and groundcover. Any non-woody (i.e., herbaceous) species was considered part of the groundcover stratum. Within each stratum, vegetation communities were sampled using a hybrid of methods used by the North Carolina Vegetation Survey nested-subplot design (Peet et al. 1998) within a circular plot similar to the Forest Inventory and Analysis protocol (Bechtold and Patterson 2005).

Plot Layout

The layout consisted of a circular plot with a radius of 15 m within the 0.5-ha macroplot. Subplots were systematically placed along six transects that radiated out from the center point at azimuths of 0°/360°, 60°, 120°, 180°, 240°, and 300° (Figure 3). To avoid overlap, subplots originated four meters from the macroplot (i.e., 0.5-ha grid) center point and extended away from the center point. Five measures were collected in the nested subplots within each plot: canopy cover, shrub cover, DBH, canopy-species seedling frequency, and herbaceous cover. Canopy cover was measured from the center point of the 0.5-ha macroplot. Shrub coverage was measured in two 2 × 4 m shrub plots along each transect. The shrub plots were further subdivided into 2 × 2 m subplots to improve cover-estimation accuracy and precision because cover-estimation error increases with plot size (solid gray shading, Figure 3). Groundcover coverage, groundcover nested frequency, and seedling frequency was measured in two 1 × 1 m groundcover plots (solid black shading, Figure 3) along each transect. Canopy species DBH was measured in three sections, each representing 1/3 of the total circular plot (hashed gray shading,

Figure 3). A comprehensive species list was also compiled for all species occurring in the 0.5-ha macroplot. This macroplot list supplemented the list of species detected within the vegetation-community sampling plot (i.e., in the canopy, shrub, and groundcover plots).

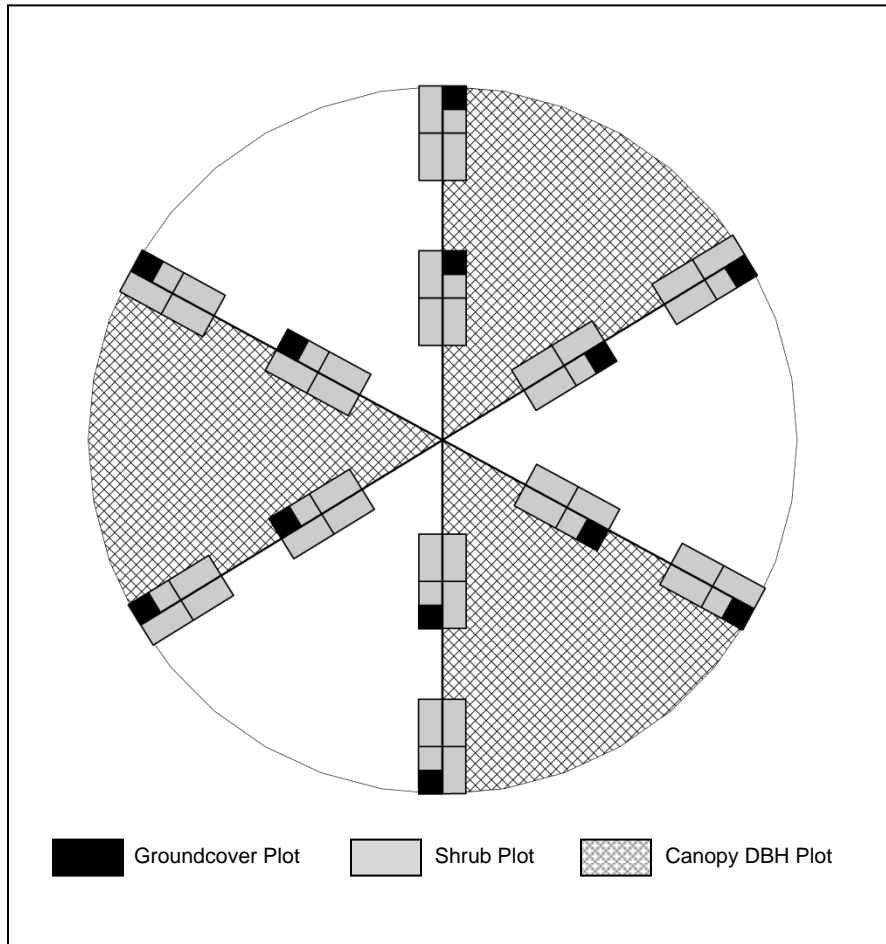


Figure 3. Southeast Coast Network vegetation-community monitoring plot layout.

Canopy Measures

Absolute canopy cover was estimated in the four cardinal directions with a concave spherical densiometer placed on a 1.1-m tall tripod at the plot center. Canopy cover reported is the mean of three observers across the four cardinal directions. The circular plot was subdivided into six sections occurring between the 0–60°, 120–180°, and 240–300° compass transects of the circular plot. Diameter at breast height (i.e., 1.37 m above the ground) was measured to the nearest millimeter for all trees (identified by species) with a diameter greater than or equal to 4 cm that occur within the 0–60°, 120–180°, and 240–300° section.

Shrub Measures

Shrub cover of all shrub species was visually estimated for each of the twelve 2 × 4 m plots. A common source of error in visual estimation of vegetation cover is that as plot size increases, cover-estimation error increases. Each shrub plot was therefore sub-divided into two 2 × 2 m subplots. The plots are situated at 15 m and 8 m (extending toward the plot center) along each of the transect lines of the circular plot. Shrub cover was categorized into one of seven coverage

classes (Table 1) for each subplot. A coverage class of zero (Table 1) is assumed for any shrub species not detected and not recorded on the datasheet. The measurements of subplots were combined by averaging the midpoint for the coverage class in the two shrub subplots resulting in a total shrub cover estimate for the 2 × 4 m plot. The authors have established consistent performance in the accuracy and precision of visual-cover estimates within and across observers in plots this size.

Groundcover Measures

Groundcover was visually estimated in each of the twelve 1 × 1 m plots situated on the clockwise side at 15 m and 8 m (extending toward the plot center) along each of the transect lines of the circular plot. Groundcover was categorized into one of seven coverage classes (Table 1) for each plot. A coverage class of zero (Table 1) is assumed for any groundcover species not detected and not recorded on the datasheet. The authors have established through trials that these coverage classes are discriminatory and repeatable across observers. Canopy-species seedling counts were estimated by counting the number of seedlings that occur in each of the 1 × 1 m plots.

Table 1. Cover estimation coverage class, percent cover range, and value used for analyses for SECN vegetation-community monitoring protocol.

Coverage Class	Percent Cover Range	Value Used for Analyses
0	0%	0.0
1	Trace (<1%)	0.5
2	1-5%	2.5
3	5-25%	15.0
4	25-50%	37.5
5	50-75%	62.5
6	75-95%	85.0
7	95-100%	97.5

Data Analysis

Because this is the first year of this protocol’s implementation at the Park, only the status of the elements presented in the aforementioned monitoring objective are determined; except diversity and distribution. The data in this report are presented by plot and pooled across plots. Sampling locations are presented in Figure 2 and summaries by plot are presented in Tables 3–9.

Summaries include (a) new species detected (Table 2), (b) canopy cover (Table 3), (c) canopy species size (Table 4), (d) seedling frequency (Table 5), (e) shrub species relative cover and frequency (Table 6), shrub species absolute cover and frequency (Table 7), (f) groundcover relative cover and frequency (Table 8), (g) groundcover absolute cover and frequency (Table 9), (h) species detected (Appendix A), and (i) species composition within and across macroplots (Appendix B).

Findings

We detected 142 species, subspecies, and varieties during this monitoring effort (Appendix A), including six new species, subspecies, and varieties not previously known to occur at the Park (Table 2).

Table 2. New vascular plant species detected at Congaree National Park during 2010 monitoring efforts and recommended NPSpecies classifications.

Species	Abundance	Nativity	Pest	Management Priority	Exploitation Concerns
<i>Andropogon glomeratus</i>	Unknown	Native	No	No	No
<i>Conyza canadensis</i>	Unknown	Native	No	No	No
<i>Galactia elliotii</i>	Unknown	Native	No	No	No
<i>Hydrocotyle umbellata</i>	Unknown	Native	No	No	No
<i>Paspalum notatum</i>	Unknown	Native	No	No	No
<i>Solanum americanum</i>	Unknown	Native	No	No	No

Measures of Community Structure

Absolute canopy cover was variable across the all sampling locations at the park ($\bar{x} = 83.49\%$, $SD = 21.83$; Table 3). Water tupelo (*Nyssa aquatica*) had the largest average DBH ($\bar{x} = 50.38$ cm, $SD = 27.18$) of any species where more than ten individuals were sampled (Table 4). The most frequently detected seedlings were boxelder (*Acer negundo*) (estimated at $1.49/m^2$ (Table 5). Paw-paw (*Asimina triloba*) was the most frequently occurring shrub species at the park ($f = 60$) and had the highest relative cover of all other shrub species ($\bar{x} = 28.3\%$, $SD = 33.23$; Table 6). Paw-paw also had the highest absolute cover in the shrub stratum at the park ($\bar{x} = 6.59\%$, $SD = 10.5$, Table 7). *Smilax* spp. and poison ivy (*Toxicodendron radicans*) were the most frequently occurring elements (87.1%, respectively) in the groundcover stratum (Table 8). *Carex* spp. was the second most frequent element in the groundcover stratum (80.65%). Giant cane (*Arundinaria gigantea ssp. gigantea*) had the highest absolute cover in the groundcover stratum ($\bar{x} = 2.85\%$, $SD = 4.67$; Table 8). Muscadine grape (*Vitis rotundifolia*) had the second highest absolute cover in the groundcover stratum ($\bar{x} = 2.2\%$, $SD = 3.81$), followed by crossvine (*Bignonia capreolata*) ($\bar{x} = 2.02\%$, $SD = 2.99$). Giant cane also had the highest relative cover in the groundcover stratum ($\bar{x} = 4.62\%$, $SD = 7.62$; Table 8). Muscadine grape (*Vitis rotundifolia*) had the second highest relative cover in the groundcover stratum ($\bar{x} = 4.12\%$, $SD = 7.6$), followed by crossvine (*Bignonia capreolata*) ($\bar{x} = 3.59\%$, $SD = 5.23$; Table 9).

Table 3. Average canopy cover in vegetation monitoring sampling locations at Congaree National Park, 2010.

Sampling Location	Average Canopy Cover	Standard Deviation
CONG-3	91.25	0.59
CONG-4	87.92	0.34
CONG-5	85.42	2.33
CONG-7	92.17	1.01
CONG-9	88	0.39
CONG-10	88.67	0.93
CONG-12	5	0.97
CONG-13	89.13	1.3
CONG-14	91.58	2
CONG-15	89.75	0.97
CONG-16	93	0.77
CONG-17	82.17	1.71
CONG-18	92.5	0.97
CONG-19	87.5	2.2
CONG-20	88.67	3.64
CONG-21	92.5	2.37
CONG-25	84.33	6.83
CONG-26	92.25	0.81
CONG-27	85.17	1.49
CONG-28	90.92	1.82
CONG-29	88.58	1.74
CONG-30	90.25	0.45
CONG-A2	0	0
CONG-A3	90.17	0.72
CONG-A4	88.67	1.42
CONG-A5	84	2.38
CONG-A6	92.25	1.32
CONG-A7	83.75	1.95
CONG-A8	90.83	2.02
CONG-A9	92.5	1.5
CONG-A10	89.42	1.18
Park Average	83.49	21.83

Table 4. Average canopy species size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring sampling locations at Congaree National Park, 2010. Numbers in parentheses indicate the number of individual trees measured within each plot.

Species	Avg	Std Dev	Sampling Point																																	
			3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10			
<i>Acer negundo</i>	17.66	12.52		11.80 (2)	20.96 (24)						24.20 (10)				21.20 (2)							5.60 (2)						31.10 (2)	14.41 (8)	9.23 (9)			34.50 (1)			
<i>Acer rubrum</i> var. <i>trilobum</i>	15.11	12.95	13.61 (26)	18.42 (12)		9.92 (42)	8.90 (4)					17.85 (4)	12.37 (22)	17.13 (6)	43.60 (2)	65.00 (2)		20.30 (2)					5.15 (4)		21.93 (3)			33.30 (1)			24.38 (4)					
<i>Acer saccharinum</i>	16.52											14.37 (14)																		18.67 (6)						
<i>Asimina triloba</i>	6.15	1.79		9.30 (2)	5.74 (10)		6.17 (14)			7.25 (8)	5.94 (10)												5.10 (12)			5.48 (4)	5.70 (4)	7.98 (4)	5.10 (1)							
<i>Carpinus caroliniana</i>	10.72	6.72		9.78 (10)			21.10 (6)	20.47 (6)		10.77 (12)		14.80 (2)	7.68 (18)	4.00 (2)	10.40 (12)					7.40 (24)		5.85 (8)		21.28 (8)		14.93 (3)		10.48 (6)			8.94 (10)					
<i>Carya aquatica</i>	18.95	13.90				7.97 (6)						33.20 (2)		33.50 (2)		39.40 (2)								10.80 (4)												
<i>Carya sp.</i>	28.75	33.30																												28.75 (2)						
<i>Celtis laevigata</i>	25.52			23.00 (4)	23.33 (6)		35.23 (8)	49.10 (2)	17.57 (12)	11.20 (2)	15.41 (18)	29.03 (8)			28.05 (4)								13.77 (12)	39.90 (2)	17.00 (2)	9.60 (8)	7.53 (6)	21.55 (8)	29.35 (4)	35.57 (3)	26.80 (5)	12.39 (11)	18.53 (6)	72.00 (1)		
<i>Crataegus sp.</i>	10.67	4.50																	8.10 (4)						15.80 (2)											
<i>Fraxinus americana</i>	14.33	15.22																														62.20 (1)				
<i>Fraxinus caroliniana</i>	9.25	5.30																																		
<i>Fraxinus pennsylvanica</i>	41.49	21.30			57.10 (2)	8.30 (2)		38.40 (4)				62.20 (2)			10.45 (4)									63.50 (4)					38.67 (3)	55.40 (1)			57.20 (1)			
<i>Fraxinus sp.</i>	15.45	12.49																																10.55 (10)		
<i>Ilex decidua</i>	6.52	2.16		6.60 (6)	5.99 (30)	4.15 (4)	8.50 (10)	8.14 (10)				6.25 (4)	6.32 (10)	6.20 (2)	4.10 (2)		5.52 (18)						6.51 (14)	8.54 (14)	7.20 (22)	5.62 (12)	7.12 (5)	6.13 (3)	5.68 (9)	6.33 (15)			6.65 (2)			
<i>Ilex opaca</i>	11.78	5.18						13.43 (34)		13.37 (14)		5.20 (2)			6.97 (6)															9.17 (3)			6.55 (2)			
<i>Ligustrum sinense</i>	7.08	3.72																																7.08 (6)		
<i>Lindera benzoin</i>	4	0										4.00 (2)																						4.00 (1)		
<i>Liquidambar styraciflua</i>	22.73	19.01	18.78 (20)	40.60 (4)	48.20 (4)	25.10 (2)	108.30 (2)	55.90 (4)		15.70 (2)	29.50 (2)	45.30 (6)	23.30 (4)	15.73 (28)		29.70 (2)	9.04 (32)			19.82 (10)	11.07 (6)	7.75 (4)		66.05 (4)		19.00 (1)	21.20 (1)	28.50 (1)					55.50 (1)			
<i>Magnolia virginiana</i>	6.07	1.78	6.07 (6)																																	
<i>Nyssa aquatica</i>	50.38	27.18		66.60 (2)																															65.28 (8)	
<i>Nyssa biflora</i>	7.87	5.52		7.87 (26)																																
<i>Nyssa sylvatica</i>	8.35	1.63																																	8.35 (4)	
<i>Ostrya virginiana</i>	12.68	6.3		12.50 (2)				17.10 (4)																	4.60 (2)			12.10 (2)								
<i>Pinus taeda</i>	22.14	13.03																																		
<i>Planera aquatica</i>	24.6	22.17									24.60 (8)																									
<i>Platanus occidentalis</i>	42.03	23.87																																	27.50 (3)	72.30 (1)

Table 4. Continued.

Species	Avg	Std Dev	Sampling Point																																
			3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10		
<i>Populus heterophylla</i>	19.11	10.97				18.44 (10)						34.00 (2)		12.00 (6)								29.90 (4)	15.45 (4)		16.85 (2)										
<i>Quercus alba</i>	4.4	4.40 (2)																																	
<i>Quercus laurifolia</i>	24.98	17.28	15.10 (4)		12.50 (2)	15.87 (40)						28.97 (6)	61.60 (2)	30.65 (12)					42.95 (8)	8.20 (2)				32.45 (4)		61.90 (4)				20.60 (1)	21.25 (2)				
<i>Quercus lyrata</i>	15.98	11.95				15.26 (10)									4.80 (2)				16.85 (4)			19.20 (2)	5.80 (2)		30.65 (8)		8.26 (5)								
<i>Quercus michauxii</i>	24.23	15.7	17.30 (2)									19.70 (2)								18.53 (6)													52.80 (1)		
<i>Quercus nigra</i>	33.62	23.12	10.40 (4)									45.10 (2)	63.70 (2)	38.50 (2)																					
<i>Quercus shumardii</i>	12.99	12.25										51.30 (2)													10.26 (28)										
<i>Rhus copallina</i>	4.2									4.20 (2)																									
<i>Taxodium ascendens</i>	37.52	25.04	30.65 (4)										74.70 (2)	81.60 (2)	18.82 (10)				53.15 (4)					37.58 (10)			33.80 (1)					35.70 (1)			
<i>Ulmus alata</i>	7.9																								7.90 (1)										
<i>Ulmus americana</i>	17.8	17.14								4.75 (4)			16.67 (6)	13.37 (6)		17.63 (8)							71.00 (4)			15.30 (1)				23.95 (4)	10.73 (12)				
<i>Ulmus sp.</i>	38																							38.00 (2)											
Dead																																			
<i>Acer rubrum var. trilobum</i>	5.57	0.85	5.90 (2)			5.83 (8)							4.20 (2)																						
<i>Asimina triloba</i>	6.28	1.69				6.77 (6)																		4.80 (2)											
<i>Carpinus caroliniana</i>	10.56	5.9				9.50 (6)														20.00 (2)					4.30 (2)										
<i>Celtis laevigata</i>	20.52	7.59							30.30 (2)				23.05 (4)																	10.80 (1)	15.40 (1)				
<i>Celtis sp.</i>	11.3											11.30 (2)																							
<i>Fraxinus americana</i>	4.3														4.30 (2)																				
<i>Fraxinus pennsylvanica</i>	12.45	5.59																														12.45 (2)			
<i>Ilex decidua</i>	6.73	1.68			7.80 (4)		7.90 (2)	7.60 (2)												6.20 (2)						4.90 (2)									
<i>Liquidambar styraciflua</i>	33.63	50.55	4.00 (2)					92.00 (2)																		4.90 (2)									
<i>Magnolia virginiana</i>	5.8	5.80 (2)																																	
<i>Nyssa aquatica</i>	68																																		
<i>Nyssa biflora</i>	4.78	0.71	4.78 (10)																																
<i>Pinus taeda</i>	9.55	5.57																																	
<i>Populus heterophylla</i>	9.24	2.81					10.66 (10)																												
<i>Quercus laurifolia</i>	18.23	23.14				5.27 (6)																													
<i>Quercus lyrata</i>	4.2					4.20 (2)																													
<i>Taxodium ascendens</i>	18.47	21.98													4.50 (2)																				

Table 4. Continued.

Species	Avg	Std Dev	Sampling Point																													
			3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9
<i>Ulmus americana</i>	9.25	1.06																											9.25 (2)			
Unidentified Dead																																
Magnoliopsida	17.12	17.58					17.70 (2)		6.10 (2)	21.00 (2)	15.50 (2)			7.76 (10)							66.50 (2)											22.70 (1)

Table 5. Seedling frequency for canopy and shrub species in vegetation monitoring sampling locations at Congaree National Park, 2010. #/m² indicates number of seedlings per meter squared.

Species	Total	#/m ²	Std Dev	Sampling Point																										
				3	4	5	7	9	10	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A3	A4	A5	A6	A7	A8	A9
<i>Acer negundo</i>	553	1.49	3.76	0.17	1.50	2.00			5.00								0.67	0.17					1.42	10.50		17.17	7.42			0.08
<i>Acer rubrum var. trilobum</i>	151	0.41	1	3.75	0.25	0.17			0.08			0.25					3.92	1.00				0.08	1.42						1.67	
<i>Asimina triloba</i>	17	0.05	0.11		0.08	0.08		0.08	0.08								0.58	0.08	0.17				0.08		0.08	0.08				
<i>Carex glaucescens</i>	1	0	0.01																			0.08								
<i>Carex lupulina</i>	4	0.01	0.06								0.33																			
<i>Carpinus caroliniana</i>	45	0.12	0.33	0.25		0.25	0.17		0.08			1.25										0.25			0.08				1.42	
<i>Carya aquatica</i>	6	0.02	0.09														0.50													
<i>Carya sp.</i>	1	0	0.01																									0.08		
<i>Celtis laevigata</i>	552	1.64	1.83	0.75	1.08	5.08	2.67	1.08	0.08	1.17	0.08			5.83	0.67		1.00	1.58	1.17	0.17	0.33	2.67	1.92	4.42	1.25	4.33	5.00		3.67	
<i>Cephalanthus occidentalis</i>	1	0	0.01											0.08																
<i>Crataegus sp.</i>	4	0.01	0.04		0.17										0.08		0.08													
<i>Dichanthelium sp.</i>	1	0	0.01								0.08																			
<i>Diospyros virginiana</i>	1	0	0.01														0.08													
<i>Fraxinus americana</i>	2	0.01	0.03																				0.17							
<i>Fraxinus pennsylvanica</i>	8	0.02	0.08		0.42	0.08													0.08								0.08			
<i>Fraxinus sp.</i>	1	0	0.01																			0.08								
<i>Hypericum hypericoides</i>	1	0	0.01													0.08														
<i>Ilex decidua</i>	17	0.05	0.09	0.25	0.08							0.25					0.17						0.17		0.08	0.08	0.33			
<i>Ilex opaca</i>	7	0.02	0.05	0.08		0.08		0.08					0.25												0.08					
<i>Itea virginica</i>	1	0	0.01																									0.08		
<i>Ligustrum sinense</i>	7	0.02	0.05		0.17						0.08								0.17					0.17						
<i>Lindera benzoin</i>	84	0.23	0.94			0.17					5.17								0.67								1.00			
<i>Liquidambar styraciflua</i>	17	0.05	0.14	0.25	0.17		0.08									0.75						0.08	0.08							
<i>Nyssa biflora</i>	11	0.03	0.15	0.83																		0.08								
<i>Ostrya virginiana</i>	13	0.03	0.19				1.08																							
<i>Photinia pyrifolia</i>	9	0.02	0.13	0.75																										

Table 5. Continued.

Species	Total	#/m ²	Std Dev	Sampling Point																															
				3	4	5	7	9	10	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A3	A4	A5	A6	A7	A8	A9	A10				
<i>Pinus taeda</i>	140	0.38	2.06	0.08					0.08							11.50																			
<i>Populus heterophylla</i>	3	0.01	0.03												0.08						0.17														
<i>Quercus laurifolia</i>	25	0.07	0.19	0.08		0.92	0.08						0.08				0.33						0.50		0.08										
<i>Quercus michauxii</i>	1	0	0.01														0.08																		
<i>Quercus phellos</i>	2	0.01	0.03	0.17																															
<i>Rhus copallina</i>	2	0.01	0.03																			0.17													
<i>Taxodium ascendens</i>	4	0.01	0.04										0.17	0.08											0.08										
<i>Ulmus alata</i>	5	0.01	0.07																												0.42				
<i>Ulmus americana</i>	1	0	0.01																														0.08		
<i>Vaccinium corymbosum</i>	2	0.01	0.03														0.17																		
<i>Viola sp.</i>	2	0.01	0.03																								0.17								
<i>Vitis rotundifolia</i>	1	0	0.01																															0.08	

Table 6. Percent of vegetation cover (relative cover) and frequency of occurrence of shrub species in vegetation monitoring sampling locations at Congaree National Park, 2010.

Species	Frequency	Avg	Std Dev	Sampling Point																													
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Acer negundo</i>	13.33	1.85	8.76																						6.78		0.25		0.54	47.79			
<i>Acer rubrum var. trilobum</i>	23.33	8.18	24.16	2.20			100				0.71					82.99				0.84				41.83	16.95								
<i>Asimina triloba</i>	60	28.3	33.23		58.82	67.11		61.85	65.47		56.03	43.46		2.49		99.83				1.52	80.14		2.39		57.69	89.71	13.20	58.77	43.55	7.08	39.86		
<i>Callicarpa americana</i>	13.33	1.89	5.77	7.69							28.18												11.47	9.28									
<i>Carpinus caroliniana</i>	26.67	8.07	16.25								24.11				2.07	47.82								43.45	52.00		8.30		30.04		34.27		
<i>Carya aquatica</i>	3.33	2.44	13.36																							73.17							
<i>Celtis laevigata</i>	20	1.79	5.45										12.24		3.63									5.34			1.92		3.05		27.43		
<i>Cephalanthus occidentalis</i>	6.67	1.04	3.99													13.32										17.80							
<i>Crataegus sp.</i>	13.33	1.6	5.01												12.45	24.21		6.36													4.90		
<i>Diospyros virginiana</i>	3.33	0.17	0.92																						5.06								
<i>Fraxinus americana</i>	3.33	0.49	2.67																							14.63							
<i>Fraxinus pennsylvanica</i>	13.33	1.09	3.32															10.91					0.22			10.17				11.50			
<i>Fraxinus sp.</i>	6.67	0.54	2.25																					4.73			11.54						
<i>Hypericum hypericoides</i>	3.33	0.12	0.63																				3.47										
<i>Ilex decidua</i>	56.67	13.29	20.25		36.76	21.71		10.08	31.77							81.63	0.12		58.18				9.15	7.09	48.00	29.88	9.62	1.99	9.39	11.19	11.29	20.98	
<i>Ilex opaca</i>	16.67	1.72	4.72	13.19									19.15							0.17					7.29		11.95						
<i>Ilex vomitoria</i>	3.33	0.07	0.36																							1.99							
<i>Itea virginica</i>	3.33	0.26	1.4	7.69																													
<i>Ligustrum sinense</i>	20	3.94	14.43					0.27		30.91		4.38													5.28			74.11		3.23			
<i>Lindera benzoin</i>	16.67	4.36	12.72		2.23		27.79						52.16												7.27					41.40			
<i>Liquidambar styraciflua</i>	30	5.4	15.6	7.69	1.47																					82.67	18.40	4.57		11.95	20.34	9.62	5.31
<i>Magnolia virginiana</i>	3.33	0.04	0.2	1.10																													
<i>Nyssa aquatica</i>	6.67	0.5	2.27		2.94																								12.20				
<i>Nyssa biflora</i>	3.33	0.07	0.4	2.20																													
<i>Ostrya virginiana</i>	3.33	0.09	0.5							2.76																							
<i>Photinia pyrifolia</i>	3.33	1.21	6.62	36.26																													
<i>Pinus taeda</i>	3.33	1.65	9.03																							49.46							
<i>Populus heterophylla</i>	6.67	0.56	2.16																							7.26				9.62			
<i>Quercus laurifolia</i>	16.67	1.12	3.8	1.10		8.94																							19.09	1.87	2.68		

Table 6. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																																		
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10					
<i>Quercus lyrata</i>	3.33	0.18	1													5.45																						
<i>Quercus shumardii</i>	6.67	1.21	5.75																4.98	31.25																		
<i>Rhododendron sp.</i>	3.33	0.26	1.4	7.69																																		
<i>Rhus copallina</i>	6.67	0.51	2.5							13.64											1.53																	
<i>Taxodium ascendens</i>	3.33	0.12	0.66												3.63																							
<i>Ulmus alata</i>	16.67	1.57	5.11							21.82			6.12							0.38							17.80										0.88	
<i>Ulmus americana</i>	10	3.85	18.28							5.45																	10.17										100.0	
<i>Vaccinium corymbosum</i>	10	0.46	2.41	13.19																0.53	0.08																	

Table 7. Percent area covered (absolute cover) and frequency of occurrence of shrub species sampled in vegetation monitoring sampling locations at Congaree National Park, 2010.

Species	Frequency	Avg	Std Dev	Sampling Point																													
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Acer negundo</i>	13.33	0.22	1.03																				0.83			0.1		0.1	5.63				
<i>Acer rubrum</i> <i>var. trilobum</i>	23.33	0.3	0.91	0.21			0.1				0.10			4.17				0.23				2.19	2.08										
<i>Asimina</i> <i>triloba</i>	60	6.59	10.5		4.17	21.9		23.65	4.94		8.23	28.13		0.13	12.29			0.21	37.92			0.13		0.63	28.15	5.42	6.56	8.44	0.83		5.94		
<i>Callicarpa</i> <i>americana</i>	13.33	0.47	1.46	0.73						6.46								4.48	2.52														
<i>Carpinus</i> <i>caroliniana</i>	26.67	1.01	2.13								3.54			0.10	8.23				5.94		1.35				2.6		3.35				5.1		
<i>Carya</i> <i>aquatica</i>	3.33	0.02	0.11																			0.63											
<i>Celtis</i> <i>laevigata</i>	20	0.24	0.66										1.25	0.63					0.73					0.02	1.25			3.23					
<i>Cephalanthus</i> <i>occidentalis</i>	6.67	0.15	0.57												2.29								2.19										
<i>Crataegus</i> sp.	13.33	0.21	0.78											0.63	4.17		0.73															0.73	
<i>Diospyros</i> <i>virginiana</i>	3.33	0.05	0.25																														
<i>Fraxinus</i> <i>americana</i>	3.33	0	0.02																				0.13										
<i>Fraxinus</i> <i>pennsylvanica</i>	13.33	0.13	0.39													1.25				0.10			1.25							1.35			
<i>Fraxinus</i> sp.	6.67	0.03	0.12																			0.65			0.13								
<i>Hypericum</i> <i>hypericoides</i>	3.33	0.05	0.25																			1.35											
<i>Ilex decidua</i>	56.67	1.65	2.33		2.6	7.08		3.85	2.40					8.33	0.02	6.67			1.25	3.35	1.25		1.56		0.1	0.63	3.85	1.25	2.19		3.13		
<i>Ilex opaca</i>	16.67	0.22	0.65	1.25								2.81				0.02				1.98				0.63									
<i>Ilex vomitoria</i>	3.33	0	0.02																					0.10									
<i>Itea virginica</i>	3.33	0.02	0.13	0.73																													
<i>Ligustrum</i> <i>sinense</i>	20	1.45	5.65					0.1	7.08		2.83											2.50				30.42		0.63					
<i>Lindera</i> <i>benzoin</i>	16.67	1.89	6.49		0.73		10.63				33.75											3.44						8.02					
<i>Liquidambar</i> <i>styraciflua</i>	30	1.42	5.92	0.73	0.1														32.29	5.00	0.63			0.63	2.5	0.1				0.63			
<i>Magnolia</i> <i>virginiana</i>	3.33	0	0.02	0.10																													
<i>Nyssa</i> <i>aquatica</i>	6.67	0.01	0.04		0.21																		0.10										
<i>Nyssa biflora</i>	3.33	0.01	0.04	0.21																													
<i>Ostrya</i> <i>virginiana</i>	3.33	0.01	0.04					0.21																									
<i>Photinia</i> <i>pyrifolia</i>	3.33	0.11	0.63	3.44																													
<i>Pinus taeda</i>	3.33	0.45	2.45																														

Table 7. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																													
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Populus heterophylla</i>	6.67	0.05	0.23													1.25																	0.1
<i>Quercus laurifolia</i>	16.67	0.22	0.67	0.10		2.92												2.19	0.73	0.73													
<i>Quercus lyrata</i>	3.33	0.02	0.11															0.63															
<i>Quercus shumardii</i>	6.67	0.19	0.81																	1.35	4.27												
<i>Rhododendron sp.</i>	3.33	0.02	0.13	0.73																													
<i>Rhus copallina</i>	6.67	0.12	0.57							3.13										0.42													
<i>Taxodium ascendens</i>	3.33	0.02	0.11													0.63																	
<i>Ulmus alata</i>	16.67	0.27	0.98							5.00			0.63							0.10				2.19								0.1	
<i>Ulmus americana</i>	10	0.11	0.34							1.25													1.25									0.73	
<i>Vaccinium corymbosum</i>	10	0.05	0.23	1.25																	0.21	0.02											

Table 8. Percent of vegetation cover (relative cover) and frequency of occurrence of groundcover species in vegetation monitoring sampling locations at Congaree National Park, 2010.

Species	Frequency	Avg	Std Dev	Sampling Point																														
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Acalypha gracilens</i>	6.45	0.04	0.19								0.99																							0.36
<i>Acer negundo</i>	35.48	1.21	2.32		0.86	2.75		3.32					4.26							1.01	0.66						4.05	8.06		8.11	4.55		0.02	
<i>Acer rubrum</i> <i>var. trilobum</i>	32.26	0.2	0.47	1.12	0.08		0.19					0.15		0.22		1.99			0.59				0.03		1.46							0.37		
<i>Ambrosia artemisiifolia</i>	6.45	0.56	3.12								17.35											0.11												
<i>Ampelopsis arborea</i>	25.81	0.73	1.59			2.45				3.40				1.09	3.76				6.70		3.43		1.53			0.12								
<i>Arisaema triphyllum</i>	3.23	0	0.02							0.14																								
<i>Arundinaria gigantea</i> ssp. <i>gigantea</i>	48.39	2.85	4.67		2.93	0.99	2.83	2.89				12.90		4.60	1.09	16.36			4.94				14.91	1.09	1.91	9.50		8.52				2.96		
<i>Asclepias</i> sp.	6.45	0.08	0.31														1.33						1.17											
<i>Asimina triloba</i>	32.26	0.21	0.51			0.14		0.02				0.15	0.57			2.60			0.13		0.66					0.81		0.67	0.74					
<i>Asplenium platyneuron</i>	9.68	0.01	0.03		0.14									0.02									0.13											
<i>Berchemia scandens</i>	9.68	0.15	0.71								3.90									0.66	0.11													
<i>Bignonia capreolata</i>	61.29	2.02	2.99		1.25	12.74		4.28	1.69	1.35	0.29	8.34	0.92	1.10		0.29			4.83	5.42			6.17			0.35	4.21	3.36	3.32	0.71		1.85		
<i>Boehmeria cylindrica</i>	67.74	1.45	1.93		0.98			0.86	0.82			2.20		0.92	0.18	2.37	0.13	2.91		0.22	3.65	7.69		2.38		5.24	0.02	1.64	3.25	2.70	5.24	1.23	0.37	
<i>Campsis radicans</i>	29.03	0.76	1.93				0.57				3.40			1.07						1.98	2.76	1.37		10.00	0.95	1.39								
<i>Carex glaucescens</i>	3.23	0.04	0.21																				1.18											
<i>Carex lupulina</i>	51.61	1.97	3.82	1.05	1.81	1.70				1.78			2.94	0.92	0.18			8.12			2.31	0.66		4.26		0.95	10.19	5.96		0.74		17.54		
<i>Carex</i> sp.	80.65	1.61	1.92	1.22	3.07	1.13	2.45	9.84	1.09	0.07	1.03	0.57	0.49	2.58	1.28	2.21			0.80	3.51	3.10	1.14		1.88	0.51	1.27	4.29	0.70	2.69	1.60	1.43			
<i>Carpinus caroliniana</i>	25.81	0.11	0.31		0.17		0.04		0.85				0.09	1.51										0.15			0.11					0.40		
<i>Carya aquatica</i>	3.23	0.05	0.28														1.58																	
<i>Carya</i> sp.	3.23	0	0.02																									0.11						
<i>Celtis laevigata</i>	70.97	1.19	1.48		0.33	0.62		4.17	2.08			1.32	0.09	0.64	0.04		2.39	1.70			0.57	0.57	2.89	0.08	0.15		1.62	1.41	3.06	1.05	3.95	5.72	1.26	
<i>Cephalanthus occidentalis</i>	3.23	0	0.01													0.04																		
<i>Chasmanthium latifolium</i>	3.23	0.19	1.07																													5.95		
<i>Chasmanthium sessiliflorum</i>	6.45	0.04	0.19		1.05															0.13														
<i>Commelina</i> sp.	6.45	0.06	0.23												1.09																	0.71		
<i>Conyza canadensis</i>	3.23	0.02	0.1								0.57																							

Table 8. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																																	
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10			
<i>Crataegus sp.</i>	9.68	0.01	0.03			0.14										0.04	0.02																				
<i>Cuscuta sp.</i>	3.23	0.01	0.08																							0.44											
<i>Dichanthellium sp.</i>	29.03	0.13	0.34	0.17					1.37	0.07	0.44		1.10			0.03									0.77		0.07							0.11			
<i>Dioscorea sp.</i>	9.68	0.05	0.18						0.14																0.80	0.66											
<i>Dioscorea villosa</i>	3.23	0.03	0.19	1.05																																	
<i>Diospyros virginiana</i>	3.23	0	0.02																						0.13												
<i>Fraxinus americana</i>	3.23	0.02	0.12																															0.70			
<i>Fraxinus pennsylvanica</i>	12.9	0.09	0.36			1.90	0.04																											0.71			
<i>Fraxinus sp.</i>	3.23	0.01	0.03																															0.16			
<i>Galactia elliotii</i>	3.23	0.04	0.2																															1.09			
<i>Galium sp.</i>	3.23	0.03	0.15								0.82																										
<i>Gelsemium sempervirens</i>	9.68	0.1	0.48	0.17													0.16								2.68												
<i>Gnaphalium sp.</i>	3.23	0	0.03								0.14																										
<i>Hydrocotyle umbellata</i>	3.23	0	0.03			0.14																															
<i>Hypericum hypericoides</i>	3.23	0	0.01																						0.03												
<i>Hypoxis hirsuta var. leptocarpa</i>	9.68	0.3	1.27						6.83		2.05	0.57																									
<i>Ilex decidua</i>	25.81	0.12	0.28	0.17	0.85								0.76																					0.70	0.11	0.12	0.95
<i>Ilex opaca</i>	16.13	0.02	0.05	0.03		0.04							0.03			0.26																			0.11		
<i>Impatiens capensis</i>	9.68	0.03	0.15																						0.02										0.12	0.83	
<i>Ipomoea sp.</i>	3.23	0.07	0.39																																2.19		
<i>Itea virginica</i>	3.23	0.04	0.22																																	1.23	
<i>Lepidium virginicum</i>	3.23	0.08	0.47								2.62																										
<i>Ligustrum sinense</i>	12.9	0.06	0.19			0.88							0.09												0.66										0.14		
<i>Lindera benzoin</i>	12.9	0.25	0.96					0.11					5.12													1.46									1.11		
<i>Liquidambar styraciflua</i>	19.35	0.05	0.16	0.35	0.14			0.11																	0.83									0.16	0.02		
<i>Lobelia sp.</i>	6.45	0.03	0.15												0.15																				0.85		
<i>Lonicera japonica</i>	6.45	0.45	2.22						1.49																										12.34		
<i>Ludwigia sp.</i>	3.23	0	0.03								0.15																										
<i>Lycopus sp.</i>	6.45	0.01	0.03														0.18																		0.04		

Table 8. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																													
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9
<i>Lycopus virginicus</i>	3.23	0.01	0.04																														0.2
<i>Lygodium japonicum</i>	3.23	0	0.02															0.11															
<i>Matelea sp.</i>	3.23	0	0.02					0.11																									
<i>Melothria pendula</i>	3.23	0	0.03							0.15																							
<i>Microstegium vimineum</i>	29.03	1.66	4.52					0.75	4.37		10.34			0.91						13.15				0.16		19.87		1.67		0.12			
<i>Mikania scandens</i>	3.23	0	0.02															0.13															
<i>Mitchella repens</i>	22.58	0.23	0.54	0.70				2.05		1.79			0.41	0.13									0.75				1.35						
<i>Nyssa biflora</i>	6.45	0.02	0.1	0.56																				0.16									
<i>Onoclea sensibilis</i>	6.45	0.03	0.16							0.88	0.15																						
<i>Ostrya virginiana</i>	3.23	0.01	0.08					0.46																									
<i>Oxalis stricta</i>	6.45	0.06	0.29					0.14	1.63																								
<i>Panicum sp.</i>	41.94	0.56	0.93	1.22	0.85	0.32				2.78	0.95			0.18			1.35	3.75					0.75	0.51		1.51	0.82		2.26				
<i>Parthenocissus quinquefolia</i>	61.29	1	1.62		1.25	1.70	0.08	1.50		0.42	1.76	2.18		0.36			2.95	0.80	7.69	4.31			0.13	0.44		0.25	1.05		0.76	1.67	1.61		
<i>Paspalum notatum</i>	3.23	0	0.01							0.07																							
<i>Passiflora incarnata</i>	6.45	0.04	0.18										0.92											0.44									
<i>Passiflora lutea</i>	3.23	0.01	0.03							0.18																							
<i>Photinia pyrifolia</i>	3.23	0.08	0.44	2.44																													
<i>Pinus taeda</i>	9.68	0.13	0.72	0.03				0.03										4.01															
<i>Polygonum sp.</i>	25.81	0.11	0.25																	0.88	0.11		0.13	0.16		0.23	0.67	0.12	0.95				
<i>Populus heterophylla</i>	6.45	0.04	0.21							0.15												1.14											
<i>Potentilla canadensis</i>	3.23	0.06	0.36															2.01															
<i>Proserpinaca sp.</i>	3.23	0.04	0.2											1.09																			
<i>Quercus laurifolia</i>	25.81	0.05	0.13	0.03		0.64	0.02					0.15				0.19						0.33	0.16	0.12									
<i>Quercus lyrata</i>	3.23	0	0.02													0.12																	
<i>Quercus michauxii</i>	3.23	0.03	0.14											0.78																			
<i>Quercus phellos</i>	3.23	0	0.01	0.07																													
<i>Rhexia sp.</i>	3.23	0	0.02																						0.13								
<i>Rhus copallina</i>	3.23	0.01	0.03																							0.16							

Table 8. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																														
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Rhynchospora</i> sp.	48.39	1.94	3.86		4.32	2.69	0.19	13.48	5.47		0.88	6.16			1.95			0.03		1.14		0.44		6.26	15.48	1.60	0.12							
<i>Rubus argutus</i>	9.68	0.5	1.91									5.21							0.66			9.49												
<i>Rubus cuneifolius</i>	9.68	0.28	1.28	0.35												1.15	7.09																	
<i>Rubus</i> sp.	6.45	0.14	0.66							3.61										0.66														
<i>Rubus trivialis</i>	6.45	0.02	0.08								0.09											0.44												
<i>Saccharum giganteum</i>	3.23	0.08	0.47																			2.63												
<i>Samolus parviflorus</i>	3.23	0.03	0.16							0.88																								
<i>Samolus</i> sp.	3.23	0.03	0.14											0.78																				
<i>Sanicula canadensis</i>	6.45	0.05	0.21					0.27																		1.13								
<i>Saururus cernuus</i>	32.26	0.87	1.52	5.58	2.27									3.83	2.67					1.66	3.43	3.50		2.38	1.52	0.13								
<i>Schizachyrium scoparium</i>	3.23	0	0.02															0.13																
<i>Scleria triglomerata</i>	3.23	0	0.02																	0.11														
<i>Scutellaria</i> sp.	3.23	0.04	0.21																		1.17													
<i>Senecio</i> sp.	9.68	0.02	0.07				0.32														0.23		0.02											
<i>Smilax bonanox</i>	3.23	0	0.02																														0.12	
<i>Smilax glauca</i>	3.23	0.07	0.41																			2.26												
<i>Smilax</i> sp.	87.1	1.88	2.15	0.73	0.98	0.85	1.51	1.28	0.82	7.01	0.32	3.79	6.28	1.84	0.07	0.78	4.00	0.03		0.72	3.84	2.10	1.22	0.78	1.97	1.11	0.70	0.79	8.11	4.41	2.35			
<i>Solidago</i> sp.	9.68	0.32	1.4							2.34											0.19		7.52											
<i>Sphagnum</i> sp.	3.23	0	0.01	0.03																														
<i>Taxodium ascendens</i>	9.68	0.01	0.03									0.15	0.04								0.04													
<i>Thelypteris</i> sp.	3.23	0	0.03	0.14																														
<i>Toxicodendron radicans</i>	87.1	1.33	1.13	1.12	1.12	2.12	0.19	3.42	0.96	1.06	0.50	0.78	4.62	0.22	0.36	1.19	0.97	2.13		0.80	0.88	0.77	2.74	3.01	0.95	1.30	2.22	2.80	1.72	2.26	1.01			
<i>Triadenum walteri</i>	3.23	0.04	0.22																														1.23	
<i>Ulmus alata</i>	3.23	0.02	0.13																														0.71	
<i>Ulmus americana</i>	3.23	0	0.01																														0.04	
<i>Vaccinium corymbosum</i>	3.23	0.01	0.03														0.16																	
<i>Verbena brasiliensis</i>	3.23	0.03	0.18						0.99																									
<i>Viola</i> sp.	48.39	0.18	0.34		0.14	0.04	0.11	0.27		1.32	1.26	0.04	0.75		0.03	0.22			0.49						0.12	0.39	0.29	0.02						
<i>Vitis aestivalis</i>	19.35	0.44	1.07				3.42	1.06			0.92	1.09								3.73			3.36											

Table 8. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																														
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Vitis rotundifolia</i>	64.52	2.2	3.81	1.08	8.92			0.13	6.97	11.26		4.64	2.30				15.09	5.75	2.31	0.66	0.04		0.90	5.84	0.32		0.02	0.79	0.02	0.12		0.94		
<i>Woodwardia areolata</i>	3.23	0.01	0.04	0.21																														
Unidentified																																		
Apiaceae	3.23	0	0.02																														0.12	
Apocynaceae	3.23	0.05	0.29							1.63																								
Asteraceae	6.45	0.01	0.03															0.03						0.15										
Commelinaceae	3.23	0.05	0.3																														1.68	
Cucurbitaceae	3.23	0.02	0.12																														0.67	
Cyperaceae	35.48	0.72	1.23		0.84	2.58			1.09		1.03	2.94				2.73						2.65			0.95		0.94		4.91			1.61		
Fabaceae	3.23	0.01	0.06																															
Filicopsida	9.09	0.01	0.02						0.05																								0.13	
Lamiaceae	6.45	0.02	0.08							0.42																							0.13	
Magnoliopsida	64.51	0.44	1.02				0.23	0.64	0.27	0.50	0.03		0.15		1.09	1.06	0.02					0.16		0.22	0.76	0.08		0.88	1.46	0.23	0.12	0.11	0.25	5.50
Poaceae	45.16	1.19	2.23	3.35				0.11	0.55	0.92			0.92	0.18		1.95	7.90					4.82		0.99	2.51		4.29	0.51					8.03	
Ground Condition																																		
Aquatic or OBL Non-Vascular plants	9.68	0.21	0.82					0.75							1.56													4.29						
Bare Ground	77.42	9.63	11.67		2.69	18.50	15.84	14.48	23.58	10.40	4.93	24.19	3.02	4.01	19.48	10.18						14.28	9.95	15.99		3.88	0.07	58.45	5.91	7.60	9.87	4.08	4.88	12.35
Exposed Humus	22.58	4.95	15.29	24.67										10.31	22.45	6.49								80.42								5.95	3.07	
Leaf Litter or Duff	100	41.85	19.79	81.68	37.50	61.42	67.76	35.63	39.63	8.14	35.32	39.79	36.47	70.53	36.86	38.43	48.59	75.95	1.36	58.20	37.13	42.67	52.34	4.86	55.01	33.80	15.72	50.28	37.28	45.54	54.41	40.13	7.99	47.06
Open Water	22.58	7.4	22.09	2.09						17.15	5.21	21.35					90.91						7.58										85.01	
Tree Stump	29.03	0.81	1.78							0.88	4.59	2.76					0.98	7.73	4.55				1.17			0.70						1.79		
Upland Non-Vascular plants or Lichens	19.35	0.32	0.88	0.84	0.99			1.09	3.22												0.11						3.62							

Table 9. Percent area covered (absolute cover) and frequency of occurrence by groundcover species sampled in vegetation monitoring sampling locations at Congaree National Park, 2010.

Species	Frequency	Avg	Std Dev	Sampling Point																														
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10
<i>Acalypha gracilens</i>	6.45	0.11	0.53							2.92																								0.63
<i>Acer negundo</i>	35.48	2.19	4.15	1.29	4.04		6.46				9.38								1.92	1.25						7.29	14.38		13.75	7.96		0.04		
<i>Acer rubrum var. trilobum</i>	32.26	0.29	0.73	0.13	0.21					0.21		0.25		3.42				0.92				0.04	1.92									0.63		
<i>Ambrosia artemisiifolia</i>	6.45	1.65	9.17							51.04										0.21														
<i>Ampelopsis arborea</i>	25.81	1.34	3.11			2.71			10.00				1.25	6.46					12.71	3.75		4.38		0.21										
<i>Arisaema triphyllum</i>	3.23	0.01	0.04						0.21																									
<i>Arundinaria gigantea ssp. gigantea</i>	48.39	4.62	7.62	4.38	1.46	3.13	5.63			18.33		5.21	1.25	26.25					9.38			24.79	3.13	2.50	17.08		15.83				5.00			
<i>Asclepias sp.</i>	6.45	0.11	0.46																2.29			1.25												
<i>Asimina triloba</i>	32.26	0.36	0.85		0.21	0.04				0.21	1.25			4.17					0.21	1.25					1.46	1.25	1.25							
<i>Asplenium platyneuron</i>	9.68	0.01	0.05	0.21							0.04											0.21												
<i>Berchemia scandens</i>	9.68	0.42	2.06						11.46										1.25	0.21														
<i>Bignonia capreolata</i>	61.29	3.59	5.23	1.88	18.75		8.33	2.58	3.96	0.42	18.33	1.25	1.25	0.46					9.17	10.21		10.25		0.63	7.50	6.25	5.63	1.25		3.13				
<i>Boehmeria cylindrica</i>	67.74	2.19	2.79	1.46			1.67	1.25	3.13		1.25	0.21	2.71	0.21	5.00				0.42	6.88	8.42	3.96	6.88	0.04	2.92	6.04	4.58	9.17	1.25	0.63				
<i>Campsis radicans</i>	29.03	1.77	5.39		0.63				10.00		1.46								3.75	5.21	1.50	28.54	1.25	2.50										
<i>Carex glaucescens</i>	3.23	0.04	0.23																			1.29												
<i>Carex lupulina</i>	51.61	3.38	6.59	2.71	2.50		2.71		6.46	1.25	0.21		13.96						4.38	1.25		7.08	1.25	18.33	10.63		1.25				29.58			
<i>Carex sp.</i>	80.65	2.69	3.67	4.58	1.67	2.71	19.17	1.67	0.21	1.46	1.25	0.67	2.92	1.46	3.79				1.25	6.67	5.83	1.25	3.13	1.46	1.67	7.71	1.25	5.00	2.71	2.50				
<i>Carpinus caroliniana</i>	25.81	0.15	0.39		0.04	1.29			0.21	1.71												0.25		0.21							0.67			
<i>Carya aquatica</i>	3.23	0.09	0.49											2.71																				
<i>Carya sp.</i>	3.23	0.01	0.04																						0.21									
<i>Celtis laevigata</i>	70.97	1.91	2.58	0.50	0.92		8.13	3.17	1.88	0.21	0.88	0.04	3.83	2.92					1.08	1.08	3.17	0.08	0.25	2.32	2.54	5.46	1.96	6.71	10.00	2.13				
<i>Cephalanthus occidentalis</i>	3.23	0	0.01											0.04																				
<i>Chasmanthium latifolium</i>	3.23	0.34	1.87																												10.42			
<i>Chasmanthium sessiliflorum</i>	6.45	0.05	0.23																	0.21														
<i>Commelina sp.</i>	6.45	0.08	0.31											1.25																1.25				
<i>Conyza canadensis</i>	3.23	0.05	0.3						1.67																									
<i>Crataegus sp.</i>	9.68	0.01	0.04		0.21								0.04	0.04																				
<i>Cuscuta sp.</i>	3.23	0.04	0.22																						1.25									

Table 9. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																																
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10		
<i>Dichanthelium sp.</i>	29.03	0.21	0.51						2.08	0.21	0.63		1.50		0.04				1.46				0.21					0.21								
<i>Dioscorea sp.</i>	9.68	0.09	0.31						0.21										1.25	1.25																
<i>Dioscorea villosa</i>	3.23	0.04	0.22																																	
<i>Diospyros virginiana</i>	3.23	0.01	0.04																0.21																	
<i>Fraxinus americana</i>	3.23	0.04	0.22																								1.25									
<i>Fraxinus pennsylvanica</i>	12.9	0.14	0.54			2.79	0.04													0.21															1.25	
<i>Fraxinus sp.</i>	3.23	0.01	0.04																																0.21	
<i>Galactia elliotii</i>	3.23	0.1	0.56																								3.13									
<i>Galium sp.</i>	3.23	0.04	0.22							1.25																										
<i>Gelsemium sempervirens</i>	9.68	0.15	0.75																0.21	4.17																
<i>Gnaphalium sp.</i>	3.23	0.01	0.07								0.42																									
<i>Hydrocotyle umbellata</i>	3.23	0.01	0.04			0.21																														
<i>Hypericum hypericoides</i>	3.23	0	0.01																	0.04																
<i>Hypoxis hirsuta var. leptocarpa</i>	9.68	0.47	1.93							10.42	2.92	1.25																								
<i>Ilex decidua</i>	25.81	0.22	0.5	0.25	1.25								1.67						0.25							1.25	0.21	0.21	1.67							
<i>Ilex opaca</i>	16.13	0.02	0.06				0.04								0.04		0.29																		0.21	
<i>Impatiens capensis</i>	9.68	0.06	0.26																		0.04														0.21	1.46
<i>Ipomoea sp.</i>	3.23	0.2	1.12																								6.25									
<i>Itea virginica</i>	3.23	0.04	0.22																																	1.25
<i>Lepidium virginicum</i>	3.23	0.25	1.38								7.71																									
<i>Ligustrum sinense</i>	12.9	0.1	0.32			1.29								0.21								1.25														0.25
<i>Lindera benzoin</i>	12.9	0.52	2.08							0.21						11.25							2.75													1.88
<i>Liquidambar styraciflua</i>	19.35	0.08	0.24	0.21				0.21																			1.29								0.21	0.04
<i>Lobelia sp.</i>	6.45	0.05	0.26												0.21																					1.46
<i>Lonicera japonica</i>	6.45	1.28	6.35									4.38																								35.21
<i>Ludwigia sp.</i>	3.23	0.01	0.04																																	0.21
<i>Lycopus sp.</i>	6.45	0.01	0.04																	0.21																0.04
<i>Lycopus virginicus</i>	3.23	0.01	0.04																																	0.21
<i>Lygodium japonicum</i>	3.23	0.01	0.04																																	0.21
<i>Matelea sp.</i>	3.23	0.01	0.04							0.21																										

Table 9. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																																		
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10				
<i>Melothria pendula</i>	3.23	0.01	0.04											0.21																								
<i>Microstegium vimineum</i>	29.03	3.09	8.46					1.46	6.67			22.75			1.46						24.79					0.21		35.42			2.92			0.21				
<i>Mikania scandens</i>	3.23	0.01	0.04																								0.21											
<i>Mitchella repens</i>	22.58	0.35	0.84							3.13		2.54			0.46		0.21									1.25						2.50						
<i>Nyssa biflora</i>	6.45	0.03	0.12																								0.21											
<i>Onoclea sensibilis</i>	6.45	0.05	0.23										1.25		0.21																							
<i>Ostrya virginiana</i>	3.23	0.02	0.13								0.71																											
<i>Oxalis stricta</i>	6.45	0.16	0.86								0.21	4.79																										
<i>Panicum sp.</i>	41.94	0.9	1.47			1.25		0.63				3.96	2.08		0.21							1.71	5.83			1.25	1.46		2.71	1.46			3.96					
<i>Parthenocissus quinquefolia</i>	61.29	1.77	3	1.88	2.50	0.08	2.92			1.25	2.50	4.79			0.42							3.75	1.25	14.58	8.13		0.21	1.25		0.46	1.88		1.29	2.92		2.71		
<i>Paspalum notatum</i>	3.23	0.01	0.04									0.21																										
<i>Passiflora incarnata</i>	6.45	0.08	0.31												1.25												1.25											
<i>Passiflora lutea</i>	3.23	0.01	0.04										0.25																									
<i>Photinia pyrifolia</i>	3.23	0.09	0.52																																			
<i>Pinus taeda</i>	9.68	0.2	1.12							0.04														6.25														
<i>Polygonum sp.</i>	25.81	0.19	0.46																					1.67	0.21		0.21	0.21		0.42	1.25	0.21	1.67					
<i>Populus heterophylla</i>	6.45	0.05	0.23												0.21													1.25										
<i>Potentilla canadensis</i>	3.23	0.1	0.56																								3.13											
<i>Proserpinaca sp.</i>	3.23	0.04	0.22													1.25																						
<i>Quercus laurifolia</i>	25.81	0.07	0.17				0.71	0.04							0.21												0.54	0.21	0.21									
<i>Quercus lyrata</i>	3.23	0.01	0.04																																			
<i>Quercus michauxii</i>	3.23	0.04	0.22																									1.25										
<i>Quercus phellos</i>	3.23	0	0.01																																			
<i>Rhexia sp.</i>	3.23	0.01	0.04																									0.21										
<i>Rhus copallina</i>	3.23	0.01	0.04																									0.25										
<i>Rhynchospora sp.</i>	48.39	3.5	7.29	6.46	3.96	0.21	26.25	8.33				1.25	13.54									3.13					0.04		1.25		1.25	11.25	28.75	2.71	0.21			
<i>Rubus argutus</i>	9.68	1.14	4.98												7.08													1.25								27.08		
<i>Rubus cuneifolius</i>	9.68	0.42	1.99																																			
<i>Rubus sp.</i>	6.45	0.38	1.91								10.63																											
<i>Rubus trivialis</i>	6.45	0.05	0.23													0.21																						

Table 9. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																																																				
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10																						
<i>Saccharum giganteum</i>	3.23	0.24	1.35																						7.50																															
<i>Samolus parviflorus</i>	3.23	0.04	0.22								1.25																																													
<i>Samolus sp.</i>	3.23	0.04	0.22															1.25																																						
<i>Sanicula canadensis</i>	6.45	0.08	0.35							0.42																											1.92																			
<i>Saururus cernuus</i>	32.26	1.18	2.06	8.33	2.50									4.38	4.58							3.13	3.75	3.75			3.13	2.71	0.25																											
<i>Schizachyrium scoparium</i>	3.23	0.01	0.04																							0.21																														
<i>Scleria triglomerata</i>	3.23	0.01	0.04																					0.21																																
<i>Scutellaria sp.</i>	3.23	0.04	0.22																																			1.25																		
<i>Senecio sp.</i>	9.68	0.03	0.12							0.63																0.25												0.04																		
<i>Smilax bonanox</i>	3.23	0.01	0.04																																				0.21																	
<i>Smilax glauca</i>	3.23	0.21	1.16																																				6.46																	
<i>Smilax sp.</i>	87.1	3.47	4.61	1.46	1.25	1.67	2.50	1.25	20.63	0.46	8.33	8.54	2.08	0.08	1.25	6.88	0.04									1.13	7.29	3.96	1.33			1.29	5.63	1.46		1.25	1.46	13.75	7.71	3.96																
<i>Solidago sp.</i>	9.68	0.92	4.01							6.88																			0.21											21.46																
<i>Sphagnum sp.</i>	3.23	0	0.01																																																					
<i>Taxodium ascendens</i>	9.68	0.01	0.04												0.21	0.04																																								
<i>Thelypteris sp.</i>	3.23	0.01	0.04	0.21																																																				
<i>Toxicodendron radicans</i>	87.1	2.16	1.83	1.67	3.13	0.21	6.67	1.46	3.13	0.71	1.71	6.29	0.25	0.42	1.92	1.67	2.71										1.25	1.67	1.46	3.00			5.00		1.25	2.33	3.96	5.21	2.92	3.96	1.71															
<i>Triadenum walteri</i>	3.23	0.04	0.22																																						1.25															
<i>Ulmus alata</i>	3.23	0.04	0.22																																							1.25														
<i>Ulmus americana</i>	3.23	0	0.01																																							0.04														
<i>Vaccinium corymbosum</i>	3.23	0.01	0.04																																								0.21													
<i>Verbena brasiliensis</i>	3.23	0.09	0.52							2.92																																														
<i>Viola sp.</i>	48.39	0.26	0.5			0.21	0.04	0.21	0.42		1.88	1.71	0.04	1.29																										0.21	0.67	0.50	0.04													
<i>Vitis aestivalis</i>	19.35	0.89	2.29						5.21	3.13				1.25	1.25																													7.08	9.58											
<i>Vitis rotundifolia</i>	64.52	4.12	7.6	13.33			0.25	10.6	33.13		10.21	3.13																																19.17	8.96	4.38	1.25	0.04	1.50	16.67	0.42	0.04	1.46	0.04	0.21	1.58
<i>Woodwardia areolata</i>	3.23	0.01	0.04																																																					
Unidentified																																																								
Apiaceae	3.23	0.01	0.04																																													0.21								
Apocynaceae	3.23	0.15	0.86							4.79																																														
Asteraceae	6.45	0.01	0.07																																															0.04	0.42					

Table 9. Continued.

Species	Frequency	Avg	Std Dev	Sampling Point																															
				3	4	5	7	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	28	29	30	A2	A3	A4	A5	A6	A7	A8	A9	A10	
Commelinaceae	3.23	0.1	0.56																																3.13
Cucurbitaceae	3.23	0.04	0.22																															1.25	
Cyperaceae	35.48	1.22	2.17	1.25	3.79			1.67		1.46	6.46			4.38						5.00				1.25		1.67		8.33					2.71		
Fabaceae	3.23	0.02	0.09																0.50																
Filicopsida	3.23	0.01	0.04						0.08									0.21																	
Lamiaceae	6.45	0.05	0.23							1.25								0.21																	
Magnoliopsida	64.52	0.76	1.78			0.25	1.25	0.42	1.46	0.04		0.21		1.25	1.71	0.04		0.25	0.42	0.83	0.08		2.50	1.92	0.42	0.21	0.21	0.42	9.63						
Poaceae	45.16	1.94	3.68				0.21	0.83	2.71				1.25	0.21	3.13	13.58		7.50	1.88	2.75		7.13	1.46										13.54		
Ground Condition																																			
Aquatic or OBL Non-Vascular plants	9.68	0.31	1.11			1.46								2.50										5.63											
Bare Ground	77.42	15.72	18.49		3.96	20.42	30.83	22.08	69.38	14.79	10.83	32.92	3.42	4.58	31.25	17.50		27.08	18.75	17.50		6.46	0.21	76.67	10.63	13.54	18.33	6.92	8.54		20.83				
Exposed Humus	22.58	5.95	17.05	36.88										11.67	25.63	10.42							86.25							10.42	3.13				
Leaf Litter or Duff	100	65.44	28.39	56.1	90.4	74.8	69.4	60.4	24.0	50.2	87.5	49.6	79.8	42.1	61.7	83.5	96.5	1.25	90.6	70.4	80.4	57.3	5.2	91.5	96.5	20.6	90.4	66.5	84.6	92.3	70.2	8.13	79.4		
Open Water	22.58	7.64	21.54	3.13						24.38		7.08	24.38				83.33					8.13										86.46			
Tree Stump	29.03	1.02	2.1							1.25		6.25	3.13			1.25	7.08	7.08				1.25			1.25					3.13					
Upland Non-Vascular plants or Lichen	19.35	0.5	1.43	1.25	1.46			1.67	4.58								0.21										6.46								

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Appendix A. Plant species known to occur at Congaree National Park.

Table A-1. Vascular plant species known occur at Congaree National Park (NPSpecies 2011) and species detected during 2010 monitoring efforts.

Family	Species	NPSpecies	This Study
Acanthaceae	<i>Dicliptera brachiata</i>	X	
Acanthaceae	<i>Dyschoriste humistrata</i>	X	
Acanthaceae	<i>Justicia ovata</i>	X	
Acanthaceae	<i>Ruellia caroliniensis</i>	X	
Aceraceae	<i>Acer negundo</i>	X	X
Aceraceae	<i>Acer rubrum</i>	X	X
Aceraceae	<i>Acer saccharinum</i>	X	X
Agavaceae	<i>Manfreda virginica</i>	X	
Agavaceae	<i>Yucca filamentosa</i>	X	
Alismataceae	<i>Alisma subcordatum</i>	X	
Alismataceae	<i>Sagittaria latifolia</i>	X	
Amaranthaceae	<i>Alternanthera philoxeroides</i>	X	X
Amaranthaceae	<i>Amaranthus spinosus</i>	X	
Anacardiaceae	<i>Rhus copallinum</i>	X	X
Anacardiaceae	<i>Rhus glabra</i>	X	
Anacardiaceae	<i>Toxicodendron radicans</i> ssp. <i>radicans</i>	X	X
Anacardiaceae	<i>Toxicodendron vernix</i>	X	
Annonaceae	<i>Asimina parviflora</i>	X	
Annonaceae	<i>Asimina triloba</i>	X	X
Apiaceae	<i>Chaerophyllum procumbens</i>	X	
Apiaceae	<i>Chaerophyllum tainturieri</i>	X	
Apiaceae	<i>Cryptotaenia canadensis</i>	X	
Apiaceae	<i>Cyclospermum leptophyllum</i>	X	
Apiaceae	<i>Eryngium prostratum</i>	X	
Apiaceae	<i>Foeniculum vulgare</i>	X	
Apiaceae	<i>Hydrocotyle ranunculoides</i>	X	
Apiaceae	<i>Hydrocotyle sibthorpioides</i>	X	
Apiaceae	<i>Hydrocotyle umbellata</i>		X
Apiaceae	<i>Hydrocotyle verticillata</i>	X	
Apiaceae	<i>Hydrocotyle verticillata</i> var. <i>verticillata</i>	X	
Apiaceae	<i>Ptilimnium capillaceum</i>	X	
Apiaceae	<i>Sanicula canadensis</i>	X	X
Apiaceae	<i>Sanicula marilandica</i>	X	
Apiaceae	<i>Sanicula odorata</i>	X	
Apiaceae	<i>Sanicula smallii</i>	X	
Apocynaceae	<i>Apocynum cannabinum</i>	X	
Apocynaceae	<i>Trachelospermum difforme</i>	X	
Aquifoliaceae	<i>Ilex amelanchier</i>	X	
Aquifoliaceae	<i>Ilex aquifolium</i>	X	
Aquifoliaceae	<i>Ilex decidua</i>	X	X
Aquifoliaceae	<i>Ilex glabra</i>	X	X
Aquifoliaceae	<i>Ilex laevigata</i>	X	
Aquifoliaceae	<i>Ilex opaca</i>	X	X
Aquifoliaceae	<i>Ilex verticillata</i>	X	
Aquifoliaceae	<i>Ilex vomitoria</i>	X	X
Araceae	<i>Arisaema dracontium</i>	X	X
Araceae	<i>Arisaema triphyllum</i>	X	X
Araceae	<i>Orontium aquaticum</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Araceae	<i>Peltandra virginica</i>	X	
Araliaceae	<i>Aralia spinosa</i>	X	
Araliaceae	<i>Hedera helix</i>	X	
Arecaceae	<i>Sabal minor</i>	X	X
Aristolochiaceae	<i>Aristolochia serpentaria</i>	X	
Aristolochiaceae	<i>Aristolochia tomentosa</i>	X	
Aristolochiaceae	<i>Asarum canadense</i>	X	
Aristolochiaceae	<i>Hexastylis arifolia</i>	X	
Asclepiadaceae	<i>Asclepias perennis</i>	X	
Asclepiadaceae	<i>Asclepias tuberosa</i>	X	
Asclepiadaceae	<i>Matelea carolinensis</i>	X	
Asclepiadaceae	<i>Matelea gonocarpus</i>	X	X
Asclepiadaceae	<i>Matelea suberosa</i>	X	
Aspleniaceae	<i>Asplenium platyneuron</i>	X	X
Asteraceae	<i>Acmella oppositifolia</i> var. <i>repens</i>	X	
Asteraceae	<i>Ambrosia artemisiifolia</i>	X	X
Asteraceae	<i>Antennaria plantaginifolia</i>	X	
Asteraceae	<i>Antennaria solitaria</i>	X	
Asteraceae	<i>Arnica acaulis</i>	X	
Asteraceae	<i>Aster dumosus</i>	X	
Asteraceae	<i>Aster paludosus</i> ssp. <i>paludosus</i>	X	
Asteraceae	<i>Aster pilosus</i>	X	
Asteraceae	<i>Aster simplex</i>	X	
Asteraceae	<i>Aster vimineus</i>	X	
Asteraceae	<i>Baccharis halimifolia</i>	X	
Asteraceae	<i>Bidens bipinnata</i>	X	
Asteraceae	<i>Bidens frondosa</i>	X	
Asteraceae	<i>Boltonia asteroides</i>	X	
Asteraceae	<i>Boltonia caroliniana</i>	X	
Asteraceae	<i>Carphephorus tomentosus</i>	X	
Asteraceae	<i>Chrysogonum virginianum</i>	X	
Asteraceae	<i>Chrysopsis gossypina</i>	X	
Asteraceae	<i>Chrysopsis mariana</i>	X	
Asteraceae	<i>Cirsium nuttallii</i>	X	
Asteraceae	<i>Cirsium virginianum</i>	X	
Asteraceae	<i>Conoclinium coelestinum</i>	X	X
Asteraceae	<i>Conyza bonariensis</i>	X	
Asteraceae	<i>Conyza canadensis</i>		X
Asteraceae	<i>Coreopsis major</i>	X	
Asteraceae	<i>Crepis pulchra</i>	X	
Asteraceae	<i>Eclipta prostrata</i>	X	
Asteraceae	<i>Elephantopus carolinianus</i>	X	
Asteraceae	<i>Elephantopus nudatus</i>	X	
Asteraceae	<i>Elephantopus tomentosus</i>	X	
Asteraceae	<i>Erechtites hieraciifolia</i>	X	X
Asteraceae	<i>Erigeron canadensis</i>	X	
Asteraceae	<i>Erigeron strigosus</i>	X	
Asteraceae	<i>Eupatorium album</i>	X	
Asteraceae	<i>Eupatorium capillifolium</i>	X	
Asteraceae	<i>Eupatorium leucolepis</i>	X	
Asteraceae	<i>Eupatorium rotundifolium</i>	X	
Asteraceae	<i>Eupatorium serotinum</i>	X	
Asteraceae	<i>Eurybia divaricata</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Asteraceae	<i>Euthamia tenuifolia</i> var. <i>tenuifolia</i>	X	
Asteraceae	<i>Facelis retusa</i>	X	
Asteraceae	<i>Gamochaeta falcata</i>	X	
Asteraceae	<i>Gamochaeta purpurea</i>	X	
Asteraceae	<i>Gnaphalium obtusifolium</i>	X	
Asteraceae	<i>Helenium amarum</i>	X	
Asteraceae	<i>Helenium autumnale</i>	X	
Asteraceae	<i>Helenium flexuosum</i>	X	
Asteraceae	<i>Helenium pinnatifidum</i>	X	
Asteraceae	<i>Helianthus angustifolius</i>	X	
Asteraceae	<i>Helianthus atrorubens</i>	X	
Asteraceae	<i>Helianthus divaricatus</i>	X	
Asteraceae	<i>Helianthus floridanus</i>	X	
Asteraceae	<i>Helianthus microcephalus</i>	X	
Asteraceae	<i>Heterotheca graminifolia</i>	X	
Asteraceae	<i>Heterotheca subaxillaris</i>	X	
Asteraceae	<i>Hypochaeris radicata</i>	X	
Asteraceae	<i>Lactuca canadensis</i>	X	
Asteraceae	<i>Liatris graminifolia</i>	X	
Asteraceae	<i>Liatris spicata</i>	X	
Asteraceae	<i>Mikania scandens</i>	X	X
Asteraceae	<i>Packera anonyma</i>	X	
Asteraceae	<i>Packera glabella</i>	X	X
Asteraceae	<i>Pityopsis graminifolia</i> var. <i>graminifolia</i>	X	
Asteraceae	<i>Pluchea camphorata</i>	X	
Asteraceae	<i>Pluchea odorata</i>	X	
Asteraceae	<i>Pluchea rosea</i>	X	
Asteraceae	<i>Prenanthes serpentaria</i>	X	
Asteraceae	<i>Prenanthes trifoliata</i>	X	
Asteraceae	<i>Pseudognaphalium obtusifolium</i> ssp. <i>obtusifolium</i>	X	
Asteraceae	<i>Pyrrhopappus carolinianus</i>	X	
Asteraceae	<i>Rudbeckia fulgida</i>	X	
Asteraceae	<i>Senecio vulgaris</i>	X	
Asteraceae	<i>Sericocarpus asteroides</i>	X	
Asteraceae	<i>Sericocarpus linifolius</i>	X	
Asteraceae	<i>Sericocarpus tortifolius</i>	X	
Asteraceae	<i>Smallanthus uvedalius</i>	X	
Asteraceae	<i>Solidago altissima</i>	X	
Asteraceae	<i>Solidago canadensis</i>	X	
Asteraceae	<i>Solidago gigantea</i>	X	
Asteraceae	<i>Solidago microcephala</i>	X	
Asteraceae	<i>Solidago nemoralis</i>	X	
Asteraceae	<i>Solidago odora</i>	X	
Asteraceae	<i>Solidago puberula</i> var. <i>pulverulenta</i>	X	
Asteraceae	<i>Solidago rugosa</i>	X	
Asteraceae	<i>Symphyotrichum concolor</i>	X	
Asteraceae	<i>Symphyotrichum cordifolium</i>	X	
Asteraceae	<i>Symphyotrichum divaricatum</i>	X	
Asteraceae	<i>Symphyotrichum dumosum</i> var. <i>dumosum</i>	X	
Asteraceae	<i>Symphyotrichum lanceolatum</i> var. <i>lanceolatum</i>	X	
Asteraceae	<i>Symphyotrichum lateriflorum</i> var. <i>lateriflorum</i>	X	
Asteraceae	<i>Symphyotrichum patens</i> var. <i>patens</i>	X	
Asteraceae	<i>Symphyotrichum pilosum</i> var. <i>pilosum</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Asteraceae	<i>Symphotrichum puniceum</i> var. <i>puniceum</i>	X	
Asteraceae	<i>Taraxacum officinale</i>	X	
Asteraceae	<i>Verbesina occidentalis</i>	X	
Asteraceae	<i>Verbesina virginica</i>	X	
Asteraceae	<i>Vernonia acaulis</i>	X	
Asteraceae	<i>Vernonia angustifolia</i>	X	
Asteraceae	<i>Vernonia glauca</i>	X	
Asteraceae	<i>Vernonia noveboracensis</i>	X	
Asteraceae	<i>Xanthium spinosum</i>	X	
Asteraceae	<i>Xanthium strumarium</i>	X	
Asteraceae	<i>Youngia japonica</i>	X	
Azollaceae	<i>Azolla caroliniana</i>	X	
Balsaminaceae	<i>Impatiens capensis</i>	X	X
Berberidaceae	<i>Berberis thunbergii</i>	X	
Berberidaceae	<i>Podophyllum peltatum</i>	X	
Betulaceae	<i>Alnus serrulata</i>	X	
Betulaceae	<i>Betula nigra</i>	X	
Betulaceae	<i>Carpinus caroliniana</i>	X	X
Betulaceae	<i>Ostrya virginiana</i>	X	X
Bignoniaceae	<i>Bignonia capreolata</i>	X	X
Bignoniaceae	<i>Campsis radicans</i>	X	X
Bignoniaceae	<i>Catalpa bignonioides</i>	X	
Blechnaceae	<i>Woodwardia areolata</i>	X	X
Blechnaceae	<i>Woodwardia virginica</i>	X	
Boraginaceae	<i>Heliotropium indicum</i>	X	
Boraginaceae	<i>Myosotis macrosperma</i>	X	
Brassicaceae	<i>Arabidopsis thaliana</i>	X	
Brassicaceae	<i>Cardamine bulbosa</i>	X	
Brassicaceae	<i>Cardamine hirsuta</i>	X	
Brassicaceae	<i>Cardamine pennsylvanica</i>	X	
Brassicaceae	<i>Descurainia pinnata</i>	X	
Brassicaceae	<i>Lepidium virginicum</i>	X	X
Brassicaceae	<i>Raphanus sativus</i>	X	
Brassicaceae	<i>Rorippa islandica</i>	X	
Brassicaceae	<i>Sinapis arvensis</i>	X	
Bromeliaceae	<i>Tillandsia usneoides</i>	X	
Buddlejaceae	<i>Polypremum procumbens</i>	X	
Cactaceae	<i>Opuntia ficus-indica</i>	X	
Callitrichaceae	<i>Callitriche heterophylla</i>	X	
Calycanthaceae	<i>Calycanthus floridus</i>	X	X
Campanulaceae	<i>Lobelia cardinalis</i>	X	
Campanulaceae	<i>Lobelia elongata</i>	X	
Campanulaceae	<i>Lobelia nuttallii</i>	X	
Campanulaceae	<i>Lobelia puberula</i>	X	
Campanulaceae	<i>Wahlenbergia marginata</i>	X	
Cannabaceae	<i>Cannabis sativa</i>	X	
Caprifoliaceae	<i>Lonicera japonica</i>	X	X
Caprifoliaceae	<i>Lonicera sempervirens</i>	X	
Caprifoliaceae	<i>Sambucus canadensis</i>	X	X
Caprifoliaceae	<i>Viburnum acerifolium</i>	X	
Caprifoliaceae	<i>Viburnum cassinoides</i>	X	
Caprifoliaceae	<i>Viburnum dentatum</i>	X	
Caprifoliaceae	<i>Viburnum nudum</i>	X	
Caprifoliaceae	<i>Viburnum prunifolium</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Caprifoliaceae	<i>Viburnum rufidulum</i>	X	
Caryophyllaceae	<i>Cerastium nutans</i>	X	
Caryophyllaceae	<i>Saponaria officinalis</i>	X	
Caryophyllaceae	<i>Silene caroliniana</i>	X	
Caryophyllaceae	<i>Stellaria media</i>	X	
Caryophyllaceae	<i>Stellaria pubera</i>	X	
Celastraceae	<i>Euonymus americanus</i>	X	
Celastraceae	<i>Euonymus atropurpureus</i>	X	
Chenopodiaceae	<i>Chenopodium album</i>	X	
Chenopodiaceae	<i>Chenopodium ambrosioides</i>	X	
Cistaceae	<i>Lechea mucronata</i>	X	
Cistaceae	<i>Lechea pulchella</i>	X	
Cistaceae	<i>Lechea torreyi</i>	X	
Clethraceae	<i>Clethra alnifolia</i>	X	X
Clusiaceae	<i>Hypericum crux-andreae</i>	X	
Clusiaceae	<i>Hypericum gentianoides</i>	X	
Clusiaceae	<i>Hypericum gymnanthum</i>	X	
Clusiaceae	<i>Hypericum hypericoides</i>	X	X
Clusiaceae	<i>Hypericum mutilum</i>	X	
Clusiaceae	<i>Hypericum punctatum</i>	X	
Clusiaceae	<i>Triadenum virginicum</i>	X	
Clusiaceae	<i>Triadenum walteri</i>	X	X
Commelinaceae	<i>Commelina communis</i>	X	
Commelinaceae	<i>Commelina virginica</i>	X	X
Commelinaceae	<i>Murdannia keisak</i>	X	
Commelinaceae	<i>Tradescantia virginiana</i>	X	
Convolvulaceae	<i>Dichondra carolinensis</i>	X	
Convolvulaceae	<i>Ipomoea coccinea</i>	X	
Convolvulaceae	<i>Ipomoea cordatotriloba</i>	X	
Convolvulaceae	<i>Ipomoea lacunosa</i>	X	
Convolvulaceae	<i>Ipomoea nil</i>	X	
Convolvulaceae	<i>Ipomoea pandurata</i>	X	
Convolvulaceae	<i>Jacquemontia tamnifolia</i>	X	
Convolvulaceae	<i>Stylisma humistrata</i>	X	
Cornaceae	<i>Cornus amomum</i>	X	
Cornaceae	<i>Cornus florida</i>	X	
Cornaceae	<i>Cornus foemina</i>	X	
Crassulaceae	<i>Penthorum sedoides</i>	X	
Cucurbitaceae	<i>Cayaponia quinqueloba</i>	X	
Cucurbitaceae	<i>Cucumis sativus</i>	X	
Cucurbitaceae	<i>Melothria pendula</i>	X	X
Cupressaceae	<i>Juniperus virginiana</i>	X	
Cuscutaceae	<i>Cuscuta compacta</i>	X	
Cyperaceae	<i>Bulbostylis capillaris</i>	X	
Cyperaceae	<i>Carex abscondita</i>	X	
Cyperaceae	<i>Carex alata</i>	X	
Cyperaceae	<i>Carex albolutescens</i>	X	
Cyperaceae	<i>Carex amphibola</i>	X	
Cyperaceae	<i>Carex annectens</i>	X	
Cyperaceae	<i>Carex atlantica</i>	X	
Cyperaceae	<i>Carex atlantica ssp. capillacea</i>	X	
Cyperaceae	<i>Carex baileyi</i>	X	
Cyperaceae	<i>Carex blanda</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Cyperaceae	<i>Carex bromoides</i>	X	
Cyperaceae	<i>Carex caroliniana</i>	X	
Cyperaceae	<i>Carex cephalophora</i>	X	
Cyperaceae	<i>Carex cherokeensis</i>	X	
Cyperaceae	<i>Carex communis</i>	X	
Cyperaceae	<i>Carex comosa</i>	X	
Cyperaceae	<i>Carex complanata</i>	X	
Cyperaceae	<i>Carex crebriflora</i>	X	
Cyperaceae	<i>Carex crus-corvi</i>	X	
Cyperaceae	<i>Carex debilis</i>	X	
Cyperaceae	<i>Carex digitalis</i>	X	
Cyperaceae	<i>Carex elliotii</i>	X	
Cyperaceae	<i>Carex festucacea</i>	X	
Cyperaceae	<i>Carex flaccosperma</i>	X	
Cyperaceae	<i>Carex floridana</i>	X	
Cyperaceae	<i>Carex folliculata var. australis</i>	X	
Cyperaceae	<i>Carex frankii</i>	X	
Cyperaceae	<i>Carex gigantea</i>	X	
Cyperaceae	<i>Carex glaucescens</i>	X	X
Cyperaceae	<i>Carex granularis</i>	X	
Cyperaceae	<i>Carex grayi</i>	X	
Cyperaceae	<i>Carex howei</i>	X	
Cyperaceae	<i>Carex intumescens</i>	X	
Cyperaceae	<i>Carex jorii</i>	X	
Cyperaceae	<i>Carex laevivaginata</i>	X	
Cyperaceae	<i>Carex leavenworthii</i>	X	
Cyperaceae	<i>Carex leptalea</i>	X	
Cyperaceae	<i>Carex lonchocarpa</i>	X	
Cyperaceae	<i>Carex longii</i>	X	
Cyperaceae	<i>Carex louisianica</i>	X	
Cyperaceae	<i>Carex lupulina</i>	X	X
Cyperaceae	<i>Carex lurida</i>	X	
Cyperaceae	<i>Carex muehlenbergii</i>	X	
Cyperaceae	<i>Carex nigromarginata</i>	X	
Cyperaceae	<i>Carex oxylepis</i>	X	
Cyperaceae	<i>Carex peckii</i>	X	
Cyperaceae	<i>Carex pensylvanica</i>	X	
Cyperaceae	<i>Carex retroflexa</i>	X	
Cyperaceae	<i>Carex rosea</i>	X	
Cyperaceae	<i>Carex scoparia</i>	X	
Cyperaceae	<i>Carex seorsa</i>	X	
Cyperaceae	<i>Carex socialis</i>	X	
Cyperaceae	<i>Carex squarrosa</i>	X	
Cyperaceae	<i>Carex stipata</i>	X	
Cyperaceae	<i>Carex striatula</i>	X	
Cyperaceae	<i>Carex styloflexa</i>	X	
Cyperaceae	<i>Carex texensis</i>	X	
Cyperaceae	<i>Carex tomsa</i>	X	
Cyperaceae	<i>Carex tribuloides</i>	X	
Cyperaceae	<i>Carex turgescens</i>	X	
Cyperaceae	<i>Carex typhina</i>	X	
Cyperaceae	<i>Carex venusta</i>	X	
Cyperaceae	<i>Carex vulpinoidea</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Cyperaceae	<i>Cyperus croceus</i>	X	
Cyperaceae	<i>Cyperus echinatus</i>	X	
Cyperaceae	<i>Cyperus erythrorhizos</i>	X	
Cyperaceae	<i>Cyperus haspan</i>	X	
Cyperaceae	<i>Cyperus lupulinus</i> ssp. <i>lupulinus</i>	X	
Cyperaceae	<i>Cyperus odoratus</i>	X	
Cyperaceae	<i>Cyperus polystachyos</i>	X	
Cyperaceae	<i>Cyperus pseudovegetus</i>	X	
Cyperaceae	<i>Cyperus strigosus</i>	X	
Cyperaceae	<i>Cyperus virens</i>	X	
Cyperaceae	<i>Dulichium arundinaceum</i>	X	
Cyperaceae	<i>Eleocharis microcarpa</i>	X	
Cyperaceae	<i>Eleocharis obtusa</i>	X	
Cyperaceae	<i>Eleocharis parvula</i>	X	
Cyperaceae	<i>Eleocharis tortilis</i>	X	
Cyperaceae	<i>Fimbristylis autumnalis</i>	X	
Cyperaceae	<i>Fuirena pumila</i>	X	
Cyperaceae	<i>Rhynchospora cephalantha</i>	X	
Cyperaceae	<i>Rhynchospora chalarocephala</i>	X	
Cyperaceae	<i>Rhynchospora corniculata</i>	X	
Cyperaceae	<i>Rhynchospora globularis</i>	X	
Cyperaceae	<i>Rhynchospora glomerata</i>	X	
Cyperaceae	<i>Rhynchospora inexpansa</i>	X	
Cyperaceae	<i>Rhynchospora miliacea</i>	X	
Cyperaceae	<i>Rhynchospora pallida</i>	X	
Cyperaceae	<i>Rhynchospora recognita</i>	X	
Cyperaceae	<i>Rhynchospora torreyana</i>	X	
Cyperaceae	<i>Scirpus atrovirens</i>	X	
Cyperaceae	<i>Scirpus cyperinus</i>	X	
Cyperaceae	<i>Scleria pauciflora</i>	X	
Cyperaceae	<i>Scleria triglomerata</i>	X	X
Cyrillaceae	<i>Cyrilla racemiflora</i>	X	
Dennstaedtiaceae	<i>Pteridium aquilinum</i>	X	
Dioscoreaceae	<i>Dioscorea floridana</i>	X	
Dioscoreaceae	<i>Dioscorea oppositifolia</i>	X	
Dioscoreaceae	<i>Dioscorea villosa</i>	X	X
Droseraceae	<i>Drosera brevifolia</i>	X	
Dryopteridaceae	<i>Athyrium asplenoides</i>	X	
Dryopteridaceae	<i>Athyrium filix-femina</i>	X	X
Dryopteridaceae	<i>Athyrium filix-femina</i> ssp. <i>asplenoides</i>	X	
Dryopteridaceae	<i>Dryopteris ludoviciana</i>	X	
Dryopteridaceae	<i>Onoclea sensibilis</i>	X	X
Dryopteridaceae	<i>Polystichum acrostichoides</i>	X	X
Ebenaceae	<i>Diospyros virginiana</i>	X	X
Elaeagnaceae	<i>Elaeagnus umbellata</i>	X	
Ericaceae	<i>Gaylussacia dumosa</i>	X	
Ericaceae	<i>Gaylussacia frondosa</i>	X	
Ericaceae	<i>Kalmia latifolia</i>	X	
Ericaceae	<i>Leucothoe axillaris</i>	X	
Ericaceae	<i>Leucothoe racemosa</i>	X	
Ericaceae	<i>Lyonia ligustrina</i>	X	
Ericaceae	<i>Lyonia lucida</i>	X	
Ericaceae	<i>Rhododendron canescens</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Ericaceae	<i>Rhododendron periclymenoides</i>	X	
Ericaceae	<i>Rhododendron viscosum</i>	X	
Ericaceae	<i>Vaccinium arboreum</i>	X	
Ericaceae	<i>Vaccinium corymbosum</i>	X	X
Ericaceae	<i>Vaccinium elliotii</i>	X	
Ericaceae	<i>Vaccinium formosum</i>	X	
Ericaceae	<i>Vaccinium fuscatum</i>	X	
Ericaceae	<i>Vaccinium stamineum</i>	X	
Ericaceae	<i>Vaccinium tenellum</i>	X	
Ericaceae	<i>Vaccinium virgatum</i>	X	
Euphorbiaceae	<i>Acalypha gracilens</i>	X	X
Euphorbiaceae	<i>Acalypha rhomboidea</i>	X	
Euphorbiaceae	<i>Chamaesyce maculata</i>	X	
Euphorbiaceae	<i>Cnidioscolus stimulosus</i>	X	
Euphorbiaceae	<i>Euphorbia corollata</i>	X	
Euphorbiaceae	<i>Euphorbia dentata</i>	X	
Euphorbiaceae	<i>Euphorbia heterophylla</i>	X	
Euphorbiaceae	<i>Euphorbia spathulata</i>	X	
Euphorbiaceae	<i>Tragia urens</i>	X	
Euphorbiaceae	<i>Vernicia fordii</i>	X	
Fabaceae	<i>Albizia julibrissin</i>	X	
Fabaceae	<i>Amorpha fruticosa</i>	X	
Fabaceae	<i>Amphicarpaea bracteata</i>	X	
Fabaceae	<i>Apios americana</i>	X	
Fabaceae	<i>Baptisia alba</i>	X	
Fabaceae	<i>Baptisia albescens</i>	X	
Fabaceae	<i>Baptisia tinctoria</i>	X	
Fabaceae	<i>Cassia fasciculata</i>	X	
Fabaceae	<i>Centrosema virginianum</i>	X	
Fabaceae	<i>Cercis canadensis</i>	X	
Fabaceae	<i>Chamaecrista fasciculata</i> var. <i>fasciculata</i>	X	
Fabaceae	<i>Chamaecrista nictitans</i>	X	X
Fabaceae	<i>Clitoria mariana</i>	X	
Fabaceae	<i>Crotalaria spectabilis</i>	X	
Fabaceae	<i>Desmodium ciliare</i>	X	
Fabaceae	<i>Desmodium fernaldii</i>	X	
Fabaceae	<i>Desmodium nudiflorum</i>	X	
Fabaceae	<i>Desmodium obtusum</i>	X	
Fabaceae	<i>Desmodium pauciflorum</i>	X	
Fabaceae	<i>Desmodium rotundifolium</i>	X	
Fabaceae	<i>Desmodium sessilifolium</i>	X	
Fabaceae	<i>Desmodium tenuifolium</i>	X	
Fabaceae	<i>Galactia elliotii</i>		X
Fabaceae	<i>Galactia volubilis</i>	X	
Fabaceae	<i>Gleditsia aquatica</i>	X	
Fabaceae	<i>Gleditsia triacanthos</i>	X	
Fabaceae	<i>Glottidium vesicarium</i>	X	
Fabaceae	<i>Glycine max</i>	X	
Fabaceae	<i>Kummerowia striata</i>	X	
Fabaceae	<i>Lespedeza capitata</i>	X	
Fabaceae	<i>Lespedeza cuneata</i>	X	
Fabaceae	<i>Mellilotus alba</i>	X	
Fabaceae	<i>Psoralea psoraloides</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Fabaceae	<i>Pueraria montana</i>	X	
Fabaceae	<i>Rhynchosia reniformis</i>	X	
Fabaceae	<i>Senna obtusifolia</i>	X	
Fabaceae	<i>Stylosanthes biflora</i>	X	
Fabaceae	<i>Tephrosia spicata</i>	X	
Fabaceae	<i>Tephrosia virginiana</i>	X	
Fabaceae	<i>Trifolium repens</i>	X	
Fabaceae	<i>Trifolium vesiculosum</i>	X	
Fabaceae	<i>Vicia angustifolia</i>	X	
Fabaceae	<i>Wisteria frutescens</i>	X	
Fabaceae	<i>Wisteria sinensis</i>	X	
Fagaceae	<i>Fagus grandifolia</i>	X	X
Fagaceae	<i>Quercus acutissima</i>	X	
Fagaceae	<i>Quercus alba</i>	X	X
Fagaceae	<i>Quercus falcata</i>	X	
Fagaceae	<i>Quercus falcata</i> var. <i>pagodifolia</i>	X	
Fagaceae	<i>Quercus ilicifolia</i>	X	
Fagaceae	<i>Quercus laurifolia</i>	X	X
Fagaceae	<i>Quercus lyrata</i>	X	X
Fagaceae	<i>Quercus margarettiae</i>	X	
Fagaceae	<i>Quercus marilandica</i>	X	
Fagaceae	<i>Quercus michauxii</i>	X	X
Fagaceae	<i>Quercus nigra</i>	X	X
Fagaceae	<i>Quercus pagoda</i>	X	
Fagaceae	<i>Quercus phellos</i>	X	X
Fagaceae	<i>Quercus prinus</i>	X	
Fagaceae	<i>Quercus rubra</i>	X	
Fagaceae	<i>Quercus shumardii</i>	X	X
Fagaceae	<i>Quercus stellata</i>	X	
Fagaceae	<i>Quercus velutina</i>	X	
Fumariaceae	<i>Corydalis flavula</i>	X	
Gentianaceae	<i>Sabatia angularis</i>	X	
Geraniaceae	<i>Geranium carolinianum</i>	X	
Geraniaceae	<i>Geranium maculatum</i>	X	
Grossulariaceae	<i>Itea virginica</i>	X	X
Haloragaceae	<i>Proserpinaca palustris</i>	X	X
Haloragaceae	<i>Proserpinaca pectinata</i>	X	
Hamamelidaceae	<i>Hamamelis virginiana</i>	X	
Hamamelidaceae	<i>Liquidambar styraciflua</i>	X	X
Hippocastanaceae	<i>Aesculus pavia</i>	X	
Hippocastanaceae	<i>Aesculus sylvatica</i>	X	
Hydrangeaceae	<i>Decumaria barbara</i>	X	X
Hydrangeaceae	<i>Philadelphus inodorus</i>	X	
Hydrophyllaceae	<i>Nemophila aphylla</i>	X	
Iridaceae	<i>Hypoxis hirsuta</i>	X	
Iridaceae	<i>Hypoxis hirsuta</i> var. <i>leptocarpa</i>	X	X
Iridaceae	<i>Iris virginica</i>	X	
Iridaceae	<i>Sisyrinchium albidum</i>	X	
Iridaceae	<i>Sisyrinchium atlanticum</i>	X	
Iridaceae	<i>Sisyrinchium mucronatum</i>	X	
Juglandaceae	<i>Carya alba</i>	X	
Juglandaceae	<i>Carya aquatica</i>	X	X
Juglandaceae	<i>Carya cordiformis</i>	X	
Juglandaceae	<i>Carya glabra</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Juglandaceae	<i>Carya ovata</i>	X	X
Juglandaceae	<i>Juglans nigra</i>	X	
Juncaceae	<i>Juncus acuminatus</i>	X	
Juncaceae	<i>Juncus biflorus</i>	X	
Juncaceae	<i>Juncus brachycarpus</i>	X	
Juncaceae	<i>Juncus bufonius</i>	X	
Juncaceae	<i>Juncus coriaceus</i>	X	
Juncaceae	<i>Juncus dichotomus</i>	X	
Juncaceae	<i>Juncus effusus</i>	X	X
Juncaceae	<i>Juncus elliotii</i>	X	
Juncaceae	<i>Juncus repens</i>	X	
Juncaceae	<i>Juncus scirpoides</i>	X	
Juncaceae	<i>Luzula echinata</i>	X	
Lamiaceae	<i>Clinopodium georgianum</i>	X	
Lamiaceae	<i>Collinsonia canadensis</i>	X	
Lamiaceae	<i>Collinsonia serotina</i>	X	
Lamiaceae	<i>Glecoma hederacea</i>	X	
Lamiaceae	<i>Hyptis alata</i>	X	
Lamiaceae	<i>Lamium amplexicaule</i>	X	
Lamiaceae	<i>Lamium purpureum</i>	X	
Lamiaceae	<i>Lycopus rubellus</i>	X	
Lamiaceae	<i>Lycopus virginicus</i>	X	X
Lamiaceae	<i>Macbridea caroliniana</i>	X	
Lamiaceae	<i>Perilla frutescens</i>	X	
Lamiaceae	<i>Prunella vulgaris</i>	X	
Lamiaceae	<i>Pycnanthemum flexuosum</i>	X	
Lamiaceae	<i>Pycnanthemum tenuifolium</i>	X	
Lamiaceae	<i>Salvia lyrata</i>	X	
Lamiaceae	<i>Scutellaria elliptica</i>	X	
Lamiaceae	<i>Scutellaria integrifolia</i>	X	
Lamiaceae	<i>Scutellaria lateriflora</i>	X	
Lamiaceae	<i>Stachys aspera</i>	X	
Lamiaceae	<i>Stachys crenata</i>	X	
Lamiaceae	<i>Stachys floridana</i>	X	
Lamiaceae	<i>Stachys hyssopifolia</i>	X	
Lauraceae	<i>Lindera benzoin</i>	X	X
Lauraceae	<i>Persea borbonia</i>	X	
Lauraceae	<i>Persea palustris</i>	X	
Lauraceae	<i>Sassafras albidum</i>	X	X
Lemnaceae	<i>Lemna valdiviana</i>	X	
Liliaceae	<i>Allium vineale</i>	X	
Liliaceae	<i>Amianthium muscitoxicum</i>	X	
Liliaceae	<i>Chamaelirium luteum</i>	X	
Liliaceae	<i>Liriope muscari</i>	X	X
Liliaceae	<i>Maianthemum racemosum ssp. racemosum</i>	X	
Liliaceae	<i>Medeola virginiana</i>	X	
Liliaceae	<i>Nothoscordum bivalve</i>	X	
Liliaceae	<i>Nothoscordum gracile</i>	X	
Liliaceae	<i>Polygonatum biflorum</i>	X	
Liliaceae	<i>Uvularia sessilifolia</i>	X	
Liliaceae	<i>Zephyranthes atamasca</i>	X	
Linaceae	<i>Linum medium var. texanum</i>	X	
Linaceae	<i>Linum striatum</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Loganiaceae	<i>Gelsemium sempervirens</i>	X	X
Loganiaceae	<i>Mitreola petiolata</i>	X	
Loganiaceae	<i>Mitreola sessilifolia</i>	X	
Loganiaceae	<i>Spigelia marilandica</i>	X	
Lygodiaceae	<i>Lygodium japonicum</i>	X	X
Lythraceae	<i>Ammannia coccinea</i>	X	
Lythraceae	<i>Ammannia latifolia</i>	X	
Lythraceae	<i>Cuphea carthagenensis</i>	X	
Lythraceae	<i>Decodon verticillatus</i>	X	
Lythraceae	<i>Lagerstroemia indica</i>	X	
Lythraceae	<i>Rotala ramosior</i>	X	
Magnoliaceae	<i>Liriodendron tulipifera</i>	X	
Magnoliaceae	<i>Magnolia virginiana</i>	X	X
Malvaceae	<i>Hibiscus moscheutos</i>	X	
Malvaceae	<i>Hibiscus syriacus</i>	X	
Malvaceae	<i>Modiola caroliniana</i>	X	
Malvaceae	<i>Sida rhombifolia</i>	X	
Melastomataceae	<i>Rhexia mariana</i>	X	
Melastomataceae	<i>Rhexia mariana var. mariana</i>	X	
Melastomataceae	<i>Rhexia mariana var. ventricosa</i>	X	
Melastomataceae	<i>Rhexia nashii</i>	X	
Melastomataceae	<i>Rhexia virginica</i>	X	
Meliaceae	<i>Melia azedarach</i>	X	
Menispermaceae	<i>Cocculus carolinus</i>	X	
Menispermaceae	<i>Menispermum canadense</i>	X	
Molluginaceae	<i>Mollugo verticillata</i>	X	
Moraceae	<i>Morus alba</i>	X	
Moraceae	<i>Morus rubra</i>	X	X
Myricaceae	<i>Morella caroliniensis</i>	X	
Myricaceae	<i>Morella cerifera</i>	X	X
Nyssaceae	<i>Nyssa aquatica</i>	X	X
Nyssaceae	<i>Nyssa biflora</i>	X	X
Nyssaceae	<i>Nyssa sylvatica</i>	X	X
Nyssaceae	<i>Nyssa sylvatica var. biflora</i>	X	
Oleaceae	<i>Chionanthus virginicus</i>	X	
Oleaceae	<i>Forestiera acuminata</i>	X	
Oleaceae	<i>Fraxinus americana</i>	X	X
Oleaceae	<i>Fraxinus caroliniana</i>	X	X
Oleaceae	<i>Fraxinus pennsylvanica</i>	X	X
Oleaceae	<i>Fraxinus pennsylvanica var. subintegerrima</i>	X	
Oleaceae	<i>Ligustrum japonicum</i>	X	
Oleaceae	<i>Ligustrum sinense</i>	X	X
Onagraceae	<i>Ludwigia alata</i>	X	
Onagraceae	<i>Ludwigia alternifolia</i>	X	
Onagraceae	<i>Ludwigia decurrens</i>	X	
Onagraceae	<i>Ludwigia glandulosa</i>	X	
Onagraceae	<i>Ludwigia leptocarpa</i>	X	
Onagraceae	<i>Ludwigia palustris</i>	X	
Onagraceae	<i>Ludwigia pilosa</i>	X	
Onagraceae	<i>Ludwigia uruguayensis</i>	X	
Onagraceae	<i>Oenothera biennis</i>	X	X
Onagraceae	<i>Oenothera fruticosa ssp. glauca</i>	X	
Onagraceae	<i>Oenothera laciniata</i>	X	
Ophioglossaceae	<i>Botrychium biternatum</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Ophioglossaceae	<i>Botrychium dissectum</i>	X	
Ophioglossaceae	<i>Botrychium lunarioides</i>	X	
Ophioglossaceae	<i>Botrychium virginianum</i>	X	
Ophioglossaceae	<i>Ophioglossum crotalophoroides</i>	X	
Ophioglossaceae	<i>Ophioglossum vulgatum</i>	X	
Orchidaceae	<i>Goodyera pubescens</i>	X	
Orchidaceae	<i>Goodyera repens</i>	X	
Orchidaceae	<i>Habenaria flava</i>	X	
Orchidaceae	<i>Isotria verticillata</i>	X	
Orchidaceae	<i>Malaxis unifolia</i>	X	
Orchidaceae	<i>Platanthera blephariglottis</i>	X	
Orchidaceae	<i>Platanthera clavellata</i>	X	
Orchidaceae	<i>Platanthera flava</i>	X	
Orchidaceae	<i>Platanthera flava</i> var. <i>flava</i>	X	
Orchidaceae	<i>Spiranthes cernua</i>	X	
Orchidaceae	<i>Spiranthes odorata</i>	X	
Orchidaceae	<i>Spiranthes ovalis</i> var. <i>erostellata</i>	X	
Orchidaceae	<i>Spiranthes ovalis</i> var. <i>ovalis</i>	X	
Orchidaceae	<i>Spiranthes praecox</i>	X	
Orchidaceae	<i>Tipularia discolor</i>	X	
Orobanchaceae	<i>Conopholis americana</i>	X	
Orobanchaceae	<i>Epifagus virginiana</i>	X	
Osmundaceae	<i>Osmunda cinnamomea</i>	X	X
Osmundaceae	<i>Osmunda regalis</i>	X	X
Osmundaceae	<i>Osmunda regalis</i> var. <i>spectabilis</i>	X	
Oxalidaceae	<i>Oxalis stricta</i>	X	X
Oxalidaceae	<i>Oxalis violacea</i>	X	
Papaveraceae	<i>Sanguinaria canadensis</i>	X	
Passifloraceae	<i>Passiflora incarnata</i>	X	X
Passifloraceae	<i>Passiflora lutea</i>	X	X
Phytolaccaceae	<i>Phytolacca americana</i>	X	X
Pinaceae	<i>Pinus echinata</i>	X	
Pinaceae	<i>Pinus palustris</i>	X	
Pinaceae	<i>Pinus taeda</i>	X	X
Plantaginaceae	<i>Plantago aristata</i>	X	
Plantaginaceae	<i>Plantago wrightiana</i>	X	
Platanaceae	<i>Platanus occidentalis</i>	X	X
Poaceae	<i>Agrostis hyemalis</i>	X	
Poaceae	<i>Alopecurus carolinianus</i>	X	
Poaceae	<i>Andropogon glomeratus</i>		X
Poaceae	<i>Andropogon scoparius</i>	X	
Poaceae	<i>Andropogon virginicus</i>	X	X
Poaceae	<i>Aristida purpurascens</i> var. <i>virgata</i>	X	
Poaceae	<i>Aristida stricta</i>	X	
Poaceae	<i>Arthraxon hispidus</i> var. <i>cryptatherus</i>	X	
Poaceae	<i>Arundinaria gigantea</i>	X	X
Poaceae	<i>Arundinaria gigantea</i> ssp. <i>gigantea</i>	X	
Poaceae	<i>Arundinaria gigantea</i> ssp. <i>tecta</i>	X	
Poaceae	<i>Arundinaria tecta</i>	X	
Poaceae	<i>Axonopus fissifolius</i>	X	
Poaceae	<i>Briza minor</i>	X	
Poaceae	<i>Bromus catharticus</i>	X	
Poaceae	<i>Chasmanthium latifolium</i>	X	X
Poaceae	<i>Chasmanthium laxum</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Poaceae	<i>Chasmanthium sessiliflorum</i>	X	X
Poaceae	<i>Cinna arundinacea</i>	X	
Poaceae	<i>Cynodon dactylon</i>	X	
Poaceae	<i>Dactylis glomerata</i>	X	
Poaceae	<i>Dactyloctenium aegyptium</i>	X	
Poaceae	<i>Dichantherium aciculare</i>	X	
Poaceae	<i>Dichantherium acuminatum</i>	X	
Poaceae	<i>Dichantherium boscii</i>	X	
Poaceae	<i>Dichantherium dichotomum</i>	X	
Poaceae	<i>Dichantherium dichotomum var. dichotomum</i>	X	
Poaceae	<i>Dichantherium laxiflorum</i>	X	
Poaceae	<i>Dichantherium sphaerocarpon var. isophyllum</i>	X	
Poaceae	<i>Digitaria sanguinalis</i>	X	
Poaceae	<i>Echinochloa colona</i>	X	
Poaceae	<i>Echinochloa crus-galli</i>	X	
Poaceae	<i>Echinochloa walteri</i>	X	
Poaceae	<i>Eleusine indica</i>	X	
Poaceae	<i>Elymus virginicus</i>	X	X
Poaceae	<i>Eragrostis hirsuta</i>	X	
Poaceae	<i>Eragrostis refracta</i>	X	
Poaceae	<i>Eragrostis spectabilis</i>	X	
Poaceae	<i>Glyceria melicaria</i>	X	
Poaceae	<i>Glyceria striata</i>	X	
Poaceae	<i>Hystrix patula</i>	X	
Poaceae	<i>Leersia hexandra</i>	X	
Poaceae	<i>Leersia lenticularis</i>	X	
Poaceae	<i>Leersia oryzoides</i>	X	
Poaceae	<i>Leersia virginica</i>	X	
Poaceae	<i>Lolium perenne</i>	X	
Poaceae	<i>Lolium pratense</i>	X	
Poaceae	<i>Melica mutica</i>	X	
Poaceae	<i>Microstegium vimineum</i>	X	X
Poaceae	<i>Milium effusum</i>	X	
Poaceae	<i>Oplismenus hirtellus</i>	X	X
Poaceae	<i>Panicum acuminatum</i>	X	
Poaceae	<i>Panicum agrostoides</i>	X	
Poaceae	<i>Panicum anceps</i>	X	
Poaceae	<i>Panicum dichotomiflorum</i>	X	
Poaceae	<i>Panicum dichotomum</i>	X	
Poaceae	<i>Panicum hemitomum</i>	X	
Poaceae	<i>Panicum rigidulum var. pubescens</i>	X	
Poaceae	<i>Panicum scoparium</i>	X	
Poaceae	<i>Panicum verrucosum</i>	X	
Poaceae	<i>Paspalum dilatatum</i>	X	
Poaceae	<i>Paspalum floridanum</i>	X	
Poaceae	<i>Paspalum fluitans</i>	X	
Poaceae	<i>Paspalum laeve</i>	X	
Poaceae	<i>Paspalum notatum</i>		X
Poaceae	<i>Paspalum urvillei</i>	X	
Poaceae	<i>Phalaris caroliniana</i>	X	
Poaceae	<i>Phanopyrum gymnocarpon</i>	X	
Poaceae	<i>Poa annua</i>	X	
Poaceae	<i>Poa autumnalis</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Poaceae	<i>Saccharum alopecuroidum</i>	X	
Poaceae	<i>Saccharum baldwinii</i>	X	
Poaceae	<i>Saccharum giganteum</i>	X	X
Poaceae	<i>Sacciolepis striata</i>	X	
Poaceae	<i>Schizachyrium scoparium</i>	X	X
Poaceae	<i>Setaria glauca</i>	X	
Poaceae	<i>Setaria parviflora</i>	X	
Poaceae	<i>Setaria viridis</i>	X	
Poaceae	<i>Sorghastrum nutans</i>	X	
Poaceae	<i>Sorghum halepense</i>	X	
Poaceae	<i>Tripsacum dactyloides</i>	X	
Poaceae	<i>Vulpia octoflora</i> var. <i>octoflora</i>	X	
Polemoniaceae	<i>Phlox carolina</i>	X	
Polemoniaceae	<i>Phlox glaberrima</i>	X	
Polygalaceae	<i>Polygala incarnata</i>	X	
Polygalaceae	<i>Polygala mariana</i>	X	
Polygalaceae	<i>Polygala polygama</i>	X	
Polygonaceae	<i>Fagopyrum esculentum</i>	X	
Polygonaceae	<i>Polygonum caespitosum</i> var. <i>longisetum</i>	X	
Polygonaceae	<i>Polygonum erectum</i>	X	
Polygonaceae	<i>Polygonum hydropiperoides</i>	X	
Polygonaceae	<i>Polygonum pennsylvanicum</i>	X	
Polygonaceae	<i>Polygonum punctatum</i>	X	
Polygonaceae	<i>Polygonum scandens</i> var. <i>scandens</i>	X	
Polygonaceae	<i>Polygonum setaceum</i>	X	
Polygonaceae	<i>Polygonum virginianum</i>	X	
Polygonaceae	<i>Rumex acetosella</i>	X	
Polygonaceae	<i>Rumex crispus</i>	X	
Polypodiaceae	<i>Pleopeltis polypodioides</i>	X	X
Polypodiaceae	<i>Pleopeltis polypodioides</i> ssp. <i>polypodioides</i>	X	
Polypodiaceae	<i>Polypodium polypodioides</i>	X	
Portulacaceae	<i>Portulaca amilis</i>	X	
Primulaceae	<i>Anagallis arvensis</i>	X	
Primulaceae	<i>Lysimachia nummularia</i>	X	
Primulaceae	<i>Samolus parviflorus</i>	X	X
Pteridaceae	<i>Adiantum pedatum</i>	X	
Pyrolaceae	<i>Chimaphila maculata</i>	X	
Ranunculaceae	<i>Clematis crispa</i>	X	
Ranunculaceae	<i>Clematis viorna</i>	X	
Ranunculaceae	<i>Clematis virginiana</i>	X	
Ranunculaceae	<i>Hepatica americana</i>	X	
Ranunculaceae	<i>Ranunculus abortivus</i>	X	
Ranunculaceae	<i>Ranunculus acris</i>	X	
Ranunculaceae	<i>Ranunculus hispidus</i>	X	
Ranunculaceae	<i>Ranunculus recurvatus</i>	X	
Ranunculaceae	<i>Ranunculus sardous</i>	X	
Ranunculaceae	<i>Thalictrum thalictroides</i>	X	
Ranunculaceae	<i>Xanthorhiza simplicissima</i>	X	
Rhamnaceae	<i>Berberchia scandens</i>	X	X
Rhamnaceae	<i>Ceanothus americanus</i>	X	
Rosaceae	<i>Amelanchier arborea</i>	X	
Rosaceae	<i>Crataegus crus-galli</i>	X	
Rosaceae	<i>Crataegus flava</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Rosaceae	<i>Crataegus marshallii</i>	X	
Rosaceae	<i>Crataegus phaenopyrum</i>	X	
Rosaceae	<i>Crataegus spathulata</i>	X	
Rosaceae	<i>Crataegus viridis</i>	X	
Rosaceae	<i>Duchesnea indica</i>	X	
Rosaceae	<i>Geum canadense</i>	X	
Rosaceae	<i>Geum laciniatum</i>	X	
Rosaceae	<i>Geum virginianum</i>	X	
Rosaceae	<i>Malus angustifolia</i>	X	
Rosaceae	<i>Photinia pyrifolia</i>	X	X
Rosaceae	<i>Potentilla canadensis</i>	X	X
Rosaceae	<i>Prunus angustifolia</i>	X	
Rosaceae	<i>Prunus serotina</i>	X	X
Rosaceae	<i>Prunus serotina</i> var. <i>serotina</i>	X	
Rosaceae	<i>Prunus umbellata</i>	X	
Rosaceae	<i>Pyracantha coccinea</i>	X	
Rosaceae	<i>Pyrus communis</i>	X	
Rosaceae	<i>Rosa palustris</i>	X	
Rosaceae	<i>Rubus argutus</i>	X	X
Rosaceae	<i>Rubus canadensis</i>	X	
Rosaceae	<i>Rubus cuneifolius</i>	X	X
Rosaceae	<i>Rubus hispidus</i>	X	
Rosaceae	<i>Rubus trivialis</i>	X	X
Rubiaceae	<i>Cephalanthus occidentalis</i>	X	X
Rubiaceae	<i>Diodia teres</i>	X	
Rubiaceae	<i>Diodia virginiana</i>	X	X
Rubiaceae	<i>Galium aparine</i>	X	X
Rubiaceae	<i>Galium circaezans</i>	X	
Rubiaceae	<i>Galium obtusum</i>	X	
Rubiaceae	<i>Galium obtusum</i> var. <i>obtusum</i>	X	
Rubiaceae	<i>Galium pilosum</i>	X	
Rubiaceae	<i>Galium triflorum</i>	X	
Rubiaceae	<i>Houstonia caerulea</i>	X	
Rubiaceae	<i>Mitchella repens</i>	X	X
Rutaceae	<i>Poncirus trifoliata</i>	X	
Salicaceae	<i>Populus deltoides</i>	X	X
Salicaceae	<i>Populus heterophylla</i>	X	X
Salicaceae	<i>Salix caroliniana</i>	X	
Salicaceae	<i>Salix nigra</i>	X	
Sapotaceae	<i>Sideroxylon lycioides</i>	X	
Saururaceae	<i>Saururus cernuus</i>	X	X
Saxifragaceae	<i>Heuchera americana</i>	X	
Scrophulariaceae	<i>Agalinis fasciculata</i>	X	
Scrophulariaceae	<i>Agalinis obtusifolia</i>	X	
Scrophulariaceae	<i>Agalinis tenuifolia</i>	X	
Scrophulariaceae	<i>Aureolaria pectinata</i>	X	
Scrophulariaceae	<i>Bacopa monnieri</i>	X	
Scrophulariaceae	<i>Gratiola virginiana</i>	X	
Scrophulariaceae	<i>Lindernia dubia</i>	X	
Scrophulariaceae	<i>Lindernia dubia</i> var. <i>anagallidea</i>	X	
Scrophulariaceae	<i>Lindernia dubia</i> var. <i>dubia</i>	X	
Scrophulariaceae	<i>Mazus pumilus</i>	X	
Scrophulariaceae	<i>Mecardonia acuminata</i>	X	
Scrophulariaceae	<i>Mimulus alatus</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Scrophulariaceae	<i>Mimulus ringens</i>	X	
Scrophulariaceae	<i>Nuttallanthus canadensis</i>	X	
Scrophulariaceae	<i>Penstemon australis</i>	X	
Scrophulariaceae	<i>Seymeria cassioides</i>	X	
Scrophulariaceae	<i>Veronica peregrina</i>	X	
Selaginellaceae	<i>Selaginella apoda</i>	X	
Smilacaceae	<i>Smilax bona-nox</i>	X	X
Smilacaceae	<i>Smilax glauca</i>	X	X
Smilacaceae	<i>Smilax hugeri</i>	X	
Smilacaceae	<i>Smilax laurifolia</i>	X	X
Smilacaceae	<i>Smilax pumila</i>	X	
Smilacaceae	<i>Smilax rotundifolia</i>	X	
Smilacaceae	<i>Smilax smallii</i>	X	
Smilacaceae	<i>Smilax tamnoides</i>	X	
Smilacaceae	<i>Smilax walteri</i>	X	
Solanaceae	<i>Physalis virginiana</i>	X	
Solanaceae	<i>Solanum americanum</i>		X
Solanaceae	<i>Solanum carolinense</i>	X	
Solanaceae	<i>Solanum pseudocapsicum</i>	X	
Solanaceae	<i>Solanum ptychanthum</i>	X	
Sphenocleaceae	<i>Sphenoclea zeylanica</i>	X	
Styracaceae	<i>Halesia carolina</i>	X	
Styracaceae	<i>Styrax americana</i>	X	
Symplocaceae	<i>Symplocos tinctoria</i>	X	
Taxodiaceae	<i>Taxodium ascendens</i>	X	X
Taxodiaceae	<i>Taxodium distichum</i>	X	
Thelypteridaceae	<i>Macrothelypteris torresiana</i>	X	
Thelypteridaceae	<i>Phegopteris hexagonoptera</i>	X	
Thelypteridaceae	<i>Thelypteris kunthii</i>	X	
Thelypteridaceae	<i>Thelypteris noveboracensis</i>	X	
Thelypteridaceae	<i>Thelypteris palustris</i>	X	
Tiliaceae	<i>Tilia americana</i> var. <i>heterophylla</i>	X	
Tiliaceae	<i>Tilia heterophylla</i>	X	
Typhaceae	<i>Typha latifolia</i>	X	
Ulmaceae	<i>Celtis laevigata</i>	X	X
Ulmaceae	<i>Planera aquatica</i>	X	X
Ulmaceae	<i>Ulmus alata</i>	X	X
Ulmaceae	<i>Ulmus americana</i>	X	X
Ulmaceae	<i>Ulmus rubra</i>	X	
Urticaceae	<i>Boehmeria cylindrica</i>	X	X
Urticaceae	<i>Laportea canadensis</i>	X	
Urticaceae	<i>Parietaria pensylvanica</i>	X	
Urticaceae	<i>Pilea pumila</i>	X	
Urticaceae	<i>Urtica chamaedryoides</i>	X	
Verbenaceae	<i>Callicarpa americana</i>	X	X
Verbenaceae	<i>Glandularia pulchella</i>	X	
Verbenaceae	<i>Verbena bonariensis</i>	X	
Verbenaceae	<i>Verbena brasiliensis</i>	X	X
Verbenaceae	<i>Verbena urticifolia</i>	X	
Violaceae	<i>Viola affinis</i>	X	
Violaceae	<i>Viola palmata</i>	X	
Violaceae	<i>Viola primulifolia</i>	X	
Violaceae	<i>Viola septemloba</i>	X	
Violaceae	<i>Viola sororia</i>	X	

Table A-1. Continued.

Family	Species	NPSpecies	This Study
Violaceae	<i>Viola X primulifolia</i>	X	
Viscaceae	<i>Phoradendron leucarpum</i>	X	
Vitaceae	<i>Ampelopsis arborea</i>	X	X
Vitaceae	<i>Ampelopsis cordata</i>	X	
Vitaceae	<i>Parthenocissus quinquefolia</i>	X	X
Vitaceae	<i>Vitis aestivalis</i>	X	X
Vitaceae	<i>Vitis aestivalis var. aestivalis</i>	X	
Vitaceae	<i>Vitis cinerea var. floridana</i>	X	
Vitaceae	<i>Vitis rotundifolia</i>	X	X
Vitaceae	<i>Vitis vulpina</i>	X	
Xyridaceae	<i>Xyris caroliniana</i>	X	

Appendix B. Plant species detected in macroplots.

Table B-1. Vascular plant species detected in all macroplot inventories (i.e., across macroplot species composition) at Congaree National Park, 2010.

Family	Species	Common Name
Aceraceae	<i>Acer negundo</i>	box elder
Aceraceae	<i>Acer rubrum</i>	red maple
Aceraceae	<i>Acer saccharinum</i>	silver maple
Amaranthaceae	<i>Alternanthera philoxeroides</i>	alligator weed, alligatorweed, pig weed
Anacardiaceae	<i>Rhus copallinum</i>	winged sumac
Anacardiaceae	<i>Toxicodendron radicans</i>	poison ivy
Annonaceae	<i>Asimina triloba</i>	paw-paw
Apiaceae	<i>Hydrocotyle umbellata</i>	dollarweed
Apiaceae	<i>Sanicula canadensis</i>	short-styled santicle
Aquifoliaceae	<i>Ilex decidua</i>	deciduous holly
Aquifoliaceae	<i>Ilex glabra</i>	gallberry/inberry/inkberry
Aquifoliaceae	<i>Ilex opaca</i>	American holly
Aquifoliaceae	<i>Ilex vomitoria</i>	yaupon
Araceae	<i>Arisaema dracontium</i>	green dragon
Araceae	<i>Arisaema triphyllum</i>	swamp Jack-in-the-pulpit
Arecaceae	<i>Sabal minor</i>	dwarf palmetto
Asclepiadaceae	<i>Matelea gonocarpus</i>	angularfruit milkvine
Aspleniaceae	<i>Asplenium platyneuron</i>	ebony spleenwort
Asteraceae	<i>Ambrosia artemisiifolia</i>	annual ragweed
Asteraceae	<i>Conoclinium coelestinum</i>	blue mistflower
Asteraceae	<i>Conyza canadensis</i>	sneezeweed
Asteraceae	<i>Erechtites hieraciifolia</i>	fireweed
Asteraceae	<i>Mikania scandens</i>	climbing hempvine, climbing hempweed
Asteraceae	<i>Packera glabella</i>	butterweed
Balsaminaceae	<i>Impatiens capensis</i>	spotted jewelweed
Betulaceae	<i>Carpinus caroliniana</i>	American hornbeam
Betulaceae	<i>Ostrya virginiana</i>	eastern hophornbeam, hophornbeam
Bignoniaceae	<i>Bignonia capreolata</i>	crossvine
Bignoniaceae	<i>Campsis radicans</i>	trumpet creeper
Blechnaceae	<i>Woodwardia areolata</i>	chainfern, netted chainfern
Brassicaceae	<i>Lepidium virginicum</i>	poor-man's pepper-grass
Calycanthaceae	<i>Calycanthus floridus</i>	sweetshrub
Caprifoliaceae	<i>Lonicera japonica</i>	Chinese honeysuckle, Japanese honeysuckle
Caprifoliaceae	<i>Sambucus canadensis</i>	common elderberry
Clethraceae	<i>Clethra alnifolia</i>	coast pepper-bush
Clusiaceae	<i>Hypericum hypericoides</i>	St. Andrews cross, St. Andrew's cross
Clusiaceae	<i>Triadenum walteri</i>	greater marsh St. Johnswort
Commelinaceae	<i>Commelina virginica</i>	virgina day-flower
Cucurbitaceae	<i>Melothria pendula</i>	drooping melonnettle, Guadeloupe cucumber
Cyperaceae	<i>Carex glaucescens</i>	clustered sedge, southern waxy sedge
Cyperaceae	<i>Carex lupulina</i>	hop sedge
Cyperaceae	<i>Scleria triglomerata</i>	whip nutrush
Dryopteridaceae	<i>Athyrium filix-femina</i>	common ladyfern, lady fern, ladyfern
Dryopteridaceae	<i>Onoclea sensibilis</i>	sensitive fern
Dryopteridaceae	<i>Polystichum acrostichoides</i>	Christmas fern
Ebenaceae	<i>Diospyros virginiana</i>	persimmon
Ericaceae	<i>Vaccinium corymbosum</i>	highbush blueberry

Table B-1. Continued.

Family	Species	Common Name
Euphorbiaceae	<i>Acalypha gracilens</i>	slender copperleaf, slender threeseed mercury
Fabaceae	<i>Chamaecrista nictitans</i>	partridge pea, partridge-pea
Fabaceae	<i>Galactia elliotii</i>	Elliott's milkpea
Fagaceae	<i>Fagus grandifolia</i>	American beech
Fagaceae	<i>Quercus alba</i>	white oak
Fagaceae	<i>Quercus laurifolia</i>	laurel-leaf oak
Fagaceae	<i>Quercus lyrata</i>	overcup oak
Fagaceae	<i>Quercus michauxii</i>	swamp chestnut oak
Fagaceae	<i>Quercus nigra</i>	water oak
Fagaceae	<i>Quercus phellos</i>	willow oak
Fagaceae	<i>Quercus shumardii</i>	shumard oak, Shumard's oak
Grossulariaceae	<i>Itea virginica</i>	Virginia willow/sweepsire
Haloragaceae	<i>Proserpinaca palustris</i>	marsh mermaid-weed
Hamamelidaceae	<i>Liquidambar styraciflua</i>	sweetgum
Hydrangeaceae	<i>Decumaria barbara</i>	climbing hydrangea
Iridaceae	<i>Hypoxis hirsuta</i> var. <i>leptocarpa</i>	yellow stargrass
Juglandaceae	<i>Carya aquatica</i>	water hickory
Juglandaceae	<i>Carya ovata</i>	shag-bark hickory
Juncaceae	<i>Juncus effusus</i>	soft rush
Lauraceae	<i>Lindera benzoin</i>	northern spicebush, spicebush
Lauraceae	<i>Sassafras albidum</i>	sassafras
Liliaceae	<i>Liriope muscari</i>	big blue lilyturf
Loganiaceae	<i>Gelsemium sempervirens</i>	yellow jessamine
Lygodiaceae	<i>Lygodium japonicum</i>	Japanese climbing fern
Magnoliaceae	<i>Magnolia virginiana</i>	sweetbay magnolia
Moraceae	<i>Morus rubra</i>	red mulberry
Myricaceae	<i>Morella cerifera</i>	wax myrtle
Nyssaceae	<i>Nyssa aquatica</i>	water tupelo
Nyssaceae	<i>Nyssa biflora</i>	swamp tupelo
Nyssaceae	<i>Nyssa sylvatica</i>	black gum, black tupelo, blackgum
Oleaceae	<i>Fraxinus americana</i>	white ash
Oleaceae	<i>Fraxinus caroliniana</i>	Carolina ash
Oleaceae	<i>Fraxinus pennsylvanica</i>	green ash
Oleaceae	<i>Fraxinus</i> sp.	ash
Oleaceae	<i>Ligustrum sinense</i>	Chinese privet, common chinese privet common evening primrose, common eveningprimrose, common evening-primrose
Onagraceae	<i>Oenothera biennis</i>	
Osmundaceae	<i>Osmunda cinnamomea</i>	cinnamon fern
Osmundaceae	<i>Osmunda regalis</i>	royal fern
Oxalidaceae	<i>Oxalis stricta</i>	sorrel
Passifloraceae	<i>Passiflora incarnata</i>	purple passionflower
Passifloraceae	<i>Passiflora lutea</i>	passionflower, yellow passionflower
Phytolaccaceae	<i>Phytolacca americana</i>	American pokeweed, common pokeweed, inkberry
Pinaceae	<i>Pinus taeda</i>	loblolly pine
Platanaceae	<i>Platanus occidentalis</i>	American sycamore, sycamore
Poaceae	<i>Andropogon glomeratus</i>	bushy bluestem
Poaceae	<i>Andropogon virginicus</i>	broom-sedge
Poaceae	<i>Arundinaria gigantea</i>	giant-cane
Poaceae	<i>Chasmanthium latifolium</i>	indian sea-oats
Poaceae	<i>Chasmanthium sessiliflorum</i>	longleaf spikegrass, longleaf woodoats
Poaceae	<i>Elymus virginicus</i>	Virginia wild rye, Virginia wildrye

Table B-1. Continued.

Family	Species	Common Name
Poaceae	<i>Microstegium vimineum</i>	eulalia
Poaceae	<i>Oplismenus hirtellus</i>	bristle basketgrass
Poaceae	<i>Paspalum notatum</i>	bahiagrass
Poaceae	<i>Saccharum giganteum</i>	sugarcane plumegrass
Poaceae	<i>Schizachyrium scoparium</i>	little bluestem
Polypodiaceae	<i>Pleopeltis polypodioides</i>	resurrection fern
Rhamnaceae	<i>Berchemia scandens</i>	supplejack/ratanvine
Rosaceae	<i>Photinia pyrifolia</i>	red chokeberry
Rosaceae	<i>Potentilla canadensis</i>	canada cinquefoil
Rosaceae	<i>Prunus serotina</i>	wild black cherry
Rosaceae	<i>Rubus argutus</i>	prickly Florida blackberry, sawtooth blackberry
Rosaceae	<i>Rubus cuneifolius</i>	sand blackberry
Rosaceae	<i>Rubus trivialis</i>	southern dewberry
Rubiaceae	<i>Cephalanthus occidentalis</i>	common buttonbush
Rubiaceae	<i>Diodia virginiana</i>	larger button-weed
Rubiaceae	<i>Galium aparine</i>	bedstraw, catchweed bedstraw, cleavers
Rubiaceae	<i>Mitchella repens</i>	partridgeberry
		common cottonwood, cottonwood, eastern cottonwood
Salicaceae	<i>Populus deltoides</i>	cottonwood
Salicaceae	<i>Populus heterophylla</i>	swamp cottonwood
Saururaceae	<i>Saururus cernuus</i>	lizards tail, lizard's tail
Smilacaceae	<i>Smilax bona-nox</i>	saw greenbrier
Smilacaceae	<i>Smilax laurifolia</i>	laurel-leaf greenbrier
Solanaceae	<i>Solanum americanum</i>	American nightshade
Taxodiaceae	<i>Taxodium ascendens</i>	pond cypress, pondcypress
Ulmaceae	<i>Celtis laevigata</i>	sugarberry
Ulmaceae	<i>Ulmus alata</i>	winged elm
Ulmaceae	<i>Ulmus americana</i>	American elm
Urticaceae	<i>Boehmeria cylindrica</i>	false nettele
Verbenaceae	<i>Callicarpa americana</i>	American beautyberry
Verbenaceae	<i>Verbena brasiliensis</i>	Brazilian vervain
Vitaceae	<i>Ampelopsis arborea</i>	sweet pepper-vine
Vitaceae	<i>Parthenocissus quinquefolia</i>	virginia creeper
Vitaceae	<i>Vitis aestivalis</i>	summer grape
Vitaceae	<i>Vitis rotundifolia</i>	muscadine, muscadine grape

Table B-2. Vascular plant species detected in each macroplot inventory (i.e., within macroplot species composition) at Congaree National Park, 2010.

Sampling Location	Species
3	<i>Acer rubrum</i>
3	<i>Callicarpa americana</i>
3	<i>Calycanthus floridus</i>
3	<i>Carex lupulina</i>
3	<i>Carex sp.</i>
3	<i>Carpinus caroliniana</i>
3	<i>Clethra alnifolia</i>
3	<i>Dioscorea sp.</i>
3	<i>Elephantopus sp.</i>
3	<i>Fagus grandifolia</i>
3	<i>Gelsemium sempervirens</i>
3	<i>Hypericum hypericoides</i>
3	<i>Ilex opaca</i>
3	<i>Iris sp.</i>
3	<i>Itea virginica</i>
3	<i>Liquidambar styraciflua</i>
3	<i>Magnolia virginiana</i>
3	<i>Mitchella repens</i>
3	<i>Morus rubra</i>
3	<i>Morella cerifera</i>
3	<i>Nyssa biflora</i>
3	<i>Osmunda regalis</i>
3	<i>Panicum sp.</i>
3	<i>Photinia pyrifolia</i>
3	<i>Pinus taeda</i>
3	<i>Quercus alba</i>
3	<i>Quercus laurifolia</i>
3	<i>Quercus michauxii</i>
3	<i>Quercus nigra</i>
3	<i>Quercus phellos</i>
3	<i>Rhododendron sp.</i>
3	<i>Rhynchospora sp.</i>
3	<i>Rubus cuneifolius</i>
3	<i>Sambucus canadensis</i>
3	<i>Sassafras albidum</i>
3	<i>Smilax laurifolia</i>
3	<i>Smilax sp.</i>
3	<i>Sphagnum sp.</i>
3	<i>Taxodium ascendens</i>
3	<i>Toxicodendron radicans</i>
3	Unknown Asteraceae
3	<i>Vaccinium corymbosum</i>
3	<i>Vitis rotundifolia</i>
3	<i>Woodwardia areolata</i>
4	<i>Acer negundo</i>
4	<i>Acer rubrum</i>
4	<i>Arundinaria gigantea</i>
4	<i>Asimina triloba</i>
4	<i>Asplenium platyneuron</i>
4	<i>Bignonia capreolata</i>
4	<i>Boehmeria cylindrica</i>
4	<i>Campsis radicans</i>
4	<i>Carex lupulina</i>

Table B-2. Continued.

Sampling Location	Species
4	<i>Carpinus caroliniana</i>
4	<i>Celtis laevigata</i>
4	<i>Fraxinus</i> sp.
4	<i>Galium aparine</i>
4	<i>Ilex decidua</i>
4	<i>Ilex opaca</i>
4	<i>Liquidambar styraciflua</i>
4	<i>Matelea</i> sp.
4	<i>Mitchella repens</i>
4	<i>Nyssa aquatica</i>
4	<i>Parthenocissus quinquefolia</i>
4	<i>Quercus michauxii</i>
4	<i>Rhynchospora</i> sp.
4	<i>Saururus cernuus</i>
4	<i>Smilax</i> sp.
4	<i>Taxodium ascendens</i>
4	<i>Thelypters</i> sp.
4	<i>Ulmus americana</i>
4	Unknown Poaceae
4	<i>Vitis rotundifolia</i>
5	<i>Acer negundo</i>
5	<i>Arundinaria gigantea</i>
5	<i>Asimina triloba</i>
5	<i>Asimina triloba</i>
5	<i>Asplenium platyneuron</i>
5	<i>Bignonia capreolata</i>
5	<i>Campsis radicans</i>
5	<i>Carex lupulina</i>
5	<i>Carex</i> sp.
5	<i>Carpinus caroliniana</i>
5	<i>Carya aquatica</i>
5	<i>Celtis laevigata</i>
5	<i>Dryopteris</i> sp.
5	<i>Fraxinus pennsylvanica</i>
5	<i>Hydrocotyle umbellata</i>
5	<i>Ilex decidua</i>
5	<i>Ligustrum sinense</i>
5	<i>Lindera benzoin</i>
5	<i>Liquidambar styraciflua</i>
5	<i>Panicum</i> sp.
5	<i>Parthenocissus quinquefolia</i>
5	<i>Platanus occidentalis</i>
5	<i>Quercus laurifolia</i>
5	<i>Quercus lyrata</i>
5	<i>Rhynchospora</i> sp.
5	<i>Saururus cernuus</i>
5	<i>Smilax</i> sp.
5	<i>Toxicodendron radicans</i>
5	<i>Ulmus alata</i>
5	Unknown Cyperaceae
5	<i>Viola</i> sp.
5	<i>Vitis</i> sp.
7	<i>Acer rubrum</i>
7	<i>Ampelopsis arborea</i>
7	<i>Arundinaria gigantea</i>

Table B-2. Continued.

Sampling Location	Species
7	<i>Berchemia scandens</i>
7	<i>Bignonia capreolata</i>
7	<i>Boehmeria cylindrica</i>
7	<i>Campsis radicans</i>
7	<i>Carex lupulina</i>
7	<i>Carex sp.</i>
7	<i>Carpinus caroliniana</i>
7	<i>Carya aquatica</i>
7	<i>Fraxinus sp.</i>
7	<i>Ilex decidua</i>
7	<i>Liquidambar styraciflua</i>
7	<i>Magnolia virginiana</i>
7	<i>Panicum sp.</i>
7	<i>Parthenocissus quinquefolia</i>
7	<i>Populus heterophylla</i>
7	<i>Quercus laurifolia</i>
7	<i>Quercus lyrata</i>
7	<i>Rhynchospora sp.</i>
7	<i>Rubus cuneifolius</i>
7	<i>Sabal minor</i>
7	<i>Saururus cernuus</i>
7	<i>Smilax sp.</i>
7	<i>Toxicodendron radicans</i>
7	Unknown Dicot Forb
7	<i>Viola sp.</i>
7	<i>Vitis aestivalis</i>
7	<i>Vitis rotundifolia</i>
9	<i>Acer negundo</i>
9	<i>Acer rubrum</i>
9	<i>Arundinaria gigantea</i>
9	<i>Asimina triloba</i>
9	<i>Bignonia capreolata</i>
9	<i>Boehmeria cylindrica</i>
9	<i>Carex lupulina</i>
9	<i>Carex sp.</i>
9	<i>Carpinus caroliniana</i>
9	<i>Celtis laevigata</i>
9	<i>Ilex decidua</i>
9	<i>Ligustrum sinense</i>
9	<i>Lindera benzoin</i>
9	<i>Liquidambar styraciflua</i>
9	<i>Matelea gonocarpus</i>
9	<i>Microstegium vimineum</i>
9	<i>Onoclea sensibilis</i>
9	<i>Panicum sp.</i>
9	<i>Parthenocissus quinquefolia</i>
9	<i>Platanus occidentalis</i>
9	<i>Quercus laurifolia</i>
9	<i>Rhynchospora sp.</i>
9	<i>Senecio sp.</i>
9	<i>Smilax sp.</i>
9	<i>Toxicodendron radicans</i>
9	Unknown Poaceae
9	Unknown Poaceae
9	<i>Viola sp.</i>

Table B-2. Continued.

Sampling Location	Species
9	<i>Vitis rotundifolia</i>
10	<i>Arisaema triphyllum</i>
10	<i>Arundinaria gigantea</i>
10	<i>Asimina triloba</i>
10	<i>Bignonia capreolata</i>
10	<i>Boehmeria cylindrica</i>
10	<i>Campsis radicans</i>
10	<i>Carex lupulina</i>
10	<i>Carex sp.</i>
10	<i>Carpinus caroliniana</i>
10	<i>Celtis laevigata</i>
10	<i>Crateagus sp.</i>
10	<i>Dichantheium sp.</i>
10	<i>Dioscorea sp.</i>
10	<i>Fraxinus pennsylvanica</i>
10	<i>Galium sp.</i>
10	<i>Hypoxis hirsuta var. leptocarpa</i>
10	<i>Ilex decidua</i>
10	<i>Ilex opaca</i>
10	<i>Liquidambar styraciflua</i>
10	<i>Microstegium vimineum</i>
10	<i>Mitchella repens</i>
10	<i>Nyssa aquatica</i>
10	<i>Onoclea sensibilis</i>
10	<i>Ostrya virginiana</i>
10	<i>Oxalis stricta</i>
10	<i>Parthenocissus quinquefolia</i>
10	<i>Pinus taeda</i>
10	<i>Pleopeltis polypodioides</i>
10	<i>Quercus michauxii</i>
10	<i>Quercus nigra</i>
10	<i>Quercus shumardii</i>
10	<i>Samolus sp.</i>
10	<i>Sanicula canadensis</i>
10	<i>Saururus cernuus</i>
10	<i>Smilax sp.</i>
10	<i>Solidago sp.</i>
10	<i>Taxodium ascendens</i>
10	<i>Thelypteris sp.</i>
10	<i>Toxicodendron radicans</i>
10	Unknown Asteraceae
10	Unknown Caryophyllaceae
10	Unknown Cyperaceae
10	Unknown Fern
10	Unknown Poaceae
10	<i>Vitis aestivalis</i>
12	<i>Acalypha gracilens</i>
12	<i>Ambrosia artemisiifolia</i>
12	<i>Ampelopsis arborea</i>
12	<i>Andropogon virginicus</i>
12	<i>Asplenium platyneuron</i>
12	<i>Berchemia scandens</i>
12	<i>Bignonia capreolata</i>
12	<i>Callicarpa americana</i>
12	<i>Campsis radicans</i>

Table B-2. Continued.

Sampling Location	Species
12	<i>Celtis laevigata</i>
12	<i>Conoclinium coelestinum</i>
12	<i>Conyza canadensis</i>
12	<i>Gnaphthaliun sp.</i>
12	<i>Lepidium virginicum</i>
12	<i>Ligustrum sinense</i>
12	<i>Liquidambar styraciflua</i>
12	<i>Lonicera japonica</i>
12	<i>Oenothera biennis</i>
12	<i>Oxalis stricta</i>
12	<i>Parthenocissus quinquefolia</i>
12	<i>Paspalum notatum</i>
12	<i>Passiflora lutea</i>
12	<i>Phytolacca americana</i>
12	<i>Rhus copallinum</i>
12	<i>Rhynchospora sp.</i>
12	<i>Rubus argutus</i>
12	<i>Sabal minor</i>
12	<i>Sanicula canadensis</i>
12	<i>Smilax sp.</i>
12	<i>Solidago sp.</i>
12	<i>Ulmus alata</i>
12	<i>Ulmus americana</i>
12	Unknown Apocynaceae
12	Unknown Brassicaceae
12	Unknown Poaceae
12	<i>Verbena brasiliensis</i>
12	<i>Vitis rotundifolia</i>
13	<i>Acer rubrum</i>
13	<i>Arundinaria gigantea</i>
13	<i>Asimina triloba</i>
13	<i>Asplenium platyneuron</i>
13	<i>Bignonia capreolata</i>
13	<i>Boehmeria cylindrica</i>
13	<i>Carex sp.</i>
13	<i>Carpinus caroliniana</i>
13	<i>Crateagus sp.</i>
13	<i>Dichantheium sp.</i>
13	<i>Dioscorea sp.</i>
13	<i>Fraxinus americana</i>
13	<i>Hypoxis hirsuta var. leptocarpa</i>
13	<i>Ilex decidua</i>
13	<i>Ilex opaca</i>
13	<i>Impatiens capensis</i>
13	<i>Liquidambar styraciflua</i>
13	<i>Ludwigia sp.</i>
13	<i>Lygodium japonicum</i>
13	<i>Microstegium vimineum</i>
13	<i>Mitchella repens</i>
13	<i>Morus rubra</i>
13	<i>Onoclea sensibilis</i>
13	<i>Ostrya virginiana</i>
13	<i>Panicum sp.</i>
13	<i>Parthenocissus quinquefolia</i>
13	<i>Passiflora lutea</i>

Table B-2. Continued.

Sampling Location	Species
13	<i>Populus heterophylla</i>
13	<i>Quercus michauxii</i>
13	<i>Quercus shumardii</i>
13	<i>Quercus shumardii</i>
13	<i>Rhynchospora sp.</i>
13	<i>Sabatia sp.</i>
13	<i>Samolus sp.</i>
13	<i>Saururus cernuus</i>
13	<i>Smilax sp.</i>
13	<i>Toxicodendron radicans</i>
13	<i>Ulmus americana</i>
13	Unknown Cyperaceae
13	Unknown Dicot Forb
13	<i>Viola sp.</i>
13	<i>Vitis aestivalis</i>
13	<i>Vitis rotundifolia</i>
14	<i>Acer negundo</i>
14	<i>Acer rubrum</i>
14	<i>Asimina triloba</i>
14	<i>Asimina triloba</i>
14	<i>Asplenium platyneuron</i>
14	<i>Bignonia capreolata</i>
14	<i>Carex lupulina</i>
14	<i>Carex sp.</i>
14	<i>Carpinus caroliniana</i>
14	<i>Celtis laevigata</i>
14	<i>Celtis laevigata</i>
14	<i>Elymus virginicus</i>
14	<i>Hypoxis hirsuta var. leptocarpa</i>
14	<i>Ilex decidua</i>
14	<i>Ligustrum sinense</i>
14	<i>Lindera benzoin</i>
14	<i>Liquidambar styraciflua</i>
14	<i>Microstegium vimineum</i>
14	<i>Onoclea sensibilis</i>
14	<i>Osmunda cinnamomea</i>
14	<i>Panicum sp.</i>
14	<i>Parthenocissus quinquefolia</i>
14	<i>Polystichum acrostichoides</i>
14	<i>Quercus laurifolia</i>
14	<i>Quercus nigra</i>
14	<i>Rhynchospora sp.</i>
14	<i>Rubus trivialis</i>
14	<i>Smilax sp.</i>
14	<i>Solanum sp.</i>
14	<i>Toxicodendron radicans</i>
14	<i>Ulmus americana</i>
14	Unknown Cyperaceae
14	<i>Vitis rotundifolia</i>
15	<i>Acer rubrum</i>
15	<i>Acer saccharinum</i>
15	<i>Ampelopsis arborea</i>
15	<i>Arundinaria gigantea</i>
15	<i>Bignonia capreolata</i>
15	<i>Boehmeria cylindrica</i>

Table B-2. Continued.

Sampling Location	Species
15	<i>Carex lupulina</i>
15	<i>Carex sp.</i>
15	<i>Carpinus caroliniana</i>
15	<i>Celtis laevigata</i>
15	<i>Dichantheium sp.</i>
15	<i>Ilex decidua</i>
15	<i>Liquidambar styraciflua</i>
15	<i>Lobelia sp.</i>
15	<i>Melothria pendula</i>
15	<i>Onoclea sensibilis</i>
15	<i>Passiflora incarnata</i>
15	<i>Platanus occidentalis</i>
15	<i>Populus heterophylla</i>
15	<i>Quercus laurifolia</i>
15	<i>Rubus argutus</i>
15	<i>Sanicula canadensis</i>
15	<i>Smilax sp.</i>
15	<i>Taxodium ascendens</i>
15	<i>Toxicodendron radicans</i>
15	<i>Ulmus alata</i>
15	<i>Ulmus americana</i>
15	Unknown Dicot Forb
15	<i>Viola sp.</i>
15	<i>Vitis rotundifolia</i>
16	<i>Acer rubrum</i>
16	<i>Arundinaria gigantea</i>
16	<i>Asimina triloba</i>
16	<i>Bignonia capreolata</i>
16	<i>Boehmeria cylindrica</i>
16	<i>Carex lupulina</i>
16	<i>Carex sp.</i>
16	<i>Carpinus caroliniana</i>
16	<i>Celtis laevigata</i>
16	<i>Crataegus sp.</i>
16	<i>Fraxinus sp.</i>
16	<i>Hydrocotyle umbellata</i>
16	<i>Ilex decidua</i>
16	<i>Ilex opaca</i>
16	<i>Liquidambar styraciflua</i>
16	<i>Mitchella repens</i>
16	<i>Nyssa aquatica</i>
16	<i>Quercus laurifolia</i>
16	<i>Quercus nigra</i>
16	<i>Quercus phellos</i>
16	<i>Rubus sp.</i>
16	<i>Sabal minor</i>
16	<i>Saururus cernuus</i>
16	<i>Smilax sp.</i>
16	<i>Taxodium ascendens</i>
16	<i>Toxicodendron radicans</i>
16	Unknown Fern
16	Unknown Poaceae
16	<i>Viola sp.</i>
17	<i>Acer rubrum</i>
17	<i>Ampelopsis arborea</i>

Table B-2. Continued.

Sampling Location	Species
17	<i>Arundinaria gigantea</i>
17	<i>Asplenium platyneuron</i>
17	<i>Bignonia capreolata</i>
17	<i>Boehmeria cylindrica</i>
17	<i>Campsis radicans</i>
17	<i>Carex sp.</i>
17	<i>Carpinus caroliniana</i>
17	<i>Carya aquatica</i>
17	<i>Celtis laevigata</i>
17	<i>Celtis laevigata</i>
17	<i>Cephalanthus occidentalis</i>
17	<i>Commelina sp.</i>
17	<i>Crataegus sp.</i>
17	<i>Dichantherium sp.</i>
17	<i>Fraxinus americana</i>
17	<i>Fraxinus pennsylvanica</i>
17	<i>Hypericum sp.</i>
17	<i>Hypoxis hirsuta var. leptocarpa</i>
17	<i>Ilex decidua</i>
17	<i>Ilex opaca</i>
17	<i>Lindera benzoin</i>
17	<i>Liquidambar styraciflua</i>
17	<i>Lycopus sp.</i>
17	<i>Mitchella repens</i>
17	<i>Nyssa aquatica</i>
17	<i>Panicum sp.</i>
17	<i>Parthenocissus quinquefolia</i>
17	<i>Polygonum sp.</i>
17	<i>Populus heterophylla</i>
17	<i>Proserpinaca palustris</i>
17	<i>Quercus laurifolia</i>
17	<i>Rubus sp.</i>
17	<i>Sabal minor</i>
17	<i>Sabatia sp.</i>
17	<i>Sanicula sp.</i>
17	<i>Saururus cernuus</i>
17	<i>Smilax sp.</i>
17	<i>Taxodium ascendens</i>
17	<i>Toxicodendron radicans</i>
17	<i>Ulmus americana</i>
17	<i>Viola sp.</i>
17	<i>Vitis aestivalis</i>
17	<i>Vitis rotundifolia</i>
18	<i>Acer negundo</i>
18	<i>Acer rubrum</i>
18	<i>Arundinaria gigantea</i>
18	<i>Asimina triloba</i>
18	<i>Asplenium platyneuron</i>
18	<i>Berchemia scandens</i>
18	<i>Bignonia capreolata</i>
18	<i>Carex glaucescens</i>
18	<i>Carex lupulina</i>
18	<i>Carpinus caroliniana</i>
18	<i>Celtis laevigata</i>
18	<i>Dichantherium sp.</i>

Table B-2. Continued.

Sampling Location	Species
18	<i>Diospyros virginiana</i>
18	<i>Fraxinus</i> sp.
18	<i>Galium</i> sp.
18	<i>Ilex decidua</i>
18	<i>Ilex glabra</i>
18	<i>Ilex opaca</i>
18	<i>Ligustrum sinense</i>
18	<i>Liquidambar styraciflua</i>
18	<i>Microstegium vimineum</i>
18	<i>Mitchella repens</i>
18	<i>Parthenocissus quinquefolia</i>
18	<i>Quercus laurifolia</i>
18	<i>Quercus michauxii</i>
18	<i>Rhynchospora</i> sp.
18	<i>Samolus</i> sp.
18	<i>Sanicula canadensis</i>
18	<i>Smilax</i> sp.
18	<i>Taxodium ascendens</i>
18	<i>Toxicodendron radicans</i>
18	Unknown Cyperaceae
18	Unknown Dicot Forb
18	Unknown Fern
18	Unknown Poaceae
18	<i>Viola</i> sp.
18	<i>Vitis rotundifolia</i>
19	<i>Acer rubrum</i>
19	<i>Ampelopsis arborea</i>
19	<i>Asclepias</i> sp.
19	<i>Boehmeria cylindrica</i>
19	<i>Carex lupulina</i>
19	<i>Carex</i> sp.
19	<i>Carpinus caroliniana</i>
19	<i>Carya aquatica</i>
19	<i>Commelina</i> sp.
19	<i>Crataegus</i> sp.
19	<i>Fraxinus pennsylvanica</i>
19	<i>Ilex decidua</i>
19	<i>Liquidambar styraciflua</i>
19	<i>Lobelia</i> sp.
19	<i>Lygodium japonicum</i>
19	<i>Mikania scandens</i>
19	<i>Oxalis stricta</i>
19	<i>Populus heterophylla</i>
19	<i>Quercus laurifolia</i>
19	<i>Quercus lyrata</i>
19	<i>Saururus cernuus</i>
19	<i>Smilax</i> sp.
19	<i>Taxodium ascendens</i>
19	<i>Toxicodendron radicans</i>
19	<i>Ulmus americana</i>
19	Unknown Poaceae
19	<i>Viola</i> sp.
19	<i>Vitis aestivalis</i>
20	<i>Callicarpa americana</i>
20	<i>Gelsemium sempervirens</i>

Table B-2. Continued.

Sampling Location	Species
20	<i>Hypericum hypericoides</i>
20	<i>Hypericum hypericoides</i>
20	<i>Liquidambar styraciflua</i>
20	<i>Panicum sp.</i>
20	<i>Parthenocissus quinquefolia</i>
20	<i>Pinus taeda</i>
20	<i>Quercus laurifolia</i>
20	<i>Rubus cuneifolius</i>
20	<i>Smilax sp.</i>
20	<i>Toxicodendron radicans</i>
20	<i>Vaccinium corymbosum</i>
20	<i>Vitis rotundifolia</i>
21	<i>Acer rubrum</i>
21	<i>Asplenium platyneuron</i>
21	<i>Boehmeria cylindrica</i>
21	<i>Carpinus caroliniana</i>
21	<i>Decumaria barbara</i>
21	<i>Fraxinus caroliniana</i>
21	<i>Fraxinus pennsylvanica</i>
21	<i>Fraxinus sp.</i>
21	<i>Lycopus sp.</i>
21	<i>Nyssa aquatica</i>
21	<i>Saururus cernuus</i>
21	<i>Taxodium ascendens</i>
21	<i>Toxicodendron radicans</i>
21	Unknown Poaceae
25	<i>Acer rubrum</i>
25	<i>Asimina triloba</i>
25	<i>Callicarpa americana</i>
25	<i>Chasmanthium sessiliflorum</i>
25	<i>Dioscorea sp.</i>
25	<i>Diospyros virginiana</i>
25	<i>Gelsemium sempervirens</i>
25	<i>Ilex opaca</i>
25	<i>Liquidambar styraciflua</i>
25	<i>Mikania scandens</i>
25	<i>Nyssa sylvatica</i>
25	<i>Panicum sp.</i>
25	<i>Parthenocissus quinquefolia</i>
25	<i>Pinus taeda</i>
25	<i>Potentilla canadensis</i>
25	<i>Quercus laurifolia</i>
25	<i>Quercus shumardii</i>
25	<i>Rhus copallinum</i>
25	<i>Rhynchospora sp.</i>
25	<i>Rubus cuneifolius</i>
25	<i>Schizachyrium scoparium</i>
25	<i>Smilax sp.</i>
25	<i>Toxicodendron radicans</i>
25	<i>Ulmus alata</i>
25	Unknown Asteraceae
25	Unknown Dicot Forb
25	Unknown Fabaceae
25	Unknown Fern
25	Unknown Lamiaceae

Table B-2. Continued.

Sampling Location	Species
25	<i>Unknown Poaceae</i>
25	<i>Vaccinium corymbosum</i>
25	<i>Viola sp.</i>
25	<i>Vitis rotundifolia</i>
26	<i>Acer negundo</i>
26	<i>Ampelopsis arborea</i>
26	<i>Arundinaria gigantea</i>
26	<i>Asimina triloba</i>
26	<i>Berchemia scandens</i>
26	<i>Bignonia capreolata</i>
26	<i>Boehmeria cylindrica</i>
26	<i>Campsis radicans</i>
26	<i>Carex lupulina</i>
26	<i>Carex sp.</i>
26	<i>Carpinus caroliniana</i>
26	<i>Celtis laevigata</i>
26	<i>Dichantheium sp.</i>
26	<i>Fraxinus sp.</i>
26	<i>Ilex decidua</i>
26	<i>Liquidambar styraciflua</i>
26	<i>Lygodium japonicum</i>
26	<i>Melothria pendula</i>
26	<i>Parthenocissus quinquefolia</i>
26	<i>Pinus taeda</i>
26	<i>Polygonum sp.</i>
26	<i>Quercus laurifolia</i>
26	<i>Quercus lyrata</i>
26	<i>Quercus michauxii</i>
26	<i>Quercus shumardii</i>
26	<i>Rubus argutus</i>
26	<i>Smilax sp.</i>
26	<i>Toxicodendron radicans</i>
26	<i>Viola sp.</i>
26	<i>Vitis aestivalis</i>
26	<i>Vitis rotundifolia</i>
27	<i>Acer negundo</i>
27	<i>Ambrosia artemisiifolia</i>
27	<i>Arisaema dracontium</i>
27	<i>Asimina triloba</i>
27	<i>Bignonia capreolata</i>
27	<i>Boehmeria cylindrica</i>
27	<i>Campsis radicans</i>
27	<i>Carex glaucescens</i>
27	<i>Carex lupulina</i>
27	<i>Carex sp.</i>
27	<i>Carpinus caroliniana</i>
27	<i>Celtis laevigata</i>
27	<i>Fraxinus pennsylvanica</i>
27	<i>Ilex decidua</i>
27	<i>Impatiens capensis</i>
27	<i>Ligustrum sinense</i>
27	<i>Lindera benzoin</i>
27	<i>Liquidambar styraciflua</i>
27	<i>Microstegium vimineum</i>
27	<i>Nyssa sylvatica</i>

Table B-2. Continued.

Sampling Location	Species
27	<i>Onoclea sensibilis</i>
27	<i>Parthenocissus quinquefolia</i>
27	<i>Platanus occidentalis</i>
27	<i>Polygonum sp.</i>
27	<i>Rubus sp.</i>
27	<i>Sanicula canadensis</i>
27	<i>Saururus cernuus</i>
27	<i>Scleria triglomerata</i>
27	<i>Smilax sp.</i>
27	<i>Ulmus sp.</i>
27	Unknown Cyperaceae
27	Unknown Dicot Seedling
27	Unknown Poaceae
27	<i>Vitis rotundifolia</i>
28	<i>Ampelopsis arborea</i>
28	<i>Boehmeria cylindrica</i>
28	<i>Campsis radicans</i>
28	<i>Carex glaucescens</i>
28	<i>Carex sp.</i>
28	<i>Carpinus caroliniana</i>
28	<i>Celtis laevigata</i>
28	<i>Crataegus sp.</i>
28	<i>Ilex decidua</i>
28	<i>Lycopus sp.</i>
28	<i>Platanus occidentalis</i>
28	<i>Populus heterophylla</i>
28	<i>Quercus lyrata</i>
28	<i>Rhynchospora sp.</i>
28	<i>Saururus cernuus</i>
28	<i>Senecio sp.</i>
28	<i>Smilax sp.</i>
28	<i>Solidago sp.</i>
28	<i>Taxodium ascendens</i>
28	<i>Toxicodendron radicans</i>
28	<i>Ulmus americana</i>
28	Unknown Poaceae
28	<i>Viola sp.</i>
28	<i>Vitis rotundifolia</i>
29	<i>Acer rubrum</i>
29	<i>Asclepias sp.</i>
29	<i>Asimina triloba</i>
29	<i>Boehmeria cylindrica</i>
29	<i>Carya aquatica</i>
29	<i>Celtis laevigata</i>
29	<i>Fraxinus americana</i>
29	<i>Lobelia sp.</i>
29	<i>Nyssa aquatica</i>
29	<i>Platanus occidentalis</i>
29	<i>Populus heterophylla</i>
29	<i>Quercus lyrata</i>
29	<i>Saururus cernuus</i>
29	<i>Scutellaria sp.</i>
29	<i>Taxodium ascendens</i>
29	<i>Toxicodendron radicans</i>
29	Unknown Dicot Forb

Table B-2. Continued.

Sampling Location	Species
29	<i>Unknown Poaceae</i>
29	<i>Viola sp.</i>
30	<i>Acer rubrum</i>
30	<i>Arundinaria gigantea</i>
30	<i>Asimina triloba</i>
30	<i>Asplenium platyneuron</i>
30	<i>Berchemia scandens</i>
30	<i>Bignonia capreolata</i>
30	<i>Boehmeria cylindrica</i>
30	<i>Carex lupulina</i>
30	<i>Carex sp.</i>
30	<i>Carpinus caroliniana</i>
30	<i>Celtis laevigata</i>
30	<i>Fraxinus pennsylvanica</i>
30	<i>Fraxinus sp.</i>
30	<i>Ilex decidua</i>
30	<i>Ilex opaca</i>
30	<i>Ilex vomitoria</i>
30	<i>Ligustrum sinense</i>
30	<i>Liquidambar styraciflua</i>
30	<i>Microstegium vimineum</i>
30	<i>Mikania scandens</i>
30	<i>Mitchella repens</i>
30	<i>Nyssa aquatica</i>
30	<i>Nyssa biflora</i>
30	<i>Ostrya virginiana</i>
30	<i>Panicum sp.</i>
30	<i>Parthenocissus quinquefolia</i>
30	<i>Pinus taeda</i>
30	<i>Polygonum sp.</i>
30	<i>Quercus laurifolia</i>
30	<i>Quercus lyrata</i>
30	<i>Rubus argutus</i>
30	<i>Smilax sp.</i>
30	<i>Taxodium ascendens</i>
30	<i>Thelypteris sp.</i>
30	<i>Toxicodendron radicans</i>
30	<i>Commelina virginica</i>
30	<i>Unknown Cyperaceae</i>
30	<i>Unknown Poaceae</i>
30	<i>Vitis rotundifolia</i>
A4	<i>Acer negundo</i>
A4	<i>Arundinaria gigantea</i>
A4	<i>Asimina triloba</i>
A4	<i>Bignonia capreolata</i>
A4	<i>Boehmeria cylindrica</i>
A4	<i>Campsis radicans</i>
A4	<i>Carex lupulina</i>
A4	<i>Carex sp.</i>
A4	<i>Carpinus caroliniana</i>
A4	<i>Celtis laevigata</i>
A4	<i>Fraxinus americana</i>
A4	<i>Ilex decidua</i>
A4	<i>Liquidambar styraciflua</i>
A4	<i>Nyssa aquatica</i>

Table B-2. Continued.

Sampling Location	Species
A4	<i>Oplismenus hirtellus</i>
A4	<i>Osmunda cinnamomea</i>
A4	<i>Panicum sp.</i>
A4	<i>Parthenocissus quinquefolia</i>
A4	<i>Quercus laurifolia</i>
A4	<i>Rhynchospora sp.</i>
A4	<i>Senecio sp.</i>
A4	<i>Smilax sp.</i>
A4	<i>Taxodium ascendens</i>
A4	<i>Toxicodendron radicans</i>
A4	<i>Ulmus americana</i>
A4	<i>Unknown Dicot Forb</i>
A4	<i>Viola sp.</i>
A2	<i>Acalypha gracilens</i>
A2	<i>Acer negundo</i>
A2	<i>Acer rubrum</i>
A2	<i>Acer saccharinum</i>
A2	<i>Alternanthera philoxeroides</i>
A2	<i>Ambrosia artemisiifolia</i>
A2	<i>Ampelopsis arborea</i>
A2	<i>Andropogon glomeratus</i>
A2	<i>Arisaema dracontium</i>
A2	<i>Arundinaria gigantea</i>
A2	<i>Aster sp.</i>
A2	<i>Boehmeria cylindrica</i>
A2	<i>Campsis radicans</i>
A2	<i>Carex sp.</i>
A2	<i>Carpinus caroliniana</i>
A2	<i>Celtis laevigata</i>
A2	<i>Celtis laevigata</i>
A2	<i>Cephalanthus occidentalis</i>
A2	<i>Chamaecrista nictitans</i>
A2	<i>Chamaecyse sp.</i>
A2	<i>Conyza canadensis</i>
A2	<i>Cuphea sp.</i>
A2	<i>Cuscuta sp.</i>
A2	<i>Cyperus sp.</i>
A2	<i>Dichanthelium sp.</i>
A2	<i>Dichanthelium sp.</i>
A2	<i>Diodia virginiana</i>
A2	<i>Fraxinus pennsylvanica</i>
A2	<i>Galactia elliotii</i>
A2	<i>Galium sp.</i>
A2	<i>Hibiscus sp.</i>
A2	<i>Impatiens capensis</i>
A2	<i>Ipomoea sp.</i>
A2	<i>Juncus effusus</i>
A2	<i>Juncus sp.</i>
A2	<i>Lezpedeza sp.</i>
A2	<i>Liquidambar styraciflua</i>
A2	<i>Lonicera japonica</i>
A2	<i>Matelea gonocarpus</i>
A2	<i>Oxalis stricta</i>
A2	<i>Panicum sp.</i>
A2	<i>Parthenocissus quinquefolia</i>

Table B-2. Continued.

Sampling Location	Species
A2	<i>Passiflora incarnata</i>
A2	<i>Platanus occidentalis</i>
A2	<i>Polygonum sp.</i>
A2	<i>Populus heterophylla</i>
A2	<i>Prunus serotina</i>
A2	<i>Rhynchospora sp.</i>
A2	<i>Rubus argutus</i>
A2	<i>Rubus trivialis</i>
A2	<i>Sabatia sp.</i>
A2	<i>Saccharum giganteum</i>
A2	<i>Smilax sp.</i>
A2	<i>Solanum americanum</i>
A2	<i>Solidago sp.</i>
A2	<i>Trifolium sp.</i>
A2	<i>Ulmus alata</i>
A2	<i>Ulmus americana</i>
A2	Unknown Poaceae
A2	<i>Verbena brasiliensis</i>
A2	<i>Vitis aestivalis</i>
A2	<i>Vitis rotundifolia</i>
A3	<i>Acer rubrum</i>
A3	<i>Ampelopsis arborea</i>
A3	<i>Arundinaria gigantea</i>
A3	<i>Asclepias sp.</i>
A3	<i>Asimina triloba</i>
A3	<i>Berchemia scandens</i>
A3	<i>Boehmeria cylindrica</i>
A3	<i>Campsis radicans</i>
A3	<i>Carex lupulina</i>
A3	<i>Carex sp.</i>
A3	<i>Carya aquatica</i>
A3	<i>Celtis laevigata</i>
A3	<i>Celtis laevigata</i>
A3	<i>Cephalanthus occidentalis</i>
A3	<i>Crataegus sp.</i>
A3	<i>Fraxinus pennsylvanica</i>
A3	<i>Fraxinus sp.</i>
A3	<i>Hydrocotyle sp.</i>
A3	<i>Ilex decidua</i>
A3	<i>Liquidambar styraciflua</i>
A3	<i>Microstegium vimineum</i>
A3	<i>Nyssa biflora</i>
A3	<i>Onoclea sensibilis</i>
A3	<i>Osmunda regalis</i>
A3	<i>Panicum sp.</i>
A3	<i>Parthenocissus quinquefolia</i>
A3	<i>Polygonum sp.</i>
A3	<i>Populus heterophylla</i>
A3	<i>Quercus laurifolia</i>
A3	<i>Quercus lyrata</i>
A3	<i>Quercus phellos</i>
A3	<i>Rubus argutus</i>
A3	<i>Saururus cernuus</i>
A3	<i>Smilax sp.</i>
A3	<i>Taxodium ascendens</i>

Table B-2. Continued.

Sampling Location	Species
A3	<i>Toxicodendron radicans</i>
A3	Unknown <i>Asclepiadaceae</i>
A3	<i>Commelina virginica</i>
A3	Unknown <i>Cyperaceae</i>
A3	Unknown <i>Dicot Forb</i>
A3	Unknown <i>Poaceae</i>
A3	<i>Viola sp.</i>
A3	<i>Vitis aestivalis</i>
A3	<i>Vitis rotundifolia</i>
A5	<i>Acer negundo</i>
A5	<i>Ampelopsis arborea</i>
A5	<i>Asimina triloba</i>
A5	<i>Bignonia capreolata</i>
A5	<i>Boehmeria cylindrica</i>
A5	<i>Carex lupulina</i>
A5	<i>Carex sp.</i>
A5	<i>Celtis laevigata</i>
A5	<i>Ilex decidua</i>
A5	<i>Ligustrum sinense</i>
A5	<i>Ligustrum sinense</i>
A5	<i>Liquidambar styraciflua</i>
A5	<i>Microstegium vimineum</i>
A5	<i>Oxalis stricta</i>
A5	<i>Panicum sp.</i>
A5	<i>Parthenocissus quinquefolia</i>
A5	<i>Platanus occidentalis</i>
A5	<i>Polygonum sp.</i>
A5	<i>Quercus laurifolia</i>
A5	<i>Sanicula sp.</i>
A5	<i>Saururus cernuus</i>
A5	<i>Smilax sp.</i>
A5	<i>Solanum sp.</i>
A5	<i>Toxicodendron radicans</i>
A5	<i>Ulmus alata</i>
A5	Unknown <i>Cyperaceae</i>
A5	Unknown <i>Dicot Forb</i>
A5	<i>Viola sp.</i>
A5	<i>Vitis rotundifolia</i>
A6	<i>Acer rubrum</i>
A6	<i>Arisaema dracontium</i>
A6	<i>Arundinaria gigantea</i>
A6	<i>Asimina triloba</i>
A6	<i>Athyrium filix-femina</i>
A6	<i>Berchemia scandens</i>
A6	<i>Bignonia capreolata</i>
A6	<i>Boehmeria cylindrica</i>
A6	<i>Campsis radicans</i>
A6	<i>Carex glaucescens</i>
A6	<i>Carex sp.</i>
A6	<i>Carpinus caroliniana</i>
A6	<i>Carya sp.</i>
A6	<i>Celtis laevigata</i>
A6	<i>Crataegus sp.</i>
A6	<i>Dichanthelium sp.</i>
A6	<i>Fraxinus sp.</i>

Table B-2. Continued.

Sampling Location	Species
A6	<i>Galium sp.</i>
A6	<i>Ilex decidua</i>
A6	<i>Ilex opaca</i>
A6	<i>Liquidambar styraciflua</i>
A6	<i>Matelea sp.</i>
A6	<i>Melothria pendula</i>
A6	<i>Microstegium vimineum</i>
A6	<i>Mitchella repens</i>
A6	<i>Osmunda cinnamomea</i>
A6	<i>Ostrya virginiana</i>
A6	<i>Parthenocissus quinquefolia</i>
A6	<i>Passiflora lutea</i>
A6	<i>Polygonum sp.</i>
A6	<i>Populus heterophylla</i>
A6	<i>Quercus laurifolia</i>
A6	<i>Quercus lyrata</i>
A6	<i>Rhynchospora sp.</i>
A6	<i>Rubus argutus</i>
A6	<i>Sabal minor</i>
A6	<i>Sanicula canadensis</i>
A6	<i>Saururus cernuus</i>
A6	<i>Senecio sp.</i>
A6	<i>Smilax sp.</i>
A6	<i>Toxicodendron radicans</i>
A6	<i>Ulmus americana</i>
A6	<i>Commelina virginica</i>
A6	Unknown Dicot Forb
A6	Unknown Poaceae
A6	<i>Viola sp.</i>
A6	<i>Vitis rotundifolia</i>
A7	<i>Acer negundo</i>
A7	<i>Acer rubrum</i>
A7	<i>Acer saccharinum</i>
A7	<i>Arisaema dracontium</i>
A7	<i>Asimina triloba</i>
A7	<i>Asplenium platyneuron</i>
A7	<i>Bignonia capreolata</i>
A7	<i>Boehmeria cylindrica</i>
A7	<i>Carex lupulina</i>
A7	<i>Carex sp.</i>
A7	<i>Celtis laevigata</i>
A7	<i>Fraxinus pennsylvanica</i>
A7	<i>Ilex decidua</i>
A7	<i>Impatiens capensis</i>
A7	<i>Ligustrum sinense</i>
A7	<i>Lindera benzoin</i>
A7	<i>Liquidambar styraciflua</i>
A7	<i>Matelea gonocarpus</i>
A7	<i>Parthenocissus quinquefolia</i>
A7	<i>Platanus occidentalis</i>
A7	<i>Polygonum sp.</i>
A7	<i>Populus heterophylla</i>
A7	<i>Rhynchospora sp.</i>
A7	<i>Sanicula canadensis</i>
A7	<i>Smilax sp.</i>

Table B-2. Continued.

Sampling Location	Species
A7	<i>Toxicodendron radicans</i>
A7	Unknown Apiaceae
A7	Unknown Cyperaceae
A7	Unknown Dicot Forb
A7	<i>Viola sp.</i>
A7	<i>Vitis aestivalis</i>
A7	<i>Vitis rotundifolia</i>
A8	<i>Acalypha gracilens</i>
A8	<i>Acer negundo</i>
A8	<i>Acer saccharinum</i>
A8	<i>Ampelopsis arborea</i>
A8	<i>Arundinaria gigantea</i>
A8	<i>Asimina triloba</i>
A8	<i>Bignonia capreolata</i>
A8	<i>Boehmeria cylindrica</i>
A8	<i>Carex lupulina</i>
A8	<i>Carex sp.</i>
A8	<i>Carpinus caroliniana</i>
A8	<i>Carya aquatica</i>
A8	<i>Celtis laevigata</i>
A8	<i>Chasmanthium latifolium</i>
A8	<i>Commelina sp.</i>
A8	<i>Fraxinus pennsylvanica</i>
A8	<i>Ilex decidua</i>
A8	<i>Ilex opaca</i>
A8	<i>Impatiens capensis</i>
A8	<i>Ligustrum sinense</i>
A8	<i>Lindera benzoin</i>
A8	<i>Liquidambar styraciflua</i>
A8	<i>Liriope muscari</i>
A8	<i>Matelea gonocarpus</i>
A8	<i>Microstegium vimineum</i>
A8	<i>Panicum sp.</i>
A8	<i>Parthenocissus quinquefolia</i>
A8	<i>Platanus occidentalis</i>
A8	<i>Polygonum sp.</i>
A8	<i>Populus deltoides</i>
A8	<i>Rhynchospora sp.</i>
A8	<i>Rubus argutus</i>
A8	<i>Saururus cernuus</i>
A8	<i>Smilax sp.</i>
A8	<i>Toxicodendron radicans</i>
A8	<i>Ulmus alata</i>
A8	<i>Ulmus americana</i>
A8	Unknown Apiaceae
A8	Unknown Dicot Forb
A8	Unknown Poaceae
A8	<i>Viola sp.</i>
A8	<i>Vitis rotundifolia</i>
A9	<i>Acer rubrum</i>
A9	<i>Boehmeria cylindrica</i>
A9	<i>Erechtites hieraciifolia</i>
A9	<i>Fraxinus sp.</i>
A9	<i>Itea virginica</i>
A9	<i>Ludwigia sp.</i>

Table B-2. Continued.

Sampling Location	Species
A9	<i>Lycopus sp.</i>
A9	<i>Nyssa aquatica</i>
A9	<i>Quercus lyrata</i>
A9	<i>Saururus cernuus</i>
A9	<i>Taxodium ascendens</i>
A9	<i>Toxicodendron radicans</i>
A9	<i>Triadenum walteri</i>
A9	<i>Ulmus americana</i>
A10	<i>Acer negundo</i>
A10	<i>Acer rubrum</i>
A10	<i>Arundinaria gigantea</i>
A10	<i>Asimina triloba</i>
A10	<i>Bignonia capreolata</i>
A10	<i>Boehmeria cylindrica</i>
A10	<i>Carex lupulina</i>
A10	<i>Carpinus caroliniana</i>
A10	<i>Carya ovata</i>
A10	<i>Celtis laevigata</i>
A10	<i>Crataegus sp.</i>
A10	<i>Fraxinus pennsylvanica</i>
A10	<i>Ilex decidua</i>
A10	<i>Ilex opaca</i>
A10	<i>Impatiens capensis</i>
A10	<i>Liquidambar styraciflua</i>
A10	<i>Microstegium vimineum</i>
A10	<i>Morus rubra</i>
A10	<i>Onoclea sensibilis</i>
A10	<i>Parthenocissus quinquefolia</i>
A10	<i>Populus heterophylla</i>
A10	<i>Quercus michauxii</i>
A10	<i>Saururus cernuus</i>
A10	<i>Senecio glabellum</i>
A10	<i>Smilax bona-nox</i>
A10	<i>Smilax sp.</i>
A10	<i>Toxicodendron radicans</i>
A10	<i>Unknown Cyperaceae</i>
A10	<i>Unknown Poaceae</i>
A10	<i>Viola sp.</i>
A10	<i>Vitis rotundifolia</i>