National Park Service
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Natural Resource Stewardship and Science

Vegetation Community Monitoring at Congaree National Park

2014 Data Summary

Natural Resource Data Series NPS/SECN/NRDS—2016/1016

ON THIS PAGE
Tiny, bright yellow blossoms of *Hypoxis hirsuta* grace the forest floor at Congaree National Park.
Photograph courtesy of Sarah C. Heath, Southeast Coast Network.

ON THE COVER
Spiraling compound leaf of green dragon (*Arisaema dracontium*) at Congaree National Park.
Photograph courtesy of Sarah C. Heath, Southeast Coast Network

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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. These reports are 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.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

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.

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.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

This report is available from the Southeast Coast Network website (http://science.nature.nps.gov/im/units/secn) and the Natural Resource Publications Management website (http://www.nature.nps.gov/publications/nrpm/). To receive this report in a format optimized for screen readers, please email irma@nps.gov.

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Executive Summary

In 2009, the Southeast Coast Network (SECN) of the National Park Service (NPS) Inventory and Monitoring Program began collecting vegetation community data as part of 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 hybrid methods following 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 2014.

- Data were collected at 22 sampling locations at the park from 11 June 2014 through 24 June 2014.
- Monitoring efforts resulted in the addition of two species, subspecies, or varieties to the park's species list.
- Absolute canopy cover across the park was approximately 87.43%.
- Pawpaw (*Asimina triloba*) had the highest relative cover in the shrub stratum.
- Possumhaw (*Ilex decidua*) had the second highest relative cover in the shrub stratum.
- Green ash (*Fraxinus pennsylvanica*) had the highest relative cover, while caric sedges (*Carex* spp.) had the second highest relative cover in the groundcover stratum.
- Green ash and caric sedges also had the highest and the second highest absolute cover in the groundcover stratum.
- Sweetgum (*Liquidambar styraciflua*) was the most frequently occurring species in the shrub stratum.
- Leaf litter was the most frequently occurring ground condition at the park, and also had the highest relative and absolute cover of any ground condition.
- Caric sedges, cross vine (*Bignonia capreolata*), green ash, and poison ivy (*Toxicodendron radicans*) were the most frequently occurring species in the groundcover stratum, respectively (Tables 6, 7).
- Baldcypress (*Taxodium distichum*) had the largest average diameter at breast height (DBH) of any canopy species at the park where more than two individuals were measured.
- Sweetgum (*Liquidambar styraciflua*) was the most frequently occurring tree species.
- Oaks (*Quercus* spp.) were the most frequently occurring dead snag species.
- Green ash had the highest estimated seedling density at the park.

The full dataset, and associated metadata, can be acquired from the data store at http://irma.nps.gov.

SECN botanist, Sarah Heath, gazes upward in a grove of water tupelo (*Nyssa aquatica*) at Congaree National Park. Photo courtesy of Briana Smrekar, SECN wildlife biologist.

List of Terms

Absolute cover: The total amount of ground surface that is covered by each species or group. This metric describes the amount of cover that each species or group represents in a stratum and is expressed as a percentage that can exceed 100% due to overlap. This metric is calculated as 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 four centimeters DBH and are measureable at breast height (1.4 meters [4.6 feet (ft)]).

Canopy stratum: The structural zone above 1.1 meters (3.6 ft; i.e., elbow height of a typical observer per densiometer instructions), which 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 meters (3.6 ft) in height, is detected by the densiometer, and contributes to canopy cover. This stratum can also be 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 was directly overhead. Cover is also known as foliar cover.

DBH: Diameter at breast height, or 1.4 meters (4.6 ft) above the ground surface.

Frequency: The number of times a species or group is detected in a plot, expressed as a percentage. This provides information on the regularity with 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 four centimeters (1.5 inches [in]) and seedlings 30 centimeters (11.8 in) 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. This metric describes the percentage of cover that each species represents out of the total vegetative cover in a stratum, is expressed as a percentage, and always sums to 100%. Relative cover is calculated as 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 centimeters (11.8 in) in height.

Shrub stratum: All woody species greater than 30 centimeters (11.8 in) in height with a DBH of less than 4 centimeters (1.5 in).

Stratum: A structural size category of vegetation at a site. These are the canopy, shrub, and groundcover layers.

Packera glabella (butterweed) is a common plant in full bloom in late spring/early summer at Congaree National Park. Photo courtesy of Casey Harris, former SECN terrestrial intern.

Introduction

Overview

Vegetation communities are the primary drivers of a range of ecological processes and are integral to the proper function of park ecosystems. Moreover, vegetation communities integrate the biological and physical environment. They serve as the foundation for food webs, provide wildlife habitat for many species, function as a carbon sink, produce oxygen, and cycle nutrients and energy through an ecosystem. Additionally, plants influence the local climate, improve water quality, and moderate flooding and erosion. 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 with constant changes in composition, cover, distribution, and structure in response to natural or anthropogenic stressors. Disturbance is the primary stressor and regulating mechanism of Southeast Coast Network (SECN) vegetation communities. The timing, type, and extent of a 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 park units are fire and weather (e.g., hurricanes and drought). Anthropogenic influences include fire suppression, landscape fragmentation, altered hydrology, and non-native species introduction.

The SECN park units host a diverse assemblage of vegetation communities. Approximately 180 vegetation associations (i.e., fine-resolution floristic descriptions), as defined by the National Vegetation and Classification System (FGDC 2008), occur in the network. These 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 park units and the importance of vegetation communities, quantifying trends in vegetation cover, frequency, diversity, and distribution is a high priority (DeVivo et al. 2008). An evaluation of trends in these metrics provides a measure for assessing ecological integrity and sustainability in southeastern systems and identifying the need for specific management activities on our park lands. The National Park Service (NPS) 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 vegetation community vital signs monitoring data collected at Congaree National Park (CONG) in June 2014.

Monitoring Objectives

To characterize the effects of landscape and local ecosystem drivers on vegetation communities, the SECN monitors several components of community structure, function, and composition. Each component illustrates community change dynamics, and data from the following five monitoring objectives are presented:

- Determine trends in plant species richness and diversity in the groundcover, shrub, and canopy strata.
- Determine trends in the percent cover of vegetation in the groundcover, shrub, and canopy strata.
- Determine trends in the frequency of species in the groundcover stratum.
- Determine trends in the diameter at breast height (DBH) of species in the canopy stratum.
- Determine trends in woody species seedling counts in the groundcover stratum.

Methods

Study Area

Congaree National Park is located in central South Carolina approximately 30 kilometers (18.6 miles [mi]) southeast of the capital city of Columbia (Figure 1). The 10,845-hectare (26,800-acre [ac]) park is bordered to the south by the Congaree River and to the east by the Wateree River. The park consists of 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 a phenomenal 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 (UNESCO 2005), National Natural Landmark (NNLP 2009), and State Important Bird Area (Audubon 2013), and it also includes a 6,075-hectare (15,010-ac) congressionally designated Wilderness Area (U. S. Statutes 1988; Federal Register 2014). Further, the park is renowned for its numerous national- and state-champion trees.

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

Congaree has 857 known vascular-plant species, subspecies, and varieties (NPSpecies 2016), including two species, subspecies, and varieties added to the species list based on these monitoring efforts (Appendix A, Table 2).

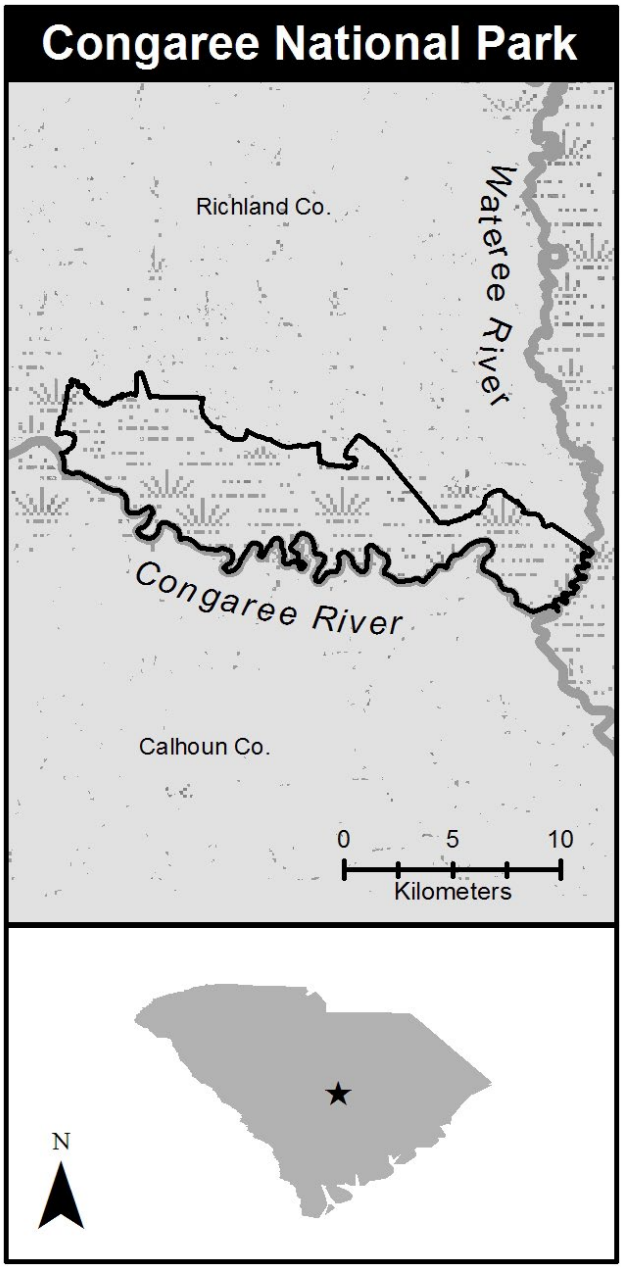

Figure 1. Location of Congaree National Park in South Carolina.

Sampling Design

To allow for park-wide inference, the park's administrative boundary was used as the sampling frame, in which 30 permanent spatially balanced random sampling locations were selected for monitoring vegetation, landbird, and vocal anuran communities. Sampling locations were selected using the Reversed Randomized Quadrant-Recursive Raster (RRQRR) algorithm (Figure2; Theobald et al. 2007 as presented in Byrne et al. 2013). All sampling locations occur within naturally vegetated areas suitable for co-located vital signs monitoring efforts (Byrne et al. 2013).

Vegetation communities were monitored at Congaree from 11 June 2014 through 24 June 2014.

Sampling Methodology

Vegetation community measures were divided into three strata based on height, canopy, shrub, and groundcover. Within each stratum, vegetation communities were sampled using hybrid methods following 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).

The plot layout consisted of a circular plot with a radius of 15 meters (49.2 feet [ft]) within each 0.5-hectare (1.2-ac) sampling location. 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 4 meters from the plot array (i.e., 0.5-hectare [1.2-ac] grid) center point and extended away from the center point. Canopy cover, shrub cover, DBH, canopy species seedling frequency, and

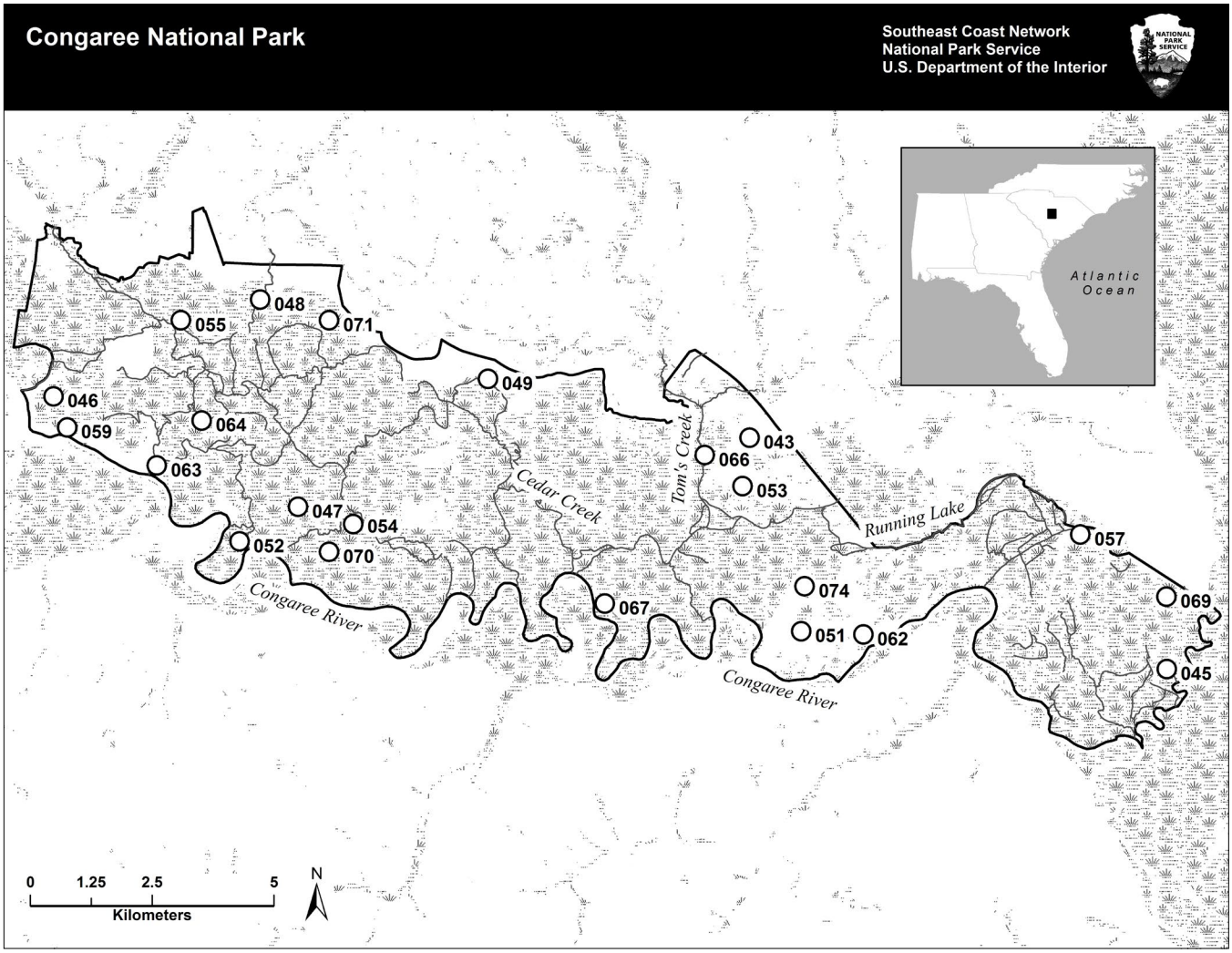

Figure 2. Spatially balanced random sampling locations at Congaree National Park in 2014.

herbaceous cover data were collected in the nested subplots within each plot. Canopy cover was measured from the center point of the 0.5-hectare (1.2-ac) sampling location. Shrub coverage was measured in two 2- by 4-meter (6.6- by 13.1-ft) shrub plots along each transect. Shrub plots were further subdivided into 2- by 2-meter (6.6- by 6.6-ft) subplots to improve cover estimation accuracy and precision (solid gray shading; Figure 3). Shrub and herbaceous cover was estimated in one of eight coverage classes (Table 1). Groundcover coverage, groundcover nested frequency, and seedling frequency were measured in two 1- by 1-meter (3.3- by 3.3-ft) groundcover plots (solid black shading; Figure 3) along each transect. Canopy species DBH was measured in three sections, each representing one-third 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-hectare (1.2-ac) sampling location. See Byrne and Corbett 2012; Byrne, Corbett, and Smrekar 2013; Corbett and Byrne 2012a; Corbett and Byrne 2012b; and Corbett 2013 for detailed field methods.

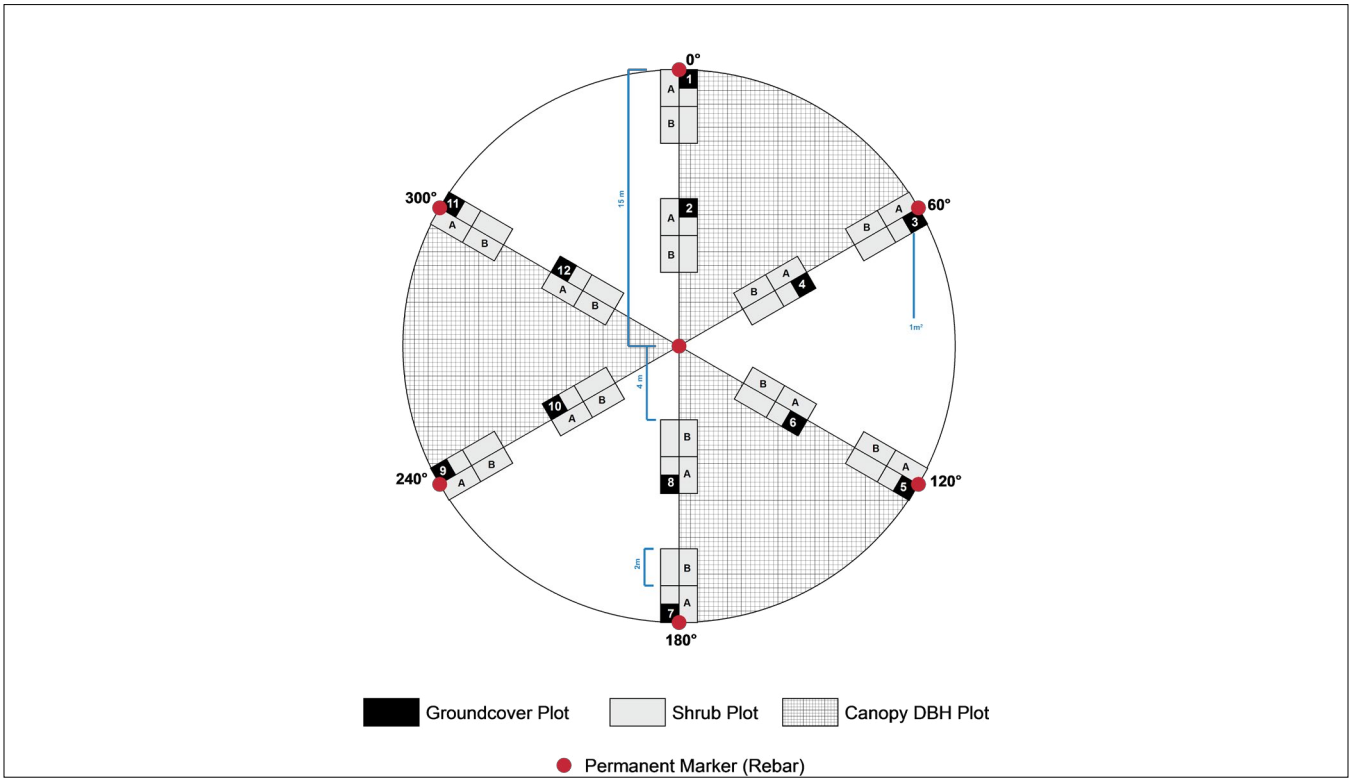

Figure 3. Southeast Coast Network vegetation community monitoring plot and subplot layout identifying the association of canopy cover, canopy diameter, shrub, and groundcover plots within a circular array. Although not depicted, the above array is positioned at the center point of each 0.5-hectare (1.2-ac) sampling location.

Table 1. Cover estimation coverage class, percent cover range, and value used for analyses.

Coverage Class	Percent Cover Range	Value Used for Analyses
0	0%	0
1	Trace (<1%)	0.5
2	1–5%	2.5
3	5–25%	15
4	25–50%	37.5
5	50–75%	62.5
6	75–95%	85
7	95–100%	97.5

Results

We detected 157 taxa during this monitoring effort (Appendix A, B), including two species, subspecies, and varieties not previously known to occur at the park (Table 2). We detected 69 occurrences with uncertain taxonomic affinity (Appendix B) that were identified only to genus, family, or a higher taxonomic level.

Highlights by monitoring objective include:

Plant species richness and diversity in the groundcover, shrub, and canopy strata.

- Two species new to the park species list were detected (Table 2).

Percent cover of vegetation in the groundcover, shrub, and canopy strata.

- Absolute canopy cover showed little variability across all sampling locations (mean = 87.43%, standard deviation [sd] = 1.17; Table 3).
- Possumhaw (*Ilex decidua*) was the most frequently occurring shrub species (relative frequency [f_i] = 54.55) and had the second highest relative cover of all shrub species (mean = 14.73%, sd = 19.64; Table 4). Pawpaw (*Asimina triloba*) had the highest relative cover of all shrub species (mean = 24.37%, sd = 38.19).
- Pawpaw had the highest absolute cover in the shrub stratum (mean = 5.80%, sd = 9.83; Table 5). Possumhaw had the second highest absolute cover (mean = 2.86%, SD = 4.03) in the shrub stratum (Table 5).
- Green ash (*Fraxinus pennsylvanica*) had the highest relative cover in the groundcover stratum (mean = 15.40%, sd = 18.05), followed by caric sedges (*Carex* spp.; mean = 13.72%, sd = 15.28; Table 6).
- Green ash also had the highest absolute cover (mean = 3.0%, sd = 4.16); caric sedges had the second highest absolute cover (mean = 2.66%, sd = 3.23; Table 7).
- Leaf litter was the most common ground condition, with a relative cover of 60.68% (sd 28.50; Table 8) and an absolute cover of 62.21% (sd 28.73; Table 9).

Frequency of species in the groundcover stratum.

- Caric sedges (f_i = 77.27), cross vine (*Bignonia capreolata*; f_i = 72.73), green ash (f_i = 72.73), and poison ivy (*Toxicodendron radicans*; f_i = 72.73) were the most frequently occurring species in the groundcover stratum, respectively (Tables 6, 7).
- Leaf litter was the most frequently occurring ground condition at the park (f_i = 100; Tables 8, 9).

DBH of canopy species.

- The largest tree species detected on average where more than one individual was measured was baldcypress (*Taxodium distichum*; mean = 45.95 cm, sd = 5.16; Table 10).
- The largest dead snag species detected on average where more than one individual was measured was oak (*Quercus* spp.) (mean = 45.95 cm, Table 11).

Woody species seedling counts in the groundcover stratum.

- Green ash had the highest estimated seedling density at the park (1.07/m^2, sd=1.25; Table 12) where more than one individual was measured.
- Jerusalem cherry (*Solanum psuedocapsicum*) seedlings were estimated at 0.22 per square meter (sd= 0.25; Table 12).

Table 2. New vascular plant species, subspecies, or varieties found at Congaree National Park in 2014.

Order	Family	Scientific Name	Nativity
Aquifoliales	Aquifoliaceae	*Ilex ambigua*	Native
Rosales	Urticaceae	*Parietaria floridana*	Native

Table 3. Average canopy cover for vegetation monitoring macroplots at Congaree National Park in 2014. Average canopy cover is based on data averaged across observers at each sampling location.

Sampling Location	Mean	Standard Deviation
CONG043	88.00	0.71
CONG045	85.25	3.89
CONG046	86.50	1.06
CONG047	88.75	0.71
CONG048	78.25	6.01
CONG049	83.25	0.71
CONG051	85.13	1.24
CONG052	87.13	1.24
CONG053	89.75	
CONG054	89.63	0.53
CONG055	88.38	0.18
CONG057	87.25	0.71
CONG059	91.00	
CONG062	87.88	0.18
CONG063	90.25	< 0.01
CONG064	89.75	< 0.01
CONG066	85.88	1.59
CONG067	88.38	1.24
CONG069	88.25	0.35
CONG070	91.88	1.59
CONG071	87.38	0.18
CONG074	85.63	1.24
Park Average	***87.43***	***1.17***

Table 4. Percentage of vegetation cover (relative cover) and relative frequency of occurrence of shrub species in vegetation monitoring sampling locations at Congaree National Park in 2014. Relative cover is averaged across shrub plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Taxon	f_i	mean	sd	043	045	046	047	048	049	051	052	053	054	055	057	059	062	063	064	066	067	069	070	071	074
Acer negundo	18.2	0.6	1.9							0.5	3.0				8.6								0.2		
Acer rubrum	27.3	5.1	14.2	5.0	1.9							23.1								64.1				9.0	8.4
Asimina triloba	36.4	24.4	38.2				86.9			0.5	41.0			98.7		74.8		58.7			99.6		75.9		
Callicarpa americana	4.5	0.6	2.8												12.9										
Carpinus caroliniana	31.8	5.3	14.7				3.4		65.0			4.6		1.3					26.0				1.5		15.8
Celtis laevigata	27.3	0.8	2.1				0.6								4.3		0.8	2.6					0.2		8.9
Cephalanthus occidentalis	4.5	0.1	0.3									1.5													
Cornus foemina	4.5	1.5	6.9																			32.2			
Crataegus marshallii	13.6	0.3	0.9								3.0												0.2		3.4
Crataegus sp.	13.6	1.8	6.1		27.8	8.5				3.6															
Cyrilla racemiflora	4.5	1.4	6.5					30.3																	
Decumaria barbara	4.5	0.3	1.5																					7.1	
Diospyros virginiana	4.5	1.4	6.4	30.0																					
Fraxinus pennsylvanica	40.9	4.4	8.7		11.1		0.6					9.2	33.3			0.7	9.3			23.1		0.4		9.4	
Hibiscus moscheutos	4.5	0.5	2.4		11.1																				
Ilex ambigua	9.1	3.9	16.8			79.0										7.0									
Ilex decidua	54.5	14.7	19.6		1.9		8.5		20.4	45.6	44.0	16.9	8.3		15.1		61.2	34.8					17.0		50.2
Ilex opaca	18.2	4.2	12.8	30.0				53.9								4.0								5.1	
Itea virginica	4.5	1.2	5.6																					26.2	
Leucothoe axillaris	4.5	0.7	3.2																					15.2	
Ligustrum sinense	22.7	1.2	4.2							0.5	5.6					0.3	19.4	0.4							
Lindera benzoin	9.1	0.3	1.3								0.4					6.3									
Liquidambar styraciflua	54.5	5.7	8.8	30.0				7.9		8.7		4.6	8.3		25.9		4.7		12.0	2.6		2.1	0.2	18.9	
Magnoliopsida	4.5	0.2	1.1																					5.1	
Nyssa aquatica	4.5	< 0.1	0.2						1.0																
Persea borbonia	4.5	0.1	0.2					1.1																	
Planera aquatica	22.7	4.8	14.2		13.0				1.0										62.0	2.6		26.2			
Populus heterophylla	4.5	1.8	8.3																			39.1			
Quercus laurifolia	36.4	2.9	6.2		11.1					24.6	0.4	9.2						0.4		2.6				2.0	13.3

Table 4 (continued). Percentage of vegetation cover (relative cover) and relative frequency of occurrence of shrub species in vegetation monitoring sampling locations at Congaree National Park in 2014. Relative cover is averaged across shrub plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	043	045	046	047	048	049	051	052	053	054	055	057	059	062	063	064	066	067	069	070	071	074
Quercus lyrata	9.1	0.7	2.4					6.7				9.2													
Quercus michauxii	13.6	0.5	1.6						1.0							7.0							3.0		
Quercus nigra	9.1	1.0	3.1						11.7						9.3										
Quercus phellos	4.5	0.6	2.7			12.5																			
Salix nigra	4.5	1.0	4.7		22.2																				
Solanum pseudocapsicum	9.1	0.2	0.7															3.0					1.5		
Taxodium ascendens	4.5	0.4	1.8										8.3												
Ulmus alata	4.5	1.1	5.1												23.9										
Ulmus rubra	40.9	4.3	10.0							15.9	2.6	21.5	41.7				4.7			5.1	0.4		0.2	2.0	
Vaccinium corymbosum	4.5	0.2	1.1	5																					

Table 5. Percentage of area covered (absolute cover) and frequency of occurrence of shrub species sampled in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across shrub plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Taxon	f_i	mean	sd	043	045	046	047	048	049	051	052	053	054	055	057	059	062	063	064	066	067	069	070	071	074
Acer negundo	18.2	0.1	0.3							0.1	0.7				1.3								0.1		
Acer rubrum	27.3	0.5	1.1	0.1	0.1							3.1								2.6				3.3	1.8
Asimina triloba	36.4	5.8	9.8				16.0			0.1	10.0			8.0		23.4		14.1			24.0		32.1		
Callicarpa americana	4.5	0.1	0.4												1.9										
Carpinus caroliniana	31.8	0.6	1.6				0.6		7.0			0.6		0.1					1.4				0.6		3.3
Celtis laevigata	27.3	0.2	0.4				0.1								0.6		0.1	0.6					0.1		1.9
Cephalanthus occidentalis	4.5	< 0.1	< 0.1									0.2													
Cornus foemina	4.5	0.1	0.3																			1.6			
Crataegus marshallii	13.6	0.1	0.2								0.7												0.1		0.7
Crataegus sp.	13.6	0.2	0.5		1.6	1.6				0.7															
Cyrilla racemiflora	4.5	0.1	0.6					2.8																	
Decumaria barbara	4.5	0.1	0.6																					2.6	
Diospyros virginiana	4.5	< 0.1	0.1	0.6																					
Fraxinus pennsylvanica	40.9	0.4	0.8		0.6		0.1					1.3	0.4			0.2	1.3			0.9		< 0.1		3.5	
Hibiscus moscheutos	4.5	< 0.1	0.1		0.6																				
Ilex ambigua	9.1	0.8	3.1			14.5										2.2									
Ilex decidua	54.5	2.9	4.0		0.1		1.6		2.2	9.3	10.7	2.3	0.1		2.2		8.2	8.3					7.2		10.6
Ilex opaca	18.2	0.4	1.1	0.6				5.0								1.3								1.9	
Itea virginica	4.5	0.4	2.1																					9.7	
Leucothoe axillaris	4.5	0.3	1.2																					5.6	
Ligustrum sinense	22.7	0.2	0.6							0.1	1.4					0.1	2.6	0.1							
Lindera benzoin	9.1	0.1	0.4								0.1					2.0									
Liquidambar styraciflua	54.5	0.7	1.6	0.6				0.7		1.8		0.6	0.1		3.8		0.6		0.6	0.1		0.1	0.1	7.0	
Magnoliopsida	4.5	0.1	0.4																					1.9	
Nyssa aquatica	4.5	< 0.1	< 0.1						0.1																
Persea borbonia	4.5	< 0.1	< 0.1					0.1																	
Planera aquatica	22.7	0.2	0.7		0.7				0.1										3.2	0.1		1.3			
Populus heterophylla	4.5	0.1	0.4																			1.9			
Quercus laurifolia	36.4	0.5	1.2		0.6					5.0	0.1	1.3						0.1		0.1				0.7	2.8

Table 5 (continued). Percentage of area covered (absolute cover) and frequency of occurrence of shrub species sampled in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across shrub plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	043	045	046	047	048	049	051	052	053	054	055	057	059	062	063	064	066	067	069	070	071	074
Quercus lyrata	9.1	0.1	0.3					0.6				1.3													
Quercus michauxii	13.6	0.2	0.5						0.1							2.2							1.3		
Quercus nigra	9.1	0.1	0.4						1.3						1.4										
Quercus phellos	4.5	0.1	0.5			2.3																			
Salix nigra	4.5	0.1	0.3		1.3																				
Solanum pseudocapsicum	9.1	0.1	0.2															0.7					0.6		
Taxodium ascendens	4.5	< 0.1	< 0.1										0.1												
Ulmus alata	4.5	0.2	0.7												3.5										
Ulmus rubra	40.9	0.4	0.9							3.2	0.6	2.9	0.5				0.6			0.2	0.1		0.1	0.7	
Vaccinium corymbosum	4.5	< 0.1	< 0.1	0.1																					

Table 6. Percentage of vegetation cover (relative cover) and frequency of occurrence of groundcover species in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Acer negundo	27.3	0.6	1.1	3.1		3.8									1.4	1.9					0.4		2.3		
Acer rubrum	40.9	3.7	7.7	20.5	2.7		1.3	5.3	4.4			30.2		0.4										11.2	5.1
Ambrosia artemisiifolia	4.5	< 0.1	0.1														0.3								
Ampelopsis arborea	18.2	0.4	1.3								6.0	1.2						0.5				0.9			
Apocynum cannabinum	4.5	< 0.1	0.1																					0.3	
Arisaema dracontium	4.5	0.1	0.4																		1.9				
Arisaema triphyllum	9.1	< 0.1	0.2												0.2						0.7				
Arundinaria gigantea	40.9	6.8	11.9		33.3		6.5	30.2		12.5		36.2		17.2	0.2	12.9							0.4		
Asimina triloba	9.1	0.3	1.0															1.3			4.3				
Asplenium platyneuron	4.5	< 0.1	< 0.1												0.2										
Bacopa sp.	4.5	< 1.0	0.1																					0.3	
Berchemia scandens	13.6	0.3	0.9									1.2						0.5							4.3
Bignonia capreolata	72.7	5.2	6.9	0.4			6.5	0.3	0.6	4.7	22.1			8.2	4.2	6.9	10.1	1.0		0.9	19.4		17.9	1.8	10.2
Boehmeria cylindrica	36.4	1.0	2.1				3.8			0.1	7.0				0.3		1.6			6.2			2.5		0.7
Callicarpa americana	4.5	< 0.1	0.2						0.8																
Campsis radicans	50.0	3.2	5.2			16.3			0.6	6.8		7.0			1.3		10.3	2.9		16.8	5.8	1.9			0.7
Carex sp.	77.3	13.7	15.3	19.8		27.2	3.9	10.3	7.5	20.3	14.3	1.2		41.2	2.9	1.9	16.0	24.5	55.6		6.1		35.0	14.4	
Carpinus caroliniana	9.1	0.2	0.8					0.4	3.9																
Celtis laevigata	59.1	2.1	4.9			2.7	4.5	0.4		0.4	7.4			1.2	0.5	1.4	0.3	1.3	22.2		0.1		2.8		
Chasmanthium latifolium	9.1	0.3	1.1													5.2				1.8					
Chasmanthium sessiliflorum	22.7	0.9	2.2								9.2				1.5	5.2	0.3	2.9							
Clematis sp.	4.5	< 0.1	0.1											0.4											
Cocculus carolinus	13.6	0.2	0.6												0.2		0.3	2.9							
Crataegus marshallii	4.5	0.1	0.7							3.2															
Decumaria barbara	4.5	0.5	2.5																					11.7	
Dichanthelium sp.	22.7	0.7	1.5	3.1				2.6	5.3	3.1					2.0										
Dichondra carolinensis	4.5	0.1	0.3												1.5										
Dioscorea villosa	9.1	0.1	0.6	2.6				0.3																	
Elymus sp.	13.6	0.2	0.7													0.9					1.9		2.5		
Erechtites hieraciifolia	4.5	< 0.1	0.1												0.4										

Table 6 (continued). Percentage of vegetation cover (relative cover) and frequency of occurrence of groundcover species in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Euonymus americanus	9.1	0.1	0.3	0.5					1.3																
Fraxinus pennsylvanica	72.7	15.4	18.0			28.3	44.6		18.5	1.2	2.8		32.1	18.6	3.5	52.2	9.9	41.9	22.2		48.5	9.1		0.4	5.1
Galium sp.	4.5	< 0.1	< 0.1												0.2										
Gelsemium sempervirens	13.6	0.1	0.3	0.4				0.3							1.3										
Hydrocotyle umbellata	9.1	0.1	0.6										0.2											2.7	
Hypoxis hirsuta	9.1	0.3	1.1					3.9	3.8																
Ilex ambigua	9.1	0.2	0.6			2.7								0.7											
Ilex decidua	27.3	1.0	2.5		2.7					3.6	1.2		1.2		1.5		11.2								
Ilex opaca	9.1	0.5	2.1	0.4				10.0																	
Ilex sp.	4.5	0.2	0.9																					4.2	
Justicia ovata	4.5	0.2	0.8						3.8																
Leucothoe axillaris	4.5	0.3	1.3																					6.3	
Ligustrum sinense	9.1	0.1	0.2														0.5						0.8		
Lindera benzoin	4.5	0.1	0.3													1.4									
Liquidambar styraciflua	18.2	0.5	1.4	0.2	3.6			1.2												5.5					
Lonicera japonica	13.6	0.4	1.2						3.8						4.2									1.8	
Lygodium japonicum	4.5	< 0.1	0.1																					0.3	
Magnoliopsida	22.7	0.6	1.3						2.5			4.6					2.2	3.4					0.4		
Microstegium vimineum	22.7	0.5	1.2				4.0				3.2					0.9		0.1					2.5		
Mitchella repens	18.2	0.8	2.0	3.5				8.0	4.4					2.1											
Nyssa aquatica	9.1	1.0	3.7						4.4											16.9					
Oxalis stricta	9.1	0.3	1.2												5.5		0.3								
Packera glabella	4.5	0.2	1.2				5.4																		
Parietaria floridana	4.5	0.1	0.4																					1.8	
Parthenocissus quinquefolia	54.5	2.8	3.7	7.1						3.1		7.0		0.7	8.4	0.9	1.6	2.9			10.0		9.3	1.8	9.4
Pinus taeda	9.1	< 0.1	0.1	0.2				0.3																	
Planera aquatica	4.5	< 0.1	0.2		0.9																				
Poaceae	18.2	0.2	0.6	0.4											1.3						0.3		2.5		
Polygonum sp.	22.7	0.4	1.1								1.0				0.9					0.9			5.0		

Table 6 (continued). Percentage of vegetation cover (relative cover) and frequency of occurrence of groundcover species in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Populus heterophylla	4.5	1.0	4.7																			21.9			
Prenanthes sp.	4.5	< 0.1	< 0.1	0.1																					
Quercus laurifolia	9.1	0.1	0.2											0.4											0.9
Quercus nigra	4.5	0.1	0.6		2.7																				
Quercus sp.	9.1	< 0.1	0.2	0.9			0.2																		
Rhynchospora sp.	22.7	3.3	7.9					4.8	0.6	22.9							24.6								20.2
Rubus cuneifolius	4.5	0.2	0.8																					3.9	
Rubus trivialis	27.3	0.9	3.2	0.5		1.4		0.3							15.0		2.2					0.9			
Ruellia caroliniensis	4.5	< 0.1	< 0.1												0.2										
Sambucus canadensis	4.5	0.3	1.6				7.6																		
Sanicula canadensis	4.5	0.2	0.9												4.4										
Saururus cernuus	31.8	2.9	7.2		13.3				18.8		1.2		27.4									1.9	0.4	0.3	
Smilax bona-nox	4.5	0.3	1.6						7.5																
Smilax laurifolia	4.5	0.3	1.6																					7.5	
Smilax rotundifolia	50.0	5.3	8.9	10.1	13.3			6.2		17.8	3.0	10.4			6.8		1.9			37.9		4.6	5.4		
Smilax sp.	27.3	2.3	5.4			17.7							0.8	4.4		0.9		8.7							18.0
Solanum pseudocapsicum	9.1	0.1	0.5															0.6					2.5		
Solidago sp.	4.5	< 0.1	0.2																						0.7
Stellaria media	4.5	< 0.1	< 0.1												0.2										
Taxodium ascendens	13.6	1.7	6.7										31.3									1.1		4.1	
Taxodium distichum	4.5	< 0.1	0.2						0.8																
Thelypteris sp.	4.5	0.1	0.4					1.9																	
Toxicodendron radicans	72.7	4.0	5.7	11.5	13.3		3.8	2.6			3.2	1.2	0.8	0.7	8.8	1.7	1.6	0.5		7.9	0.3		6.7		22.4
Ulmus alata	9.1	0.1	0.4						2.0						0.3										
Ulmus rubra	27.3	3.0	12.3		0.9					0.2			5.6									57.6	0.5	0.5	
Viola sp.	54.5	1.3	2.0	3.5			7.7		0.6		2.0		0.8	3.2	0.4	0.9	1.1	0.5		5.3					2.3
Vitis aestivalis	9.1	0.7	2.8		13.3												1.6								
Vitis rotundifolia	54.5	3.2	5.4	11.0				6.7	4.4		16.3			0.4	18.8	5.2	2.2	3.8			0.1		0.4	2.1	
Woodwardia areolata	13.6	1.2	4.9					4.2							0.2									22.7	

Table 7. Percentage of area covered (absolute cover) and frequency of occurrence of groundcover species sampled in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Acer negundo	27.3	0.1	0.2	0.7		0.3									0.6	0.2					0.1		0.6		
Acer rubrum	40.9	0.7	1.4	4.9	0.1		0.3	1.7	0.7			2.7		0.1										3.9	0.7
Ambrosia artemisiifolia	4.5	< 0.1	< 0.1														0.1								
Ampelopsis arborea	18.2	< 0.1	0.1								0.6	0.1						0.1				0.1			
Apocynum cannabinum	4.5	< 0.1	< 0.1																					0.1	
Arisaema dracontium	4.5	< 0.1	0.1																		0.6				
Arisaema triphyllum	9.1	< 0.1	0.1												0.1						0.2				
Arundinaria gigantea	40.9	1.1	2.3		1.6		1.3	9.8		2.5		3.3		5.0	0.1	1.6							0.1		
Asimina triloba	9.1	0.1	0.3															0.3			1.4				
Asplenium platyneuron	4.5	< 0.1	< 0.1												0.1										
Bacopa sp.	4.5	< 0.1	< 0.1																					0.1	
Berchemia scandens	13.6	< 0.1	0.1									0.1						0.1							0.6
Bignonia capreolata	72.7	1.2	1.7	0.1			1.3	0.1	0.1	0.9	2.3			2.4	2.0	0.8	3.9	0.2		0.1	6.3		4.5	0.6	1.5
Boehmeria cylindrica	36.4	0.2	0.3				0.7			< 0.1	0.7				0.1		0.6			0.7			0.6		0.1
Callicarpa americana	4.5	< 0.1	< 0.1						0.1																
Campsis radicans	50.0	0.6	1.0			1.3			0.1	1.4		0.6			0.6		4.0	0.6		2.0	1.9	0.2			0.1
Carex sp.	77.3	2.7	3.2	4.7		2.1	0.8	3.3	1.3	4.1	1.5	0.1		12.0	1.4	0.2	6.1	5.3	0.1		2.0		8.8	5.0	
Carpinus caroliniana	9.1	< 0.1	0.1					0.1	0.6																
Celtis laevigata	59.1	0.2	0.3			0.2	0.9	0.1		0.1	0.8			0.4	0.3	0.2	0.1	0.3	< 0.1		< 0.1		0.7		
Chasmanthium latifolium	9.1	< 0.1	0.1													0.6				0.2					
Chasmanthium sessiliflorum	22.7	0.1	0.3								1.0				0.7	0.6	0.1	0.6							
Clematis sp.	4.5	< 0.1	< 0.1											0.1											
Cocculus carolinus	13.6	< 0.1	0.1												0.1		0.1	0.6							
Crataegus marshallii	4.5	< 0.1	0.1							0.6															
Decumaria barbara	4.5	0.2	0.9																					4.5	
Dichanthelium sp.	22.7	0.2	0.3	0.7				0.8	0.9	0.6					0.9										
Dichondra carolinensis	4.5	< 0.1	0.2												0.7										
Dioscorea villosa	9.1	< 0.1	0.1	0.6				0.1																	
Elymus sp.	13.6	0.1	0.2													0.1					0.6		0.6		
Erechtites hieraciifolia	4.5	< 0.1	< 0.1												0.2										

Table 7 (continued). Percentage of area covered (absolute cover) and frequency of occurrence of groundcover species sampled in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Euonymus americanus	9.1	< 0.1	0.1	0.1					0.2																
Fraxinus pennsylvanica	72.7	3.0	4.2			2.6	8.9		3.1	0.3	0.3		5.0	6.8	1.7	6.3	4.0	9.5	< 0.1		15.6	1.0		0.1	0.7
Galium sp.	4.5	< 0.1	< 0.1												0.1										
Gelsemium sempervirens	13.6	< 0.1	0.1	0.1				0.1							0.6										
Hydrocotyle umbellata	9.1	< 0.1	0.2										< 0.1											0.9	
Hypoxis hirsuta	9.1	0.1	0.3					1.3	0.6																
Ilex ambigua	9.1	< 0.1	0.1			0.2								0.2											
Ilex decidua	27.3	0.3	1.0		0.1					0.7	0.1		0.2		0.7		4.5								
Ilex opaca	9.1	0.2	0.7	0.1				3.2																	
Ilex sp.	4.5	0.1	0.3																					1.5	
Justicia ovata	4.5	< 0.1	0.1						0.6																
Leucothoe axillaris	4.5	0.1	0.5																					2.2	
Ligustrum sinense	9.1	< 0.1	0.1														0.2						0.2		
Lindera benzoin	4.5	< 0.1	< 0.1													0.2									
Liquidambar styraciflua	18.2	0.1	0.2	< 0.1	0.2			0.4												0.6					
Lonicera japonica	13.6	0.1	0.4						0.6						2.0									0.6	
Lygodium japonicum	4.5	< 0.1	< 0.1																					0.1	
Magnoliopsida	22.7	0.1	0.2						0.4			0.4					0.8	0.7					0.1		
Microstegium vimineum	22.7	0.1	0.2				0.8				0.3					0.1		< 0.1					0.6		
Mitchella repens	18.2	0.2	0.6	0.8				2.6	0.7					0.6											
Nyssa aquatica	9.1	0.1	0.4						0.7											2.0					
Oxalis stricta	9.1	0.1	0.6												2.6		0.1								
Packera glabella	4.5	< 0.1	0.2				1.0																		
Parietaria floridana	4.5	< 0.1	0.1																					0.6	
Parthenocissus quinquefolia	54.5	0.7	1.1	1.7						0.6		0.6		0.2	4.0	0.1	0.6	0.6			3.2		2.3	0.6	1.4
Pinus taeda	9.1	< 0.1	< 0.1	< 0.1				0.1																	
Planera aquatica	4.5	< 0.1	< 0.1		< 0.1																				
Poaceae	18.2	0.1	0.2	0.1											0.6						0.1		0.6		
Polygonum sp.	22.7	0.1	0.3								0.1				0.1					0.1			1.3		

Table 7 (continued). Percentage of area covered (absolute cover) and frequency of occurrence of groundcover species sampled in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns indicate sampling location.

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Populus heterophylla	4.5	0.1	0.5																			2.5			
Prenanthes sp.	4.5	< 0.1	< 0.1	< 0.1																					
Quercus laurifolia	9.1	< 0.1	< 0.1											0.1											0.1
Quercus nigra	4.5	< 0.1	< 0.1		0.1																				
Quercus sp.	9.1	< 0.1	< 0.1	0.2			< 0.1																		
Rhynchospora sp.	22.7	0.9	2.3					3.1	0.1	4.6							9.5								2.9
Rubus cuneifolius	4.5	0.1	0.3																					1.4	
Rubus trivialis	27.3	0.4	1.5	0.1		0.1		0.1							7.1		0.8					0.1			
Ruellia caroliniensis	4.5	< 0.1	< 0.1												0.1										
Sambucus canadensis	4.5	0.1	0.3				1.5																		
Sanicula canadensis	4.5	0.1	0.4												2.1										
Saururus cernuus	31.8	0.4	1.0		0.6				3.1		0.1		3.8									0.2	0.1	0.1	
Smilax bona-nox	4.5	0.1	0.3						1.3																
Smilax laurifolia	4.5	0.1	0.6																					2.6	
Smilax rotundifolia	50.0	0.9	1.4	2.4	0.6			2.0		3.6	0.3	0.9			3.2		0.7			4.5		0.5	1.4		
Smilax sp.	27.3	0.3	0.7			1.4							0.1	1.3		0.1		1.9							2.6
Solanum pseudocapsicum	9.1	< 0.1	0.1															0.1					0.7		
Solidago sp.	4.5	< 0.1	< 0.1																						0.1
Stellaria media	4.5	< 0.1	< 0.1												0.1										
Taxodium ascendens	13.6	0.3	0.9										4.3									0.1		1.4	
Taxodium distichum	4.5	< 0.1	< 0.1						0.1																
Thelypteris sp.	4.5	< 0.1	0.1					0.6																	
Toxicodendron radicans	72.7	0.8	1.2	2.7	0.6		0.7	0.8			0.3	0.1	0.1	0.2	4.2	0.2	0.6	0.1		0.9	0.1		1.7		3.2
Ulmus alata	9.1	< 0.1	0.1						0.3						0.1										
Ulmus rubra	27.3	0.4	1.5		< 0.1					< 0.1			0.8									7.0	0.1	0.2	
Viola sp.	54.5	0.2	0.4	0.8			1.5		0.1		0.2		0.1	0.9	0.2	0.1	0.4	0.1		0.6					0.3
Vitis aestivalis	9.1	0.1	0.2		0.6												0.6								
Vitis rotundifolia	54.5	0.9	1.9	2.6				2.2	0.7		1.7			0.1	8.9	0.6	0.8	0.8			< 0.1		0.1	0.7	
Woodwardia areolata	13.6	0.4	1.7					1.4							0.1									7.9	

Table 8. Percentage of ground condition types (relative cover) and frequency of occurrence of ground condition types in vegetation monitoring sampling locations at Congaree National Park in 2014**.** Relative cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Ground Condition	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Bare Ground	95.5	23.7	19.7	6.4	49.1	4.8	52.6	7.0	37.1	2.8	29.6	49.4	35.5	25.6	2.5	21.9	29.1	39.1	8.4		6.7	54.8	6.0	1.4	50.7
Exposed Humus	22.7	6.7	17.9		15.1			1.2	8.5											63.3				58.3	
Leaf Litter/Duff	100.0	60.7	28.5	89.9	11.8	95.2	44.7	90.6	44.3	95.7	60.3	41.1	64.5	73.2	86.2	78.1	70.9	60.9	8.4	15.8	92.1	45.2	92.8	26.4	47.0
Open Water	22.7	6.3	18.2		24.1				8.5			8.3							83.2	15.1					
Tree Base	45.5	2.1	3.4	3.7			2.7			1.5	9.5	1.3			10.1					5.8			1.2	9.0	1.1
Upland Non-Vascular/ Lichen	36.4	0.6	1.1					1.2	1.5		0.6			1.2	1.2						1.2			4.9	1.1

Table 9. Percentage of ground condition types (absolute cover) and frequency of occurrence of ground condition types in vegetation monitoring sampling locations at Congaree National Park in 2014. Absolute cover is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Ground Condition	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Bare Ground	95.5	24.7	21.0	6.5	49.6	4.8	60.0	7.1	35.4	2.7	31.7	48.3	36.3	26.9	2.5	23.1	30.6	43.5	8.3		6.7	55.8	6.0	1.3	56.9
Exposed Humus	22.7	6.6	17.9		15.2			1.3	8.1											68.3				52.5	
Leaf Litter/Duff	100.0	62.2	28.7	91.3	11.9	94.4	51.0	92.3	42.3	92.3	64.6	40.2	65.8	76.7	87.5	82.5	74.6	67.7	8.3	17.1	92.3	46.0	93.3	23.8	52.7
Open Water	22.7	6.3	18.1		24.4				8.1			8.1							82.5	16.3					
Tree Base	45.5	2.1	3.4	3.8			3.1			1.5	10.2	1.3			10.2					6.3			1.3	8.1	1.3
Upland Non-Vascular/Lichen	36.4	0.6	1.0					1.3	1.5		0.6			1.3	1.3						1.3			4.4	1.3

Table 10a. Average canopy species size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual trees measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 43–55).

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55
Acer negundo	45.5	16.1	5.1		5.30 (1)		26.70 (1)			6.10 (1)	12.86 (5)			
Acer rubrum	68.2	16.3	9.8	15.44 (9)	16.65 (2)			8.05 (2)	6.70 (1)			11.06 (36)	25.20 (1)	47.50 (1)
Asimina triloba	27.3	5.1	1.0				4.10 (2)				5.97 (3)			
Berchemia scandens	4.5	5.0												
Campsis radicans	22.7	6.1	1.5	5.40 (1)		5.85 (2)				5.30 (1)				
Carpinus caroliniana	31.8	8.9	3.9	8.10 (12)				5.80 (1)	5.77 (7)					10.01 (8)
Carya alba	4.5	16.5												16.50 (1)
Carya aquatica	4.5	5.3	0.4		5.25 (2)									
Carya sp.	4.5	55.3												
Celtis laevigata	45.5	18.0	7.2		9.98 (5)	9.70 (2)	19.03 (4)			4.00 (1)				40.37 (3)
Crataegus sp.	13.6	5.8	1.2							5.17 (3)				
Cyrilla racemiflora	4.5	4.0						4.00 (1)						
Fraxinus pennsylvanica	68.2	26.2	9.8			25.20 (2)	67.90 (2)		23.50 (3)	17.70 (29)		11.56 (15)		32.30 (1)
Ilex ambigua	13.6	5.5	1.4			5.58 (34)								5.20 (2)
Ilex decidua	40.9	6.0	1.5		8.08 (5)		6.33 (4)			4.33 (3)	6.92 (5)		5.56 (7)	
Ilex opaca	18.2	8.7	4.5	5.29 (9)				8.16 (10)						
Liquidambar styraciflua	86.4	27.5	10.9	14.95 (33)		79.75 (2)	38.00 (4)	19.90 (1)	12.75 (2)	11.77 (3)	44.10 (5)	25.50 (1)	6.55 (2)	
Nyssa aquatica	36.4	29.7	13.8						57.56 (5)	8.92 (5)		6.10 (1)	32.00 (2)	
Nyssa sylvatica var. *biflora*	22.7	35.4	20.9					44.71 (7)	35.50 (1)					
Ostrya virginiana	4.5	11.3	5.2											11.30 (2)
Parthenocissus quinquefolia	9.1	4.7	1.4											
Persea palustris	4.5	8.1						8.10 (1)						
Pinus taeda	4.5	42.0	12.2											
Planera aquatica	13.6	12.1	6.7		6.42 (5)									
Platanus occidentalis	13.6	40.2	44.7			27.98 (5)								
Populus heterophylla	4.5	16.1	1.0									16.05 (6)		
Quercus alba	4.5	32.2		32.20 (1)										
Quercus laurifolia	50.0	15.7	4.1	7.68 (4)				14.62 (5)		7.71 (11)	7.50 (1)	9.80 (9)	11.97 (3)	68.25 (2)
Quercus lyrata	13.6	30.4	17.9				38.20 (1)					16.48 (5)		

Table 10a (continued). Average canopy species size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual trees measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 43–55).

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55
Quercus michauxii	22.7	26.0	8.2	13.55 (4)				6.60 (1)						14.20 (3)
Quercus nigra	27.3	44.0	9.7	15.36 (5)	96.70 (1)	78.20 (2)		56.30 (1)	6.20 (1)					
Quercus pagoda	13.6	38.9							82.60 (1)		22.90 (1)			
Quercus phellos	4.5	31.6	1.8					26.20 (1)						
Quercus velutina	9.1	27.2	10.5			15.40 (2)								
Salix nigra	4.5	4.3			4.30 (1)									
Taxodium ascendens	18.2	42.6	10.4										91.80 (4)	
Taxodium distichum	4.5	46.0	5.2						45.95 (2)					
Toxicodendron radicans	4.5	4.0									4.00 (1)			
Ulmus alata	18.2	7.3	2.3				7.50 (1)			7.10 (2)				
Ulmus rubra	59.1	8.3	4.0	5.50 (1)		11.10 (1)	8.20 (1)			7.93 (3)	9.10 (1)	4.50 (1)	10.28 (4)	
Vitis aestivalis	13.6	5.7			4.20 (1)				6.80 (1)		6.00 (1)			
Vitis rotundifolia	54.5	5.8	1.3	5.00 (2)				4.50 (1)	4.75 (4)	4.20 (1)	4.70 (4)	4.30 (1)		7.60 (1)

Table 10b. Average canopy species size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual trees measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 57–74).

Taxon	f_i	mean	sd	57	59	62	63	64	66	67	69	70	71	74
Acer negundo	45.5	16.1	5.1	4.30 (1)	16.40 (2)	10.63 (6)	31.50 (1)			17.43 (8)		29.90 (1)		
Acer rubrum	68.2	16.3	9.8	5.10 (1)				34.70 (1)	26.85 (2)	7.20 (1)	20.72 (9)	4.00 (1)	6.43 (4)	9.18 (28)
Asimina triloba	27.3	5.1	1.0		4.73 (9)		5.69 (8)			5.30 (6)		5.00 (11)		
Berchemia scandens	4.5	5.0					5.00 (1)							
Campsis radicans	22.7	6.1	1.5			5.07 (3)		8.90 (1)						
Carpinus caroliniana	31.8	8.9	3.9					4.70 (1)				20.35 (2)		7.43 (8)
Carya alba	4.5	16.5												
Carya aquatica	4.5	5.3	0.4											
Carya sp.	4.5	55.3					55.30 (1)							
Celtis laevigata	45.5	18.0	7.2	9.83 (3)	46.00 (2)	15.68 (11)	13.60 (1)							11.75 (4)
Crataegus sp.	13.6	5.8	1.2	6.45 (2)										5.75 (2)
Cyrilla racemiflora	4.5	4.0												
Fraxinus pennsylvanica	68.2	26.2	9.8		15.33 (3)	16.26 (8)	34.40 (3)	49.97 (3)	6.44 (5)	62.30 (1)	8.59 (11)		6.42 (6)	14.79 (28)
Ilex ambigua	13.6	5.5	1.4		5.70 (5)									
Ilex decidua	40.9	6.0	1.5			5.27 (10)	5.75 (23)				5.68 (4)	6.21 (9)		
Ilex opaca	18.2	8.7	4.5		9.95 (2)								11.22 (6)	
Liquidambar styraciflua	86.4	27.5	10.9	5.18 (4)	34.60 (1)	14.20 (4)		58.50 (2)	18.80 (3)	76.58 (4)	11.70 (2)	28.20 (1)	10.40 (5)	10.90 (1)
Nyssa aquatica	36.4	29.7	13.8						64.62 (11)		47.60 (3)		14.18 (4)	6.60 (2)
Nyssa sylvatica var. *biflora*	22.7	35.4	20.9					14.80 (1)	32.57 (3)				49.53 (6)	
Ostrya virginiana	4.5	11.3	5.2											
Parthenocissus quinquefolia	9.1	4.7	1.4	4.00 (1)						5.43 (3)				
Persea palustris	4.5	8.1												
Pinus taeda	4.5	42.0	12.2	41.96 (7)										
Planera aquatica	13.6	12.1	6.7					16.47 (7)			13.40 (1)			
Platanus occidentalis	13.6	40.2	44.7			30.40 (1)				62.10 (1)				
Populus heterophylla	4.5	16.1	1.0											
Quercus alba	4.5	32.2												
Quercus laurifolia	50.0	15.7	4.1				16.18 (4)		11.45 (4)				9.40 (4)	8.46 (8)
Quercus lyrata	13.6	30.4	17.9					36.55 (4)						

Table 10b (continued). Average canopy species size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual trees measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 57–74).

Taxon	f_i	mean	sd	57	59	62	63	64	66	67	69	70	71	74
Quercus michauxii	22.7	26.0	8.2	80.30 (1)	15.23 (3)									
Quercus nigra	27.3	44.0	9.7	11.40 (1)										
Quercus pagoda	13.6	38.9					11.30 (1)							
Quercus phellos	4.5	31.6	1.8											
Quercus velutina	9.1	27.2	10.5									38.90 (1)		
Salix nigra	4.5	4.3												
Taxodium ascendens	18.2	42.6	10.4						4.70 (1)		4.20 (1)		69.73 (3)	
Taxodium distichum	4.5	46.0	5.2											
Toxicodendron radicans	4.5	4.0												
Ulmus alata	18.2	7.3	2.3	8.89 (15)			5.80 (1)							
Ulmus rubra	59.1	8.3	4.0			8.93 (7)	6.80 (2)			9.95 (2)		6.40 (1)	9.38 (4)	9.24 (5)
Vitis aestivalis	13.6	5.7												
Vitis rotundifolia	54.5	5.8	1.3	6.50 (2)	9.90 (2)	6.30 (1)	6.35 (2)							5.20 (2)

Table 11a. Average dead snag (standing dead trees) size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual snags measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 43–55).

Taxon	f_i	mean	sd	43	45	46	47	48	49	51	52	53	54	55
Acer rubrum	22.73	9.78	1.49	4.20 (1)	14.10 (1)							4.54 (9)		
Asimina triloba	9.09	5.00												
Celtis laevigata	13.64	10.00			6.20 (1)						16.80 (1)			
Crataegus sp.	4.55	4.60								4.60 (1)				
Diospyros virginiana	4.55	8.20		8.20 (1)										
Fraxinus pennsylvanica	36.36	10.11	2.12						8.50 (2)	7.98 (5)		5.85 (2)		
Ilex ambigua	9.09	5.00				4.00 (1)								6.00 (1)
Ilex decidua	9.09	4.15					4.30 (1)				4.00 (1)			
Ilex opaca	4.55	9.30												
Liquidambar styraciflua	9.09	8.70		12.00 (1)										
Nyssa aquatica	4.55	9.20								9.20 (1)				
Pinus taeda	4.55	24.20	21.50											
Planera aquatica	4.55	16.30	16.69											
Populus heterophylla	4.55	12.27	3.93									12.27 (3)		
Quercus laurifolia	9.09	10.42	21.45									16.73 (3)		
Quercus michauxii	4.55	95.80												
Quercus sp.	9.09	58.45		11.80 (1)							105.10 (1)			
Salix nigra	4.55	9.10			9.10 (1)									
Taxodium ascendens	9.09	4.45											4.80 (1)	
Ulmus alata	4.55	5.00												
Ulmus rubra	13.64	8.60					4.40 (1)				17.00 (1)			
Ulmus sp.	4.55	12.50					12.50 (1)							

Table 11b. Average dead snag (standing dead trees) size, measured as diameter (cm) at breast height (DBH) for species sampled in vegetation monitoring macroplots at Congaree National Park in 2014. Numbers in parentheses indicate the number of individual snags measured within each plot. DBH measurements are averaged across DBH plots at each sampling location, and park-wide calculations are averaged across all sampling locations [f_i—relative frequency; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location (sampling locations 57–74).

Taxon	f_i	mean	sd	57	59	62	63	64	66	67	69	70	71	74
Acer rubrum	22.73	9.78	1.49								16.40 (1)			9.68 (4)
Asimina triloba	9.09	5.00			5.50 (1)					4.50 (1)				
Celtis laevigata	13.64	10.00												7.00 (1)
Crataegus sp.	4.55	4.60												
Diospyros virginiana	4.55	8.20												
Fraxinus pennsylvanica	36.36	10.11	2.12			6.60 (1)	32.10 (1)		6.80 (1)		5.10 (1)			7.95 (2)
Ilex ambigua	9.09	5.00												
Ilex decidua	9.09	4.15												
Ilex opaca	4.55	9.30			9.30 (1)									
Liquidambar styraciflua	9.09	8.70						5.40 (1)						
Nyssa aquatica	4.55	9.20												
Pinus taeda	4.55	24.20	21.50	24.20 (2)										
Planera aquatica	4.55	16.30	16.69					16.30 (2)						
Populus heterophylla	4.55	12.27	3.93											
Quercus laurifolia	9.09	10.42	21.45											4.10 (1)
Quercus michauxii	4.55	95.80			95.80 (1)									
Quercus sp.	9.09	58.45												
Salix nigra	4.55	9.10												
Taxodium ascendens	9.09	4.45									4.10 (1)			
Ulmus alata	4.55	5.00		5.00 (1)										
Ulmus rubra	13.64	8.60				4.40 (1)								
Ulmus sp.	4.55	12.50												

Table 12. Seedling frequency for canopy and shrub species in vegetation monitoring macroplots at Congaree National Park in 2014. Seedling frequency is averaged across groundcover plots at each sampling location, and park-wide calculations are averaged across all sampling locations. [m—meters; sd—standard deviation]. Numbered columns to the right of standard deviation column indicate sampling location.

Taxon	Total Seedlings	Seedlings/m²	sd	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Acer negundo	16	0.1	0.1	0.1		0.2									< 0.1	0.1					< 0.1		0.2		
Acer rubrum	44	0.2	0.1	0.4	< 0.1		0.1	0.4	0.1			0.2		0.1										0.3	0.1
Asimina triloba	6	0.1	< 0.1															0.1			0.1				
Callicarpa americana	1	< 0.1							< 0.1																
Carpinus caroliniana	3	0.1	< 0.1					0.1	< 0.1																
Celtis laevigata	33	0.1	0.1			0.1	0.1	< 0.1		0.1	0.2			0.1	0.1	0.2	< 0.1	0.1	< 0.1		< 0.1		0.3		
Crataegus marshallii	1	< 0.1								< 0.1															
Decumaria barbara	35	1.6																						1.6	
Euonymus americanus	3	0.1	< 0.1	< 0.1					0.1																
Fraxinus pennsylvanica	368	1.1	1.2			2.4	1.6		0.4	0.1	0.2		3.3	4.2	0.3	0.7	0.8	1.3	< 0.1		1.4	0.3		< 0.1	0.1
Ilex ambigua	5	0.1	< 0.1			0.1								0.1											
Ilex decidua	28	0.2	0.3		< 0.1					0.1	< 0.1		0.1		0.1		0.8								
Ilex opaca	7	0.1	0.1	0.1				0.2																	
Ilex sp.	9	0.4																						0.4	
Leucothoe axillaris	4	0.2																						0.2	
Ligustrum sinense	4	0.1	< 0.1														0.1						0.1		
Lindera benzoin	2	0.1														0.1									
Liquidambar styraciflua	8	0.1	0.1	< 0.1	0.1			0.2												< 0.1					
Nyssa aquatica	10	0.2	0.1						0.1											0.3					
Parthenocissus quinquefolia	3	0.1																					0.1		
Pinus taeda	3	0.1	< 0.1	< 0.1				0.1																	
Planera aquatica	1	< 0.1			< 0.1																				
Populus heterophylla	14	0.6																				0.6			
Quercus laurifolia	2	< 0.1	< 0.1											< 0.1											< 0.1
Quercus nigra	1	< 0.1			< 0.1																				
Quercus sp.	4	0.1	0.1	0.1			< 0.1																		
Solanum pseudocapsicum	10	0.2	0.2															< 0.1					0.4		
Taxodium ascendens	11	0.2	0.2										0.3									< 0.1		0.1	
Taxodium distichum	1	< 0.1							< 0.1																
Ulmus alata	4	0.1	0.1						0.1						< 0.1										
Ulmus rubra	70	0.5	1.1		< 0.1					< 0.1			0.1									2.8	< 0.1	0.1	

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Appendix A. Plant Species Known to Occur at Congaree

Table A-1. Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Alismatales	Alismataceae	*Alisma subcordatum*	American water plantain, southern water plantain, waterplaintain	X		
Alismatales	Alismataceae	*Sagittaria latifolia*	broadleaf arrowhead, common arrowhead, duck-potato, wapato	X		X
Alismatales	Araceae	*Arisaema dracontium*	green dragon	X		X
Alismatales	Araceae	*Arisaema triphyllum*	swamp Jack-in-the-pulpit	X		X
Alismatales	Araceae	*Lemna valdiviana*	pale duckweed, Valdivia duckweed, Valdivia's duckweed	X		
Alismatales	Araceae	*Orontium aquaticum*	goldenclub	X		
Alismatales	Araceae	*Peltandra virginica*	green arrow arum	X		
Apiales	Apiaceae	*Chaerophyllum procumbens*	spreading chervil	X		
Apiales	Apiaceae	*Chaerophyllum tainturieri*	chervil, hairyfruit chervil, hairy-fruit chervil	X		
Apiales	Apiaceae	*Cryptotaenia canadensis*	canada honewort	X		
Apiales	Apiaceae	*Cyclospermum leptophyllum*	marsh parsley	X		
Apiales	Apiaceae	*Eryngium prostratum*	creeping eryngo	X		
Apiales	Apiaceae	*Foeniculum vulgare*	sweet fennel	X		
Apiales	Apiaceae	*Ptilimnium capillaceum*	mock bishops-weed	X		X
Apiales	Apiaceae	*Sanicula canadensis*	short-styled santicle	X		
Apiales	Apiaceae	*Sanicula marilandica*	black sanicle, Maryland black-snakeroot, Maryland sanicle	X		
Apiales	Apiaceae	*Sanicula odorata*	cluster sanicle, clustered blacksnakeroot	X		
Apiales	Apiaceae	*Sanicula smallii*	Small's blacksnakeroot	X		
Apiales	Araliaceae	*Aralia spinosa*	devil's walking stick, Hercules club	X		
Apiales	Araliaceae	*Hedera helix*	English ivy	X		
Apiales	Araliaceae	*Hydrocotyle ranunculoides*	floating marsh pennywort, floating marshpennywort, floating pennyroyal	X		
Apiales	Araliaceae	*Hydrocotyle sibthorpioides*	lawn marshpennywort	X		
Apiales	Araliaceae	*Hydrocotyle umbellata*	dollarweed, many-flower pennywort		X	
Apiales	Araliaceae	*Hydrocotyle verticillata*	whorled marsh pennywort, whorled marshpennywort, whorled pennyroyal	X		
Apiales	Araliaceae	*Hydrocotyle verticillata* var. *verticillata*	whorled pennywort	X		
Aquifoliales	Aquifoliaceae	*Ilex amelanchier*	serviceberry holly	X		
Aquifoliales	Aquifoliaceae	*Ilex aquifolium*	English holly	X		
Aquifoliales	Aquifoliaceae	*Ilex decidua*	deciduous holly	X		X
Aquifoliales	Aquifoliaceae	*Ilex glabra*	inkberry	X		
Aquifoliales	Aquifoliaceae	*Ilex laevigata*	smooth winterberry	X		
Aquifoliales	Aquifoliaceae	*Ilex opaca*	American holly	X		X
Aquifoliales	Aquifoliaceae	*Ilex verticillata*	black holly	X		
Aquifoliales	Aquifoliaceae	*Ilex vomitoria*	yaupon	X		
Arecales	Arecaceae	*Sabal minor*	dwarf palmetto	X		X
Asparagales	Amaryllidaceae	*Allium vineale*	wild garlic	X		
Asparagales	Amaryllidaceae	*Nothoscordum bivalve*	crowpoison	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Asparagales	Amaryllidaceae	*Nothoscordum gracile*	slender false garlic	X		
Asparagales	Amaryllidaceae	*Zephyranthes atamasca*	Atamasco lily	X		
Asparagales	Asparagaceae	*Liriope muscari*	big blue lilyturf	X		
Asparagales	Asparagaceae	*Maianthemum racemosum* ssp. *racemosum*	false Solomon's-seal, feather Solomon's seal, feathery false lily of the valley, feathery false Solomon's-seal	X		
Asparagales	Asparagaceae	*Manfreda virginica*	false aloe	X		
Asparagales	Asparagaceae	*Polygonatum biflorum*	King Solomon's seal, King Solomon's-seal, smooth Solomon's seal, Solomon's seal	X		
Asparagales	Asparagaceae	*Yucca filamentosa*	Adam's needle	X		
Asparagales	Hypoxidaceae	*Hypoxis hirsuta*	common goldstar	X		X
Asparagales	Hypoxidaceae	*Hypoxis hirsuta* var. *leptocarpa*		X		
Asparagales	Iridaceae	*Iris virginica*	Virginia iris	X		
Asparagales	Iridaceae	*Sisyrinchium albidum*	white blueeyed grass, white blue-eyed grass	X		
Asparagales	Iridaceae	*Sisyrinchium atlanticum*	eastern blueeyed grass, eastern blue-eyed grass	X		
Asparagales	Iridaceae	*Sisyrinchium mucronatum*	needletip blue-eyed grass, needle-tip blue-eyed-grass	X		
Asparagales	Orchidaceae	*Goodyera pubescens*	rattlesnake plantain	X		
Asparagales	Orchidaceae	*Goodyera repens*	dwarf rattlesnake-plantain, lesser rattlesnake plantain	X		
Asparagales	Orchidaceae	*Habenaria flava*		X		
Asparagales	Orchidaceae	*Isotria verticillata*	large whorled pogonia, purple fiveleaf orchid	X		
Asparagales	Orchidaceae	*Malaxis unifolia*	green adder's mouth	X		
Asparagales	Orchidaceae	*Platanthera blephariglottis*	white fringed orchid, white-fringe orchis	X		
Asparagales	Orchidaceae	*Platanthera clavellata*	green woodland orchid, small green wood orchid	X		
Asparagales	Orchidaceae	*Platanthera flava*	southern rein-orchid	X		
Asparagales	Orchidaceae	*Platanthera flava* var. *flava*	palegreen orchid	X		
Asparagales	Orchidaceae	*Spiranthes cernua*	common ladies' tresses, nodding ladiestresses, nodding ladies'-tresses, nodding lady's tresses, white nodding ladies'-tresses	X		
Asparagales	Orchidaceae	*Spiranthes odorata*	sweetscent ladies'-tresses	X		
Asparagales	Orchidaceae	*Spiranthes ovalis* var. *erostellata*	October ladies'-tresses, October lady's tresses	X		
Asparagales	Orchidaceae	*Spiranthes ovalis* var. *ovalis*	October ladies'-tresses, October lady's tresses	X		
Asparagales	Orchidaceae	*Spiranthes praecox*	grassleaf ladies'-tresses	X		
Asparagales	Orchidaceae	*Tipularia discolor*	cranefly orchid	X		
Asterales	Asteraceae	*Acmella oppositifolia* var. *repens*	creeping spotflower, oppositeleaf spotflower	X		
Asterales	Asteraceae	*Ambrosia artemisiifolia*	annual ragweed	X		X
Asterales	Asteraceae	*Antennaria plantaginifolia*	plantainleaf pussytoes, woman's tobacco	X		
Asterales	Asteraceae	*Antennaria solitaria*	singlehead pussytoes	X		
Asterales	Asteraceae	*Arnica acaulis*	common leopardbane	X		
Asterales	Asteraceae	*Aster dumosus*	bushy aster	X		
Asterales	Asteraceae	*Aster paludosus* ssp. *paludosus*	southern swamp aster	X		
Asterales	Asteraceae	*Aster pilosus*	white heath aster	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Asterales	Asteraceae	*Aster simplex*	panicled aster	X		
Asterales	Asteraceae	*Aster vimineus*		X		
Asterales	Asteraceae	*Baccharis halimifolia*	Eastern baccharis, groundsel tree	X		
Asterales	Asteraceae	*Bidens bipinnata*	Spanish-needles	X		
Asterales	Asteraceae	*Bidens frondosa*	devil's beggar ticks	X		
Asterales	Asteraceae	*Boltonia asteroides*	star boltonia, white doll's daisy, white doll's-daisy	X		
Asterales	Asteraceae	*Boltonia caroliniana*	Carolina boltonia	X		
Asterales	Asteraceae	*Carphephorus tomentosus*	woolly chaffhead	X		
Asterales	Asteraceae	*Chrysogonum virginianum*	green and gold	X		
Asterales	Asteraceae	*Chrysopsis gossypina*	cottony goldenaster	X		
Asterales	Asteraceae	*Chrysopsis mariana*	Maryland goldenaster	X		
Asterales	Asteraceae	*Cirsium nuttallii*	thistle	X		X
Asterales	Asteraceae	*Cirsium virginianum*	Virginia thistle	X		
Asterales	Asteraceae	*Conoclinium coelestinum*	blue mistflower	X		
Asterales	Asteraceae	*Conyza bonariensis*	asthmaweed, flax-leaf fleabane, flaxleaved fleabane, hairy fleabane, wavy-leaf fleabane	X		
Asterales	Asteraceae	*Conyza canadensis*	Canadian horseweed, Canadian fleabane		X	
Asterales	Asteraceae	*Coreopsis major*	greater tickseed	X		
Asterales	Asteraceae	*Crepis pulchra*	hawksbeard, smallflower hawksbeard	X		
Asterales	Asteraceae	*Eclipta prostrata*	eclipta, false daisy, yerba de tago, yerba de tajo	X		
Asterales	Asteraceae	*Elephantopus carolinianus*	Carolina elephantsfoot, leafy elephantfoot	X		
Asterales	Asteraceae	*Elephantopus nudatus*	naked elephantfoot, smooth elephantsfoot	X		
Asterales	Asteraceae	*Elephantopus tomentosus*	devil's grandmother, hairy elephantfoot	X		
Asterales	Asteraceae	*Erechtites hieraciifolia*	fireweed	X		X
Asterales	Asteraceae	*Erigeron canadensis*		X		
Asterales	Asteraceae	*Erigeron strigosus*	daisy fleabane, prairie fleabane, rough fleabane	X		
Asterales	Asteraceae	*Eupatorium album*	white thoroughwort	X		
Asterales	Asteraceae	*Eupatorium capillifolium*	small dogfennel throughwort	X		X
Asterales	Asteraceae	*Eupatorium leucolepis*	justiceweed	X		
Asterales	Asteraceae	*Eupatorium rotundifolium*	false hoarhound	X		
Asterales	Asteraceae	*Eupatorium serotinum*	late eupatorium, lateflowering thoroughwort	X		
Asterales	Asteraceae	*Eurybia divaricata*	white wood aster	X		
Asterales	Asteraceae	*Euthamia tenuifolia* var. *tenuifolia*	slender fragrant goldenrod	X		
Asterales	Asteraceae	*Facelis retusa*	annual trampweed	X		
Asterales	Asteraceae	*Gamochaeta falcata*	narrowleaf purple everlasting	X		
Asterales	Asteraceae	*Gamochaeta purpurea*	spoonleaf purple everlasting, spoon-leaf purple everlasting	X		
Asterales	Asteraceae	*Gnaphalium obtusifolium*	fragrant cudweed	X		
Asterales	Asteraceae	*Helenium amarum*	bitter sneezeweed, yellowdicks	X		
Asterales	Asteraceae	*Helenium autumnale*	bitterweed, common sneezeweed, fall sneezeweed, false sunflower, mountain sneezeweed	X		
Asterales	Asteraceae	*Helenium flexuosum*	purplehead sneezeweed	X		
Asterales	Asteraceae	*Helenium pinnatifidum*	southeastern sneezeweed	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Asterales	Asteraceae	*Helianthus angustifolius*	swamp sneezeweed, swamp sunflower	X		
Asterales	Asteraceae	*Helianthus atrorubens*	purpledisk sunflower	X		
Asterales	Asteraceae	*Helianthus divaricatus*	woodland sunflower	X		
Asterales	Asteraceae	*Helianthus floridanus*	Florida sunflower	X		
Asterales	Asteraceae	*Helianthus microcephalus*	small woodland sunflower	X		
Asterales	Asteraceae	*Heterotheca graminifolia*		X		
Asterales	Asteraceae	*Heterotheca subaxillaris*	camphorweed, golden aster	X		
Asterales	Asteraceae	*Hypochaeris radicata*	common cat's-ear, false dandelion, frogbit, gosmore, hairy cat's ear, hairy catsear, spotted catsear	X		
Asterales	Asteraceae	*Lactuca canadensis*	Canada lettuce, Florida blue lettuce, wild lettuce	X		
Asterales	Asteraceae	*Liatris graminifolia*		X		
Asterales	Asteraceae	*Liatris spicata*	dense blazing star	X		
Asterales	Asteraceae	*Mikania scandens*	climbing hempvine, climbing hempweed	X		X
Asterales	Asteraceae	*Packera anonyma*	Small's ragwort	X		
Asterales	Asteraceae	*Packera glabella*	butterweed	X		X
Asterales	Asteraceae	*Pityopsis graminifolia* var. *graminifolia*	narrowleaf silkgrass	X		
Asterales	Asteraceae	*Pluchea camphorata*	marsh fleabane	X		
Asterales	Asteraceae	*Pluchea odorata*	marsh fleabane, sweetscent	X		
Asterales	Asteraceae	*Pluchea rosea*	rosy camphorweed	X		
Asterales	Asteraceae	*Prenanthes serpentaria*	lion's-foot	X		
Asterales	Asteraceae	*Prenanthes trifoliata*		X		
Asterales	Asteraceae	*Pseudognaphalium obtusifolium* ssp. *obtusifolium*	rabbittobacco	X		
Asterales	Asteraceae	*Pyrrhopappus carolinianus*	Carolina desert chicory, Carolina desert-chicory, Carolina false dandelion, Carolina false-dandelion	X		
Asterales	Asteraceae	*Rudbeckia fulgida*	orange coneflower	X		
Asterales	Asteraceae	*Senecio vulgaris*	common groundsel, old-man-in-the-spring	X		
Asterales	Asteraceae	*Sericocarpus asteroides*	toothed whitetop aster	X		
Asterales	Asteraceae	*Sericocarpus linifolius*	narrowleaf whitetop aster	X		
Asterales	Asteraceae	*Sericocarpus tortifolius*	Dixie whitetop aster	X		
Asterales	Asteraceae	*Smallanthus uvedalius*	hairy leafcup	X		
Asterales	Asteraceae	*Solidago altissima*	Canada goldenrod	X		
Asterales	Asteraceae	*Solidago canadensis*	Canada goldenrod, Canadian goldenrod, common goldenrod	X		
Asterales	Asteraceae	*Solidago gigantea*	smooth goldenrod	X		
Asterales	Asteraceae	*Solidago microcephala*		X		
Asterales	Asteraceae	*Solidago nemoralis*	dyersweed goldenrod, gray goldenrod	X		
Asterales	Asteraceae	*Solidago odora*	sweet goldenrod	X		
Asterales	Asteraceae	*Solidago puberula* var. *pulverulenta*	downy goldenrod	X		
Asterales	Asteraceae	*Solidago rugosa*	wrinkleleaf goldenrod	X		
Asterales	Asteraceae	*Symphyotrichum concolor*	eastern silver aster	X		
Asterales	Asteraceae	*Symphyotrichum cordifolium*	common blue wood aster	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Asterales	Asteraceae	*Symphyotrichum divaricatum*	southern annual saltmarsh aster	X		
Asterales	Asteraceae	*Symphyotrichum dumosum* var. *dumosum*	rice button aster	X		
Asterales	Asteraceae	*Symphyotrichum lanceolatum* var. *lanceolatum*	white panicle aster	X		
Asterales	Asteraceae	*Symphyotrichum lateriflorum* var. *lateriflorum*	calico aster	X		
Asterales	Asteraceae	*Symphyotrichum patens* var. *patens*	late purple aster	X		
Asterales	Asteraceae	*Symphyotrichum pilosum* var. *pilosum*	hairy white oldfield aster	X		
Asterales	Asteraceae	*Symphyotrichum puniceum* var. *puniceum*	purplestem aster	X		
Asterales	Asteraceae	*Taraxacum officinale*	blowball, common dandelion, dandelion, faceclock	X		
Asterales	Asteraceae	*Verbesina occidentalis*	yellow crownbeard	X		
Asterales	Asteraceae	*Verbesina virginica*	iceweed, Virginia crownbeard, white crownbeard	X		
Asterales	Asteraceae	*Vernonia acaulis*	stemless ironweed	X		
Asterales	Asteraceae	*Vernonia angustifolia*	tall ironweed	X		
Asterales	Asteraceae	*Vernonia glauca*	broadleaf ironweed	X		
Asterales	Asteraceae	*Vernonia noveboracensis*	New York ironweed	X		
Asterales	Asteraceae	*Xanthium spinosum*	Bathurst burr, cocklebur, spiny cocklebur, spiny cockleburr	X		
Asterales	Asteraceae	*Xanthium strumarium*	Canada cocklebur, cocklebur, cockleburr, common cocklebur, rough cocklebur, rough cockleburr	X		
Asterales	Asteraceae	*Youngia japonica*	oriental false hawksbeard	X		
Asterales	Campanulaceae	*Lobelia cardinalis*	cardinalflower	X		
Asterales	Campanulaceae	*Lobelia elongata*	elongated lobelia	X		
Asterales	Campanulaceae	*Lobelia nuttallii*	Nuttall's lobelia	X		
Asterales	Campanulaceae	*Lobelia puberula*	downy lobelia	X		
Asterales	Campanulaceae	*Wahlenbergia marginata*	southern rockbell	X		
Boraginales	Boraginaceae	*Myosotis macrosperma*	largeseed forget-me-not, southern forget-me-not	X		
Boraginales	Heliotropiaceae	*Heliotropium indicum*	India heliotrope, Indian heliotrope	X		
Boraginales	Hydrophyllaceae	*Nemophila aphylla*	smallflower baby blue eyes	X		
Brassicales	Brassicaceae	*Arabidopsis thaliana*	thale cress	X		
Brassicales	Brassicaceae	*Cardamine bulbosa*	bulb bittercress, bulbous bittercress, bulbous bitter-cress	X		
Brassicales	Brassicaceae	*Cardamine hirsuta*	hairy bittercress	X		
Brassicales	Brassicaceae	*Cardamine pensylvanica*	Pennsylvania bitter-cress	X		
Brassicales	Brassicaceae	*Descurainia pinnata*	green tansymustard, pinnate tansy mustard, pinnate tansymustard, tansymustard, western tansymustard	X		
Brassicales	Brassicaceae	*Lepidium virginicum*	poor-man's pepper-grass	X		
Brassicales	Brassicaceae	*Raphanus sativus*	cultivated radish, garden radish, radish, wild radish	X		
Brassicales	Brassicaceae	*Rorippa islandica*	northern marsh yellowcress	X		
Brassicales	Brassicaceae	*Sinapis arvensis*	charlock, charlock mustard, corn mustard, corn-mustard, wild mustard	X		
Caryophyllales	Amaranthaceae	*Alternanthera philoxeroides*	alligator weed, alligatorweed, pig weed	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Caryophyllales	Amaranthaceae	*Amaranthus spinosus*	pigweed, spiny amaranth	X		
Caryophyllales	Amaranthaceae	*Chenopodium album*	white goosefoot	X		
Caryophyllales	Amaranthaceae	*Chenopodium ambrosioides*	Mexican tea, Mexican-tea	X		
Caryophyllales	Cactaceae	*Opuntia ficus-indica*	Indian-fig, tuna cactus	X		
Caryophyllales	Caryophyllaceae	*Cerastium nutans*	common chickweed, longstem chickweed, nodding chickweed, nodding mouse-ear chickweed	X		
Caryophyllales	Caryophyllaceae	*Saponaria officinalis*	bouncing bet, bouncingbet, bouncingbet soapweed, soapwort, sweet Betty	X		
Caryophyllales	Caryophyllaceae	*Silene caroliniana*	sticky catchfly	X		
Caryophyllales	Caryophyllaceae	*Stellaria media*	common starwort	X		X
Caryophyllales	Caryophyllaceae	*Stellaria pubera*	star chickweed	X		
Caryophyllales	Droseraceae	*Drosera brevifolia*	dwarf sundew	X		
Caryophyllales	Molluginaceae	*Mollugo verticillata*	carpetweed, carpet-weed, green carpetweed, green carpet-weed, Indian chickweed	X		
Caryophyllales	Phytolaccaceae	*Phytolacca americana*	American pokeweed, common pokeweed, inkberry, pigeonberry, poke, pokeberry, pokeweed	X		X
Caryophyllales	Polygonaceae	*Fagopyrum esculentum*	buckwheat, common buckwheat	X		
Caryophyllales	Polygonaceae	*Polygonum caespitosum* var. *longisetum*	oriental lady's thumb, oriental ladysthumb	X		
Caryophyllales	Polygonaceae	*Polygonum erectum*	devil's shoestring, erect knotweed, wireweed	X		
Caryophyllales	Polygonaceae	*Polygonum hydropiperoides*	mild water-pepper	X		
Caryophyllales	Polygonaceae	*Polygonum pensylvanicum*	Pennsylvania knotweed, Pennsylvania smartweed, pinkweed, pinweed	X		
Caryophyllales	Polygonaceae	*Polygonum punctatum*	dotted smartweed	X		
Caryophyllales	Polygonaceae	*Polygonum scandens* var. *scandens*	climbing false buckwheat	X		
Caryophyllales	Polygonaceae	*Polygonum setaceum*	swamp smartweed	X		
Caryophyllales	Polygonaceae	*Polygonum virginianum*	virginia knotweed	X		
Caryophyllales	Polygonaceae	*Rumex acetosella*	common sheep sorrel, field sorrel, red sorrel, sheep sorrel	X		
Caryophyllales	Polygonaceae	*Rumex crispus*	curly dock, narrowleaf dock, sour dock, yellow dock	X		
Caryophyllales	Portulacaceae	*Portulaca amilis*	Paraguayan purslane	X		
Celastrales	Celastraceae	*Euonymus americanus*	wahoo	X		X
Celastrales	Celastraceae	*Euonymus atropurpureus*	burningbush, eastern burningbush, eastern wahoo, wahoo	X		
Commelinales	Commelinaceae	*Commelina communis*	asiatic dayflower	X		
Commelinales	Commelinaceae	*Commelina virginica*	virgina day-flower	X		X
Commelinales	Commelinaceae	*Murdannia keisak*	Asian spiderwort, marsh dewflower, wart-removing herb	X		
Commelinales	Commelinaceae	*Tradescantia virginiana*	Virginia spiderwort	X		
Cornales	Cornaceae	*Cornus amomum*	silky dogwood	X		
Cornales	Cornaceae	*Cornus florida*	flowering dogwood	X		
Cornales	Cornaceae	*Cornus foemina*		X		X
Cornales	Hydrangeaceae	*Decumaria barbara*	climbing hydrangea	X		X
Cornales	Hydrangeaceae	*Philadelphus inodorus*	scentless mock orange	X		
Cornales	Nyssaceae	*Nyssa aquatica*	water tupelo	X		X

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Cornales	Nyssaceae	*Nyssa biflora*	swamp tupelo	X		
Cornales	Nyssaceae	*Nyssa sylvatica*	black gum, black tupelo, blackgum	X		
Cornales	Nyssaceae	*Nyssa sylvatica* var. *biflora*	swamp tupelo	X		X
Cucurbitales	Cucurbitaceae	*Cayaponia quinqueloba*	five-lobe cayaponia	X		
Cucurbitales	Cucurbitaceae	*Cucumis sativus*	garden cucumber	X		
Cucurbitales	Cucurbitaceae	*Melothria pendula*	drooping melonnettle, Guadeloupe cucumber	X		
Dioscoreales	Dioscoreaceae	*Dioscorea floridana*	Florida yam	X		
Dioscoreales	Dioscoreaceae	*Dioscorea oppositifolia*		X		
Dioscoreales	Dioscoreaceae	*Dioscorea villosa*	yellow yam	X		X
Dipsacales	Adoxaceae	*Sambucus canadensis*	common elderberry	X		X
Dipsacales	Adoxaceae	*Viburnum acerifolium*	mapleleaf viburnum	X		
Dipsacales	Adoxaceae	*Viburnum cassinoides*	northern wild-raisin	X		
Dipsacales	Adoxaceae	*Viburnum dentatum*	arrowwood, arrow-wood viburnum, southern arrowwood	X		
Dipsacales	Adoxaceae	*Viburnum nudum*	possumhaw viburnum	X		
Dipsacales	Adoxaceae	*Viburnum prunifolium*	blackhaw	X		
Dipsacales	Adoxaceae	*Viburnum rufidulum*	rusty blackhaw, rusty viburnum	X		
Dipsacales	Caprifoliaceae	*Lonicera japonica*	Chinese honeysuckle, Japanese honeysuckle	X		X
Dipsacales	Caprifoliaceae	*Lonicera sempervirens*	trumpet honeysuckle	X		
Ericales	Balsaminaceae	*Impatiens capensis*	spotted jewelweed	X		X
Ericales	Clethraceae	*Clethra alnifolia*	coast pepper-bush	X		
Ericales	Cyrillaceae	*Cyrilla racemiflora*	swamp cyrilla	X		X
Ericales	Ebenaceae	*Diospyros virginiana*	persimmon	X		X
Ericales	Ericaceae	*Chimaphila maculata*	spotted wintergreen	X		
Ericales	Ericaceae	*Gaylussacia dumosa*	dwarf huckleberry	X		
Ericales	Ericaceae	*Gaylussacia frondosa*	blue huckleberry, dangleberry	X		
Ericales	Ericaceae	*Kalmia latifolia*	mountain laurel	X		
Ericales	Ericaceae	*Leucothoe axillaris*	coast leucothoe, coastal doghobble	X		X
Ericales	Ericaceae	*Leucothoe racemosa*	swamp doghobble	X		
Ericales	Ericaceae	*Lyonia ligustrina*	he-huckleberry, maleberry, seedy-buckberry	X		
Ericales	Ericaceae	*Lyonia lucida*	fetter-bush	X		
Ericales	Ericaceae	*Rhododendron canescens*	hoary azalea	X		
Ericales	Ericaceae	*Rhododendron periclymenoides*	pink azalea, pinxterbloom azalea	X		
Ericales	Ericaceae	*Rhododendron viscosum*	clammy azalea, swamp azalea, swamp honeysuckle, Texas azalea	X		
Ericales	Ericaceae	*Vaccinium arboreum*	farkleberry, sparkleberry, tree sparkleberry, tree-huckleberry	X		
Ericales	Ericaceae	*Vaccinium corymbosum*	highbush blueberry, New Jersey blueberry, smallflower blueberry, Southern blueberry	X		X
Ericales	Ericaceae	*Vaccinium elliottii*	Elliott's blueberry	X		X
Ericales	Ericaceae	*Vaccinium formosum*	southern blueberry	X		
Ericales	Ericaceae	*Vaccinium fuscatum*	black highbush blueberry	X		
Ericales	Ericaceae	*Vaccinium stamineum*	deerberry	X		
Ericales	Ericaceae	*Vaccinium tenellum*	small black blueberry, southern blueberry	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Ericales	Ericaceae	*Vaccinium virgatum*	smallflower blueberry	X		
Ericales	Polemoniaceae	*Phlox carolina*	thick-leaved phlox	X		
Ericales	Polemoniaceae	*Phlox glaberrima*	smooth phlox	X		
Ericales	Primulaceae	*Anagallis arvensis*	pimpernel, scarlet pimpernel	X		
Ericales	Primulaceae	*Lysimachia nummularia*	creeping jenny, moneywort	X		
Ericales	Primulaceae	*Samolus parviflorus*	water pimpernel	X		
Ericales	Sapotaceae	*Sideroxylon lycioides*	buckthorn	X		
Ericales	Styracaceae	*Halesia carolina*	Carolina silverbell, silverbell	X		
Ericales	Styracaceae	*Styrax americana*	American snowbell	X		
Ericales	Symplocaceae	*Symplocos tinctoria*	horse-sugar	X		
Fabales	Fabaceae	*Albizia julibrissin*	silk tree	X		
Fabales	Fabaceae	*Amorpha fruticosa*	false indigo-bush	X		
Fabales	Fabaceae	*Amphicarpaea bracteata*	American hogpeanut, hog-peanut	X		
Fabales	Fabaceae	*Apios americana*	American groundnut	X		
Fabales	Fabaceae	*Baptisia alba*	white false indigo, white wild indigo	X		
Fabales	Fabaceae	*Baptisia albescens*	spiked wild indigo	X		
Fabales	Fabaceae	*Baptisia tinctoria*	horseflyweed, yellow wild indigo	X		
Fabales	Fabaceae	*Cassia fasciculata*	partridge pea, showy partridgepea, sleepingplant	X		
Fabales	Fabaceae	*Centrosema virginianum*	butterflypea, spurred butterfly pea	X		
Fabales	Fabaceae	*Cercis canadensis*	eastern redbud	X		
Fabales	Fabaceae	*Chamaecrista fasciculata* var. *fasciculata*	partridge pea, sleepingplant	X		
Fabales	Fabaceae	*Chamaecrista nictitans*	partridge pea, partridge-pea, sensitive partridge pea, sensitive plant	X		
Fabales	Fabaceae	*Clitoria mariana*	Atlantic pigeonwings, butterfly-pea, pigeonwings	X		
Fabales	Fabaceae	*Crotalaria spectabilis*	showy rattle-box	X		
Fabales	Fabaceae	*Desmodium ciliare*	hairy small-leaf ticktrefoil, littleleaf tickclover	X		
Fabales	Fabaceae	*Desmodium fernaldii*	Fernald's ticktrefoil	X		
Fabales	Fabaceae	*Desmodium nudiflorum*	barestem tickclover, bare-stemmed tick-treefoil, nakedflower ticktrefoil	X		
Fabales	Fabaceae	*Desmodium obtusum*	stiff tickclover, stiff ticktrefoil	X		
Fabales	Fabaceae	*Desmodium pauciflorum*	fewflower ticktrefoil, fewflowered tickclover	X		
Fabales	Fabaceae	*Desmodium rotundifolium*	roundhead tickclover	X		
Fabales	Fabaceae	*Desmodium sessilifolium*	sessile tickclover, sessileleaf tickclover, sessileleaf ticktrefoil	X		
Fabales	Fabaceae	*Desmodium tenuifolium*	slimleaf ticktrefoil	X		
Fabales	Fabaceae	*Galactia elliottii*	Elliott's milkpea		X	
Fabales	Fabaceae	*Galactia volubilis*	downy milkpea	X		
Fabales	Fabaceae	*Gleditsia aquatica*	swamp-locust, water honeylocust, water locust, waterlocust	X		
Fabales	Fabaceae	*Gleditsia triacanthos*	common honeylocust, honey locust, honeylocust, honey-locust	X		X
Fabales	Fabaceae	*Glottidium vesicarium*	bagpod rattlebush	X		
Fabales	Fabaceae	*Glycine max*	reseeding soybean, soybean, wild soybean	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Fabales	Fabaceae	*Kummerowia striata*	Japanese clover	X		
Fabales	Fabaceae	*Lespedeza capitata*	roundhead lespedeza	X		
Fabales	Fabaceae	*Lespedeza cuneata*	Chinese lespedeza, sericea lespedeza	X		X
Fabales	Fabaceae	*Melilotus alba*	white sweetclover	X		
Fabales	Fabaceae	*Psoralea psoralioides*		X		
Fabales	Fabaceae	*Pueraria montana*	kudzu	X		
Fabales	Fabaceae	*Rhynchosia reniformis*	dollarleaf	X		
Fabales	Fabaceae	*Senna obtusifolia*	Java-bean, sicklepod	X		
Fabales	Fabaceae	*Stylosanthes biflora*	endbeak pencilflower, sidebeak pencilflower	X		
Fabales	Fabaceae	*Tephrosia spicata*	spiked hoarypea	X		
Fabales	Fabaceae	*Tephrosia virginiana*	Virginia tephrosia	X		
Fabales	Fabaceae	*Trifolium repens*	Dutch clover, ladino clover, white clover, white Dutch clover	X		
Fabales	Fabaceae	*Trifolium vesiculosum*	arrowleaf clover	X		
Fabales	Fabaceae	*Vicia angustifolia*	garden vetch	X		
Fabales	Fabaceae	*Wisteria frutescens*	American wisteria	X		
Fabales	Fabaceae	*Wisteria sinensis*	Chinese wisteria	X		
Fabales	Polygalaceae	*Polygala incarnata*	procession flower	X		
Fabales	Polygalaceae	*Polygala mariana*	milkwort	X		
Fabales	Polygalaceae	*Polygala polygama*	bitter milkwort, racemed milkwort	X		
Fagales	Betulaceae	*Alnus serrulata*	brook-side alder, hazel alder	X		
Fagales	Betulaceae	*Betula nigra*	river birch	X		X
Fagales	Betulaceae	*Carpinus caroliniana*	American hornbeam	X		X
Fagales	Betulaceae	*Ostrya virginiana*	eastern hophornbeam, hophornbeam	X		X
Fagales	Fagaceae	*Fagus grandifolia*	American beech	X		X
Fagales	Fagaceae	*Quercus acutissima*	sawtooth oak	X		
Fagales	Fagaceae	*Quercus alba*	white oak	X		X
Fagales	Fagaceae	*Quercus falcata*	southern red oak	X		X
Fagales	Fagaceae	*Quercus falcata* var. *pagodifolia*		X		
Fagales	Fagaceae	*Quercus ilicifolia*	bear oak	X		
Fagales	Fagaceae	*Quercus laurifolia*	laurel-leaf oak	X		X
Fagales	Fagaceae	*Quercus lyrata*	overcup oak	X		X
Fagales	Fagaceae	*Quercus margarettiae*	runner oak, sand post oak	X		
Fagales	Fagaceae	*Quercus marilandica*	blackjack oak	X		
Fagales	Fagaceae	*Quercus michauxii*	swamp chestnut oak	X		X
Fagales	Fagaceae	*Quercus nigra*	water oak	X		X
Fagales	Fagaceae	*Quercus pagoda*	cherrybark oak, Texas oak	X		X
Fagales	Fagaceae	*Quercus phellos*	willow oak	X		X
Fagales	Fagaceae	*Quercus prinus*		X		
Fagales	Fagaceae	*Quercus rubra*	northern red oak	X		
Fagales	Fagaceae	*Quercus shumardii*	Shumard's oak	X		
Fagales	Fagaceae	*Quercus stellata*	post oak	X		
Fagales	Fagaceae	*Quercus velutina*	black oak	X		X

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Fagales	Juglandaceae	*Carya alba*	mokernut hickory	X		X
Fagales	Juglandaceae	*Carya aquatica*	water hickory	X		X
Fagales	Juglandaceae	*Carya cordiformis*	bitter-nut hickory	X		
Fagales	Juglandaceae	*Carya glabra*	sweet pignut hickory	X		
Fagales	Juglandaceae	*Carya ovata*	shag-bark hickory	X		X
Fagales	Juglandaceae	*Juglans nigra*	black walnut	X		X
Fagales	Myricaceae	*Morella caroliniensis*	evergreen bayberry, southern bayberry	X		
Fagales	Myricaceae	*Morella cerifera*	wax myrtle, waxmyrtle	X		
Gentianales	Apocynaceae	*Apocynum cannabinum*	common dogbane, dogbane, hemp dogbane, Indian hemp, Indian-hemp, prairie dogbane	X		X
Gentianales	Apocynaceae	*Asclepias perennis*	aquatic milkweed	X		X
Gentianales	Apocynaceae	*Asclepias tuberosa*	butterfly weed	X		
Gentianales	Apocynaceae	*Matelea carolinensis*	carolina angelpod	X		
Gentianales	Apocynaceae	*Matelea gonocarpos*	angularfruit milkvine	X		
Gentianales	Apocynaceae	*Matelea suberosa*		X		
Gentianales	Apocynaceae	*Trachelospermum difforme*	climbing dogbane	X		X
Gentianales	Gelsemiaceae	*Gelsemium sempervirens*	yellow jessamine	X		X
Gentianales	Gentianaceae	*Sabatia angularis*	rosepink, squarestem rosegentian	X		
Gentianales	Loganiaceae	*Mitreola petiolata*	lax hornpod	X		
Gentianales	Loganiaceae	*Mitreola sessilifolia*	swamp hornpod	X		
Gentianales	Loganiaceae	*Spigelia marilandica*	Indianpink, woodland pinkroot	X		
Gentianales	Rubiaceae	*Cephalanthus occidentalis*	common buttonbush	X		X
Gentianales	Rubiaceae	*Diodia teres*	poor joe, poorjoe, rough buttonweed	X		
Gentianales	Rubiaceae	*Diodia virginiana*	larger button-weed	X		
Gentianales	Rubiaceae	*Galium aparine*	bedstraw, catchweed bedstraw, cleavers, cleaverwort, goose grass, scarthgrass, stickywilly, sticky-willy, white hedge	X		
Gentianales	Rubiaceae	*Galium circaezans*	wild licorice	X		
Gentianales	Rubiaceae	*Galium obtusum*	bluntleaf bedstraw, bristly bedstraw	X		
Gentianales	Rubiaceae	*Galium obtusum* var. *obtusum*	large marsh bedstraw	X		
Gentianales	Rubiaceae	*Galium pilosum*	hairy bedstraw	X		
Gentianales	Rubiaceae	*Galium triflorum*	fragrant bedstraw, sweet bedstraw, sweetscented bedstraw	X		
Gentianales	Rubiaceae	*Houstonia caerulea*	azure bluet	X		
Gentianales	Rubiaceae	*Mitchella repens*	partridgeberry	X		X
Geraniales	Geraniaceae	*Geranium carolinianum*	Carolina crane's-bill, Carolina geranium	X		
Geraniales	Geraniaceae	*Geranium maculatum*	spotted crane's-bill, spotted geranium, wild crane's-bill	X		
Lamiales	Acanthaceae	*Dicliptera brachiata*	wild mudwort	X		
Lamiales	Acanthaceae	*Dyschoriste humistrata*	swamp dyschoriste	X		
Lamiales	Acanthaceae	*Justicia ovata*	ovate water-willow	X		X
Lamiales	Acanthaceae	*Ruellia caroliniensis*	carolina petunia	X		X
Lamiales	Bignoniaceae	*Bignonia capreolata*	crossvine	X		X
Lamiales	Bignoniaceae	*Campsis radicans*	trumpet-creeper	X		X

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Lamiales	Bignoniaceae	*Catalpa bignonioides*	southern catalpa	X		
Lamiales	Lamiaceae	*Callicarpa americana*	French mulberry, American beautyberry	X		X
Lamiales	Lamiaceae	*Clinopodium georgianum*	Georgia calamint	X		
Lamiales	Lamiaceae	*Collinsonia canadensis*	richweed	X		
Lamiales	Lamiaceae	*Collinsonia serotina*	Blue Ridge horsebalm	X		
Lamiales	Lamiaceae	*Glecoma hederacea*		X		
Lamiales	Lamiaceae	*Hyptis alata*	clustered bushmint	X		
Lamiales	Lamiaceae	*Lamium amplexicaule*	common henbit, giraffehead, henbit, henbit deadnettle	X		
Lamiales	Lamiaceae	*Lamium purpureum*	purple deadnettle, red deadnettle	X		
Lamiales	Lamiaceae	*Lycopus rubellus*	taperleaf bugleweed, taperleaf water horehound	X		
Lamiales	Lamiaceae	*Lycopus virginicus*	Virginia bugleweed, Virginia water horehound	X		
Lamiales	Lamiaceae	*Macbridea caroliniana*	Carolina birds-in-a-nest	X		
Lamiales	Lamiaceae	*Perilla frutescens*	beef-steak plant	X		
Lamiales	Lamiaceae	*Prunella vulgaris*	common selfheal, heal all, healall, selfheal	X		
Lamiales	Lamiaceae	*Pycnanthemum flexuosum*	Appalachian mountainmint	X		
Lamiales	Lamiaceae	*Pycnanthemum tenuifolium*	Common Horse Mint	X		
Lamiales	Lamiaceae	*Salvia lyrata*	lyreleaf sage	X		
Lamiales	Lamiaceae	*Scutellaria elliptica*	hairy skullcap	X		
Lamiales	Lamiaceae	*Scutellaria integrifolia*	helmet flower	X		
Lamiales	Lamiaceae	*Scutellaria lateriflora*	blue skullcap, mad dog skullcap	X		
Lamiales	Lamiaceae	*Stachys aspera*	hyssopleaf hedgenettle	X		
Lamiales	Lamiaceae	*Stachys crenata*	mousesear, mouse's-ear	X		
Lamiales	Lamiaceae	*Stachys floridana*	Florida betony, Florida hedgenettle	X		
Lamiales	Lamiaceae	*Stachys hyssopifolia*	hyssopleaf hedgenettle	X		
Lamiales	Linderniaceae	*Lindernia dubia*	moistbank pimpernel, shortstalk lindernia, yellowseed false pimpernel, yellow-seed false pimpernel	X		
Lamiales	Linderniaceae	*Lindernia dubia* var. *anagallidea*	false pimpernel, yellowseed false pimpernel, yellow-seed false pimpernel	X		
Lamiales	Linderniaceae	*Lindernia dubia* var. *dubia*	yellowseed false pimpernel, yellow-seed false pimpernel	X		
Lamiales	Oleaceae	*Chionanthus virginicus*	fringe tree, white fringe-tree	X		
Lamiales	Oleaceae	*Forestiera acuminata*	eastern swampprivet, swamp privet, Texas forestiera	X		
Lamiales	Oleaceae	*Fraxinus americana*	white ash	X		
Lamiales	Oleaceae	*Fraxinus caroliniana*	Carolina ash	X		
Lamiales	Oleaceae	*Fraxinus pennsylvanica*	green ash	X		X
Lamiales	Oleaceae	*Fraxinus pennsylvanica* var. *subintegerrima*	green ash	X		
Lamiales	Oleaceae	*Ligustrum japonicum*	Japanese privet	X		
Lamiales	Oleaceae	*Ligustrum sinense*	Chinese privet, common Chinese privet	X		X
Lamiales	Orobanchaceae	*Agalinis fasciculata*	beach false foxglove	X		
Lamiales	Orobanchaceae	*Agalinis obtusifolia*	tenlobe false foxglove	X		
Lamiales	Orobanchaceae	*Agalinis tenuifolia*	slenderleaf false foxglove, slender-leaf false foxglove	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Lamiales	Orobanchaceae	*Aureolaria pectinata*	combleaf yellow false foxglove	X		
Lamiales	Orobanchaceae	*Conopholis americana*	American cancer-root, American squawroot, squaw-root	X		
Lamiales	Orobanchaceae	*Epifagus virginiana*	beechdrops	X		
Lamiales	Orobanchaceae	*Seymeria cassioides*	yaupon blacksenna	X		
Lamiales	Phrymaceae	*Mazus pumilus*	Japanese mazus	X		
Lamiales	Phrymaceae	*Mimulus alatus*	sharpwing monkeyflower	X		
Lamiales	Phrymaceae	*Mimulus ringens*	Allegheny monkeyflower, Allegheny monkey-flower	X		
Lamiales	Plantaginaceae	*Bacopa monnieri*	coastal water-hyssop	X		
Lamiales	Plantaginaceae	*Callitriche heterophylla*	differentleaf waterstarwort, greater waterstarwort, larger waterstarwort, twoheaded water-starwort, variedleaf waterstarwort	X		
Lamiales	Plantaginaceae	*Gratiola virginiana*	roundfruit hedgehyssop, Virginia hedgehyssop	X		
Lamiales	Plantaginaceae	*Mecardonia acuminata*	purple mecardonia	X		
Lamiales	Plantaginaceae	*Nuttallanthus canadensis*	Canada toadflax, oldfield toadflax, oldfield-toadflax	X		
Lamiales	Plantaginaceae	*Penstemon australis*	beard-tongue	X		
Lamiales	Plantaginaceae	*Plantago aristata*	bottlebrush Indianwheat, largebracted plantain	X		
Lamiales	Plantaginaceae	*Plantago wrightiana*	Wright's plantain	X		
Lamiales	Plantaginaceae	*Veronica peregrina*	neckweed, purslane speedwell	X		
Lamiales	Tetrachondraceae	*Polypremum procumbens*	juniper-leaf	X		
Lamiales	Verbenaceae	*Glandularia pulchella*	South American mock vervain	X		
Lamiales	Verbenaceae	*Verbena bonariensis*	south american vervain	X		
Lamiales	Verbenaceae	*Verbena brasiliensis*	Brazilian vervain	X		
Lamiales	Verbenaceae	*Verbena urticifolia*	white verbena, white vervain	X		
Laurales	Calycanthaceae	*Calycanthus floridus*	sweet-shrub	X		
Laurales	Lauraceae	*Lindera benzoin*	northern spicebush, spicebush	X		X
Laurales	Lauraceae	*Persea borbonia*	redbay	X		X
Laurales	Lauraceae	*Persea palustris*	swamp bay	X		X
Laurales	Lauraceae	*Sassafras albidum*	sassafras	X		
Liliales	Colchicaceae	*Uvularia sessilifolia*	sessile-leaf bellwort	X		
Liliales	Liliaceae	*Medeola virginiana*	Indian cucumber	X		
Liliales	Melanthiaceae	*Amianthium muscitoxicum*	flypoison	X		
Liliales	Melanthiaceae	*Chamaelirium luteum*	fairywand	X		
Liliales	Smilacaceae	*Smilax bona-nox*	saw greenbrier	X		X
Liliales	Smilacaceae	*Smilax glauca*	glaucous-leaved greenbrier	X		
Liliales	Smilacaceae	*Smilax hugeri*	Huger's carrionflower	X		
Liliales	Smilacaceae	*Smilax laurifolia*	laurel-leaf greenbrier	X		X
Liliales	Smilacaceae	*Smilax pumila*	sarsparilla vine	X		
Liliales	Smilacaceae	*Smilax rotundifolia*	bullbriar, common catbriar, common greenbrier, greenbrier, horsebriar, roundleaf greenbriar, roundleaf greenbrier	X		X
Liliales	Smilacaceae	*Smilax smallii*	lanceleaf greenbrier, small greenbrier	X		
Liliales	Smilacaceae	*Smilax tamnoides*	bristly greenbrier	X		
Liliales	Smilacaceae	*Smilax walteri*	walter greenbrier	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Magnoliales	Annonaceae	*Asimina parviflora*	smallflower pawpaw	X		
Magnoliales	Annonaceae	*Asimina triloba*	pawpaw	X		X
Magnoliales	Magnoliaceae	*Liriodendron tulipifera*	bois-jaune, tulip poplar, tulip-poplar, tuliptree, yellow poplar, yellow-poplar	X		
Magnoliales	Magnoliaceae	*Magnolia virginiana*	sweetbay magnolia	X		
Malpighiales	Euphorbiaceae	*Acalypha gracilens*	slender copperleaf, slender threeseed mercury	X		
Malpighiales	Euphorbiaceae	*Acalypha rhomboidea*	common threeseed mercury, Virginia threeseed mercury	X		
Malpighiales	Euphorbiaceae	*Chamaesyce maculata*	large spurge, spotted sandmat, spotted spurge	X		
Malpighiales	Euphorbiaceae	*Cnidoscolus stimulosus*	finger rot	X		
Malpighiales	Euphorbiaceae	*Euphorbia corollata*	flowering spurge, floweringspurge euphorbia	X		
Malpighiales	Euphorbiaceae	*Euphorbia dentata*	toothed euphorbia, toothed spurge, toothedleaf poinsettia	X		
Malpighiales	Euphorbiaceae	*Euphorbia heterophylla*	Mexican fireplant, painted euphorbia	X		
Malpighiales	Euphorbiaceae	*Euphorbia spathulata*	roughpod spurge, warty spurge	X		
Malpighiales	Euphorbiaceae	*Tragia urens*	wavyleaf noseburn	X		
Malpighiales	Euphorbiaceae	*Vernicia fordii*	tungoil tree	X		
Malpighiales	Hypericaceae	*Hypericum crux-andreae*	Atlantic St. Peter's-wort, St. Peterswort	X		
Malpighiales	Hypericaceae	*Hypericum gentianoides*	orangegrass, pinweed St. John’s wort	X		
Malpighiales	Hypericaceae	*Hypericum gymnanthum*	claspingleaf St. John’s wort	X		
Malpighiales	Hypericaceae	*Hypericum hypericoides*	St. Andrew's cross	X		X
Malpighiales	Hypericaceae	*Hypericum mutilum*	slender St. John’s wort	X		
Malpighiales	Hypericaceae	*Hypericum punctatum*	spotted St. John’s wort	X		
Malpighiales	Hypericaceae	*Triadenum virginicum*	marsh St. John's wort, Virginia marsh St. John’s wort	X		
Malpighiales	Hypericaceae	*Triadenum walteri*	greater marsh St. John’s wort	X		
Malpighiales	Linaceae	*Linum medium* var. *texanum*	stiff yellow flax, sucker flas	X		
Malpighiales	Linaceae	*Linum striatum*	ridged yellow flax, rigid flax	X		
Malpighiales	Passifloraceae	*Passiflora incarnata*	purple passionflower	X		
Malpighiales	Passifloraceae	*Passiflora lutea*	passionflower, yellow passionflower	X		X
Malpighiales	Salicaceae	*Populus deltoides*	common cottonwood, eastern cottonwood, plains cottonwood	X		
Malpighiales	Salicaceae	*Populus heterophylla*	swamp cottonwood	X		X
Malpighiales	Salicaceae	*Salix caroliniana*	coastal plain willow	X		
Malpighiales	Salicaceae	*Salix nigra*	black willow	X		X
Malpighiales	Violaceae	*Viola affinis*	lecontes violet	X		
Malpighiales	Violaceae	*Viola palmata*	early blue violet, three-lobe violet, trilobed violet, wood violet	X		
Malpighiales	Violaceae	*Viola primulifolia*	primrose-leaved violet	X		
Malpighiales	Violaceae	*Viola septemloba*	southern coastal violet	X		
Malpighiales	Violaceae	*Viola sororia*	common blue violet, hooded blue violet	X		
Malpighiales	Violaceae	*Viola* X *primulifolia*		X		
Malvales	Cistaceae	*Lechea mucronata*	hairy pinweed	X		
Malvales	Cistaceae	*Lechea pulchella*	Leggett's pinweed	X		
Malvales	Cistaceae	*Lechea torreyi*	Piedmont pinweed	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Malvales	Malvaceae	*Hibiscus moscheutos*	crimsoneyed rosemallow, swamp rosemallow	X		X
Malvales	Malvaceae	*Hibiscus syriacus*	althea, rose of Sharon, shrub althea	X		
Malvales	Malvaceae	*Modiola caroliniana*	Carolina bristlemallow, Carolina modiola	X		
Malvales	Malvaceae	*Sida rhombifolia*	arrowleaf sida, Cuban jute, Cuban-jute	X		
Malvales	Malvaceae	*Tilia americana* var. *heterophylla*	American basswood	X		
Malvales	Malvaceae	*Tilia heterophylla*		X		
Myrtales	Lythraceae	*Ammannia coccinea*	purple ammannia, valley redstem	X		
Myrtales	Lythraceae	*Ammannia latifolia*	pink redstem	X		
Myrtales	Lythraceae	*Cuphea carthagenensis*	colombian waxweed	X		
Myrtales	Lythraceae	*Decodon verticillatus*	swamp loosestrife	X		
Myrtales	Lythraceae	*Lagerstroemia indica*	crapemyrtle	X		
Myrtales	Lythraceae	*Rotala ramosior*	lowland rotala, lowland toothcup, rotala	X		
Myrtales	Melastomataceae	*Rhexia mariana*	Maryland meadowbeauty	X		
Myrtales	Melastomataceae	*Rhexia mariana* var. *mariana*	Maryland meadowbeauty	X		
Myrtales	Melastomataceae	*Rhexia mariana* var. *ventricosa*	Maryland meadowbeauty	X		
Myrtales	Melastomataceae	*Rhexia nashii*	maid Marian	X		
Myrtales	Melastomataceae	*Rhexia virginica*	common meadowbeauty, handsome Harry	X		
Myrtales	Onagraceae	*Ludwigia alata*	winged primrose-willow	X		
Myrtales	Onagraceae	*Ludwigia alternifolia*	bushy seedbox, seedbox	X		
Myrtales	Onagraceae	*Ludwigia decurrens*	wingleaf primrose-willow, wingleaf waterprimrose	X		
Myrtales	Onagraceae	*Ludwigia glandulosa*	cylindric-fruited seedbox	X		
Myrtales	Onagraceae	*Ludwigia leptocarpa*	river seedbox	X		
Myrtales	Onagraceae	*Ludwigia palustris*	marsh primrose-willow, marsh seedbox	X		
Myrtales	Onagraceae	*Ludwigia pilosa*	hairy primrosewillow, hairy primrose-willow	X		
Myrtales	Onagraceae	*Ludwigia uruguayensis*	uruguay seedbox	X		
Myrtales	Onagraceae	*Oenothera biennis*	common evening primrose, common evening-primrose, hoary eveningprimrose, king's-cureall	X		
Myrtales	Onagraceae	*Oenothera fruticosa* ssp. *glauca*	narrowleaf evening primrose, narrowleaf evening-primrose, shrubby sundrops	X		
Myrtales	Onagraceae	*Oenothera laciniata*	cutleaf evening primrose, cutleaf eveningprimrose, cut-leaf evening-primrose, cutleaf evening-primrose, cut-leaved evening primrose	X		
Ophioglossales	Ophioglossaceae	*Botrychium biternatum*	southern grapefern, sparselobe grapefern, sparse-lobed grapefern	X		
Ophioglossales	Ophioglossaceae	*Botrychium dissectum*	cutleaf grape-fern	X		
Ophioglossales	Ophioglossaceae	*Botrychium virginianum*	rattlesnake fern, Virginia grape-fern	X		
Ophioglossales	Ophioglossaceae	*Ophioglossum crotalophoroides*	bulbous adderstongue, bulbous adder's-tongue	X		
Ophioglossales	Ophioglossaceae	*Ophioglossum vulgatum*	southern adderstongue, southern adder's-tongue	X		
Osmundales	Osmundaceae	*Osmunda cinnamomea*	cinnamon fern	X		X
Osmundales	Osmundaceae	*Osmunda regalis*	royal fern	X		
Osmundales	Osmundaceae	*Osmunda regalis* var. *spectabilis*	royal fern	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Oxalidales	Oxalidaceae	*Oxalis stricta*	common yellow oxalis, erect woodsorrel, sheep sorrel, sourgrass, toad sorrel, upright yellow woodsorrel, upright yellow wood-sorrel, yellow woodsorrel	X		X
Oxalidales	Oxalidaceae	*Oxalis violacea*	purple woodsorrel, violet woodsorrel, violet wood-sorrel	X		
Pinales	Cupressaceae	*Juniperus virginiana*	eastern redcedar, eastern red-cedar, red cedar juniper	X		
Pinales	Cupressaceae	*Taxodium ascendens*	pond cypress, pondcypress	X		X
Pinales	Cupressaceae	*Taxodium distichum*	bald cypress, baldcypress	X		X
Pinales	Pinaceae	*Pinus echinata*	Arkansas pine, shortleaf pine, shortleaf yellow pine, shortstraw pine, southern yellow pine, yellow pine	X		
Pinales	Pinaceae	*Pinus palustris*	longleaf pine	X		
Pinales	Pinaceae	*Pinus taeda*	loblolly pine	X		X
Piperales	Aristolochiaceae	*Aristolochia serpentaria*	Virginia snakeroot	X		
Piperales	Aristolochiaceae	*Aristolochia tomentosa*	common dutchman's pipe, woolly dutchman's pipe	X		
Piperales	Aristolochiaceae	*Asarum canadense*	Canada wild-ginger	X		
Piperales	Aristolochiaceae	*Hexastylis arifolia*	littlebrownjug	X		
Piperales	Saururaceae	*Saururus cernuus*	lizard's tail	X		
Poales	Bromeliaceae	*Tillandsia usneoides*	Spanish moss	X		
Poales	Cyperaceae	*Bulbostylis capillaris*	densetuft hairsedge, threadleaf beakseed	X		
Poales	Cyperaceae	*Carex abscondita*	thicket sedge	X		
Poales	Cyperaceae	*Carex alata*	broadwing sedge	X		
Poales	Cyperaceae	*Carex albolutescens*	greenwhite sedge	X		
Poales	Cyperaceae	*Carex amphibola*	amphibious sedge, eastern narrowleaf sedge	X		
Poales	Cyperaceae	*Carex annectens*	yellowfruit sedge	X		
Poales	Cyperaceae	*Carex atlantica*	prickly bog sedge	X		
Poales	Cyperaceae	*Carex atlantica* ssp. *capillacea*	howe sedge, prickly bog sedge	X		
Poales	Cyperaceae	*Carex baileyi*	Bailey's sedge	X		
Poales	Cyperaceae	*Carex blanda*	bland sedge, eastern woodland sedge, woodland sedge	X		
Poales	Cyperaceae	*Carex bromoides*	bromelike sedge, brome-like sedge	X		
Poales	Cyperaceae	*Carex caroliniana*	Carolina sedge	X		
Poales	Cyperaceae	*Carex cephalophora*	ovalleaf sedge, oval-leaf sedge, oval-leaved sedge	X		
Poales	Cyperaceae	*Carex cherokeensis*	Cherokee sedge	X		
Poales	Cyperaceae	*Carex communis*	fibrousroot sedge	X		
Poales	Cyperaceae	*Carex comosa*	longhair sedge	X		
Poales	Cyperaceae	*Carex complanata*	blue sedge, hirsute sedge	X		
Poales	Cyperaceae	*Carex crebriflora*	coastal plain sedge, coastalplain sedge	X		
Poales	Cyperaceae	*Carex crus-corvi*	ravenfoot sedge	X		
Poales	Cyperaceae	*Carex debilis*	white edge sedge	X		
Poales	Cyperaceae	*Carex digitalis*	slender wood sedge, slender woodland sedge	X		
Poales	Cyperaceae	*Carex elliottii*	Elliott's sedge	X		
Poales	Cyperaceae	*Carex festucacea*	fescue sedge	X		
Poales	Cyperaceae	*Carex flaccosperma*	thinfruit sedge	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Poales	Cyperaceae	*Carex floridana*	Florida sedge	X		
Poales	Cyperaceae	*Carex folliculata* var. *australis*		X		
Poales	Cyperaceae	*Carex frankii*	Frank sedge	X		
Poales	Cyperaceae	*Carex gigantea*	giant sedge	X		
Poales	Cyperaceae	*Carex glaucescens*	clustered sedge, southern waxy sedge	X		
Poales	Cyperaceae	*Carex granularis*	limestone meadow sedge, limestone-meadow sedge	X		
Poales	Cyperaceae	*Carex grayi*	Asa Gray's sedge	X		
Poales	Cyperaceae	*Carex howei*	Howe sedge	X		
Poales	Cyperaceae	*Carex intumescens*	greater bladder sedge	X		
Poales	Cyperaceae	*Carex joorii*	cypress swamp sedge	X		
Poales	Cyperaceae	*Carex laevivaginata*	smoothsheath sedge, woolly sedge	X		
Poales	Cyperaceae	*Carex leavenworthii*	Leavenworth's sedge	X		
Poales	Cyperaceae	*Carex leptalea*	bristlestalked sedge, bristly-stalk sedge, bristlystalked sedge	X		
Poales	Cyperaceae	*Carex lonchocarpa*	southern long sedge	X		
Poales	Cyperaceae	*Carex longii*	Long's sedge	X		
Poales	Cyperaceae	*Carex louisianica*	Louisiana sedge	X		
Poales	Cyperaceae	*Carex lupulina*	hop sedge	X		
Poales	Cyperaceae	*Carex lurida*	shallow sedge	X		
Poales	Cyperaceae	*Carex muehlenbergii*	Muhlenberg's sedge	X		
Poales	Cyperaceae	*Carex nigromarginata*	black edge sedge	X		
Poales	Cyperaceae	*Carex oxylepis*	sharpscale sedge	X		
Poales	Cyperaceae	*Carex peckii*	Peck's sedge	X		
Poales	Cyperaceae	*Carex pensylvanica*	Penn sedge, Pennsylvania sedge	X		
Poales	Cyperaceae	*Carex retroflexa*	reflexed sedge	X		
Poales	Cyperaceae	*Carex rosea*	rosy sedge	X		
Poales	Cyperaceae	*Carex scoparia*	broom sedge, pointed broom sedge	X		
Poales	Cyperaceae	*Carex seorsa*	weak stellate sedge	X		
Poales	Cyperaceae	*Carex socialis*	low woodland sedge	X		
Poales	Cyperaceae	*Carex squarrosa*	squarrose sedge	X		
Poales	Cyperaceae	*Carex stipata*	awlfruit sedge, owlfruit sedge, sawbeak sedge, stalk-grain sedge	X		
Poales	Cyperaceae	*Carex striatula*	lined sedge	X		
Poales	Cyperaceae	*Carex styloflexa*	bent sedge	X		
Poales	Cyperaceae	*Carex texensis*	Texas sedge	X		
Poales	Cyperaceae	*Carex tonsa*	shaved sedge	X		
Poales	Cyperaceae	*Carex tribuloides*	blunt broom sedge	X		
Poales	Cyperaceae	*Carex turgescens*	swollen sedge	X		
Poales	Cyperaceae	*Carex typhina*	cat-tail sedge	X		
Poales	Cyperaceae	*Carex venusta*	darkgreen sedge	X		
Poales	Cyperaceae	*Carex vulpinoidea*	common fox sedge, fox sedge	X		
Poales	Cyperaceae	*Cyperus croceus*	Baldwin's flatsedge	X		
Poales	Cyperaceae	*Cyperus echinatus*	globe flatsedge	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Poales	Cyperaceae	*Cyperus erythrorhizos*	red-root flatsedge	X		
Poales	Cyperaceae	*Cyperus haspan*	haspan flatsedge	X		
Poales	Cyperaceae	*Cyperus lupulinus* ssp. *lupulinus*	Great Plains flatsedge	X		
Poales	Cyperaceae	*Cyperus odoratus*	rusty flatsedge	X		
Poales	Cyperaceae	*Cyperus polystachyos*	many-spike flatsedge	X		
Poales	Cyperaceae	*Cyperus pseudovegetus*	green flatsedge	X		
Poales	Cyperaceae	*Cyperus strigosus*	straw-colored flatsedge	X		
Poales	Cyperaceae	*Cyperus virens*	green flatsedge	X		
Poales	Cyperaceae	*Dulichium arundinaceum*	three-way sedge	X		
Poales	Cyperaceae	*Eleocharis microcarpa*	smallfruit spikerush	X		
Poales	Cyperaceae	*Eleocharis obtusa*	blunt spikerush, blunt spikesedge	X		
Poales	Cyperaceae	*Eleocharis parvula*	dwarf spikerush, dwarf spikesedge, little-head spikerush, little-head spike-rush	X		
Poales	Cyperaceae	*Eleocharis tortilis*	twisted spikerush	X		
Poales	Cyperaceae	*Fimbristylis autumnalis*	slender fimbry	X		
Poales	Cyperaceae	*Fuirena pumila*	dwarf umbrellasedge, dwarf umbrella-sedge	X		
Poales	Cyperaceae	*Rhynchospora cephalantha*	bunched beaksedge	X		
Poales	Cyperaceae	*Rhynchospora chalarocephala*	loosehead beaksedge	X		
Poales	Cyperaceae	*Rhynchospora corniculata*	shortbristle hornedrush	X		
Poales	Cyperaceae	*Rhynchospora globularis*	globe beakrush, globe beaksedge	X		
Poales	Cyperaceae	*Rhynchospora glomerata*	clustered beaksedge	X		
Poales	Cyperaceae	*Rhynchospora inexpansa*	nodding beaksedge	X		
Poales	Cyperaceae	*Rhynchospora miliacea*	millet beaksedge	X		
Poales	Cyperaceae	*Rhynchospora pallida*	pale beaksedge	X		
Poales	Cyperaceae	*Rhynchospora recognita*	globe beaksedge	X		
Poales	Cyperaceae	*Rhynchospora torreyana*	Torrey's beaksedge	X		
Poales	Cyperaceae	*Scirpus atrovirens*	woolgrass bullrush	X		
Poales	Cyperaceae	*Scirpus cyperinus*	cottongrass bullrush	X		
Poales	Cyperaceae	*Scleria pauciflora*	fewflower nutrush	X		
Poales	Cyperaceae	*Scleria triglomerata*	whip nutrush	X		
Poales	Juncaceae	*Juncus acuminatus*	sharp-fruit rush	X		
Poales	Juncaceae	*Juncus biflorus*	grass-leaved rush	X		
Poales	Juncaceae	*Juncus brachycarpus*	whiteroot rush	X		
Poales	Juncaceae	*Juncus bufonius*	toad rush	X		
Poales	Juncaceae	*Juncus coriaceus*	leathery rush	X		
Poales	Juncaceae	*Juncus dichotomus*	forked rush	X		
Poales	Juncaceae	*Juncus effusus*	soft rush	X		
Poales	Juncaceae	*Juncus elliottii*	Elliott's rush	X		
Poales	Juncaceae	*Juncus repens*	lesser creeping rush	X		
Poales	Juncaceae	*Juncus scirpoides*	needlepod rush	X		
Poales	Juncaceae	*Luzula echinata*	wood rush	X		
Poales	Poaceae	*Agrostis hyemalis*	winter bentgrass	X		
Poales	Poaceae	*Alopecurus carolinianus*	tufted foxtail	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Poales	Poaceae	*Andropogon glomeratus*	bushy bluestem		X	
Poales	Poaceae	*Andropogon scoparius*		X		
Poales	Poaceae	*Andropogon virginicus*	broom-sedge	X		
Poales	Poaceae	*Aristida purpurascens* var. *virgata*	arrowfeather threeawn	X		
Poales	Poaceae	*Aristida stricta*	pineland three-awn grass	X		
Poales	Poaceae	*Arthraxon hispidus* var. *cryptatherus*		X		
Poales	Poaceae	*Arundinaria gigantea*	giant cane	X		X
Poales	Poaceae	*Arundinaria gigantea* ssp. *gigantea*	giant cane	X		
Poales	Poaceae	*Arundinaria gigantea* ssp. *tecta*	switchcane	X		
Poales	Poaceae	*Arundinaria tecta*	swithcane	X		
Poales	Poaceae	*Axonopus fissifolius*	carpetgrass, common carpetgrass, Louisiana grass, mat grass, narrowleaved carpetgrass	X		
Poales	Poaceae	*Briza minor*	little quakinggrass	X		
Poales	Poaceae	*Bromus catharticus*	rescue grass	X		
Poales	Poaceae	*Chasmanthium latifolium*	indian sea-oats	X		X
Poales	Poaceae	*Chasmanthium laxum*	slender woodoats, spike uniola	X		
Poales	Poaceae	*Chasmanthium sessiliflorum*	longleaf spikegrass, longleaf woodoats	X		X
Poales	Poaceae	*Cinna arundinacea*	stout wood reed-grass, stout woodreed, sweet woodreed, sweet wood-reed	X		
Poales	Poaceae	*Cynodon dactylon*	Bermudagrass, chiendent pied-de-poule, common bermudagrass, devilgrass, grama-seda, manienie, motie molulu	X		
Poales	Poaceae	*Dactylis glomerata*	cocksfoot, orchard grass, orchardgrass	X		
Poales	Poaceae	*Dactyloctenium aegyptium*	crowfoot grass, Durban crowsfoot grass, Egyptian grass	X		
Poales	Poaceae	*Dichanthelium aciculare*	needleleaf rosette grass	X		
Poales	Poaceae	*Dichanthelium acuminatum*	hotsprings panicum, hotsprings rosette grass, tapered rosette grass	X		
Poales	Poaceae	*Dichanthelium boscii*	Bosc's witchgrass	X		
Poales	Poaceae	*Dichanthelium dichotomum*	cypress witchgrass	X		
Poales	Poaceae	*Dichanthelium dichotomum* var. *dichotomum*	cypress panicgrass	X		
Poales	Poaceae	*Dichanthelium laxiflorum*	openflower rosette grass	X		
Poales	Poaceae	*Dichanthelium sphaerocarpon* var. *isophyllum*	roundseed panicgrass, roundseed panicum	X		
Poales	Poaceae	*Digitaria sanguinalis*	hairy crabgrass	X		
Poales	Poaceae	*Echinochloa colona*	jungle rice, jungle ricegrass, junglerice, watergrass	X		
Poales	Poaceae	*Echinochloa crus-galli*	barnyard grass	X		
Poales	Poaceae	*Echinochloa walteri*	coast cockspur, coast cockspur grass, Walter's barnyard grass	X		
Poales	Poaceae	*Eleusine indica*	crowsfoot grass, goose grass, goosegrass, Indian goose grass, Indian goosegrass, manienie ali'I, silver crabgrass, wiregrass	X		
Poales	Poaceae	*Elymus virginicus*	Virginia wild rye, Virginia wildrye	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Poales	Poaceae	*Eragrostis hirsuta*	bigtop lovegrass	X		
Poales	Poaceae	*Eragrostis refracta*	coastal lovegrass	X		
Poales	Poaceae	*Eragrostis spectabilis*	petticoat-climber, purple lovegrass	X		
Poales	Poaceae	*Glyceria melicaria*	melic mannagrass	X		
Poales	Poaceae	*Glyceria striata*	fowl manna grass, fowl mannagrass	X		
Poales	Poaceae	*Hystrix patula*		X		
Poales	Poaceae	*Leersia hexandra*	club-head cutgrass	X		
Poales	Poaceae	*Leersia lenticularis*	catchfly grass	X		
Poales	Poaceae	*Leersia oryzoides*	rice cut grass, rice cutgrass	X		
Poales	Poaceae	*Leersia virginica*	virginia cutgrass	X		
Poales	Poaceae	*Lolium perenne*	Italian ryegrass, perennial rye grass, perennial ryegrass	X		
Poales	Poaceae	*Lolium pratense*	meadow fescue, meadow ryegrass	X		
Poales	Poaceae	*Melica mutica*	oniongrass, twoflower melic, twoflower melicgrass	X		
Poales	Poaceae	*Microstegium vimineum*	eulalia	X		X
Poales	Poaceae	*Milium effusum*	American milletgrass	X		
Poales	Poaceae	*Oplismenus hirtellus*	bristle basketgrass	X		
Poales	Poaceae	*Panicum acuminatum*		X		
Poales	Poaceae	*Panicum agrostoides*		X		
Poales	Poaceae	*Panicum anceps*	panicgrass	X		
Poales	Poaceae	*Panicum dichotomiflorum*	spreading panicgrass	X		
Poales	Poaceae	*Panicum dichotomum*		X		
Poales	Poaceae	*Panicum hemitomon*	maidencane, mountain panic	X		
Poales	Poaceae	*Panicum rigidulum* var. *pubescens*	redtop panicgrass	X		
Poales	Poaceae	*Panicum scoparium*		X		
Poales	Poaceae	*Panicum verrucosum*	warty panicgrass	X		
Poales	Poaceae	*Paspalum dilatatum*	dallas grass, dallis grass, dallisgrass, herbe de miel, herbe sirop, hiku nua, palpalum dilate, water grass	X		
Poales	Poaceae	*Paspalum floridanum*	Florida paspalum	X		
Poales	Poaceae	*Paspalum fluitans*	horsetail paspalum	X		
Poales	Poaceae	*Paspalum laeve*	field paspalum	X		
Poales	Poaceae	*Paspalum notatum*	bahiagrass		X	
Poales	Poaceae	*Paspalum urvillei*	Vasey grass, vaseygrass, Vasey's grass	X		
Poales	Poaceae	*Phalaris caroliniana*	may grass	X		
Poales	Poaceae	*Phanopyrum gymnocarpon*	clustered panic-grass	X		
Poales	Poaceae	*Poa annua*	annual blue grass, annual bluegrass, walkgrass	X		
Poales	Poaceae	*Poa autumnalis*	autumn bluegrass	X		
Poales	Poaceae	*Saccharum alopecuroidum*	silver plumegrass	X		
Poales	Poaceae	*Saccharum baldwinii*	narrow plumegrass	X		
Poales	Poaceae	*Saccharum giganteum*	sugarcane plumegrass	X		
Poales	Poaceae	*Sacciolepis striata*	gibbous panic-grass	X		
Poales	Poaceae	*Schizachyrium scoparium*	little bluestem	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Poales	Poaceae	*Setaria glauca*		X		
Poales	Poaceae	*Setaria parviflora*	knotroot bristlegrass, marsh bristle grass, marsh bristlegrass, yellow bristlegrass	X		
Poales	Poaceae	*Setaria viridis*	bottle grass, green bristle grass, green bristlegrass, green foxtail, pigeongrass, wild millet	X		
Poales	Poaceae	*Sorghastrum nutans*	Indiangrass, yellow indian-grass	X		
Poales	Poaceae	*Sorghum halepense*	aleppo milletgrass, herbe de Cuba, Johnson grass, Johnsongrass, sorgho d'Alep, sorgo de alepo, zacate Johnson	X		
Poales	Poaceae	*Tripsacum dactyloides*	eastern gamagrass	X		
Poales	Poaceae	*Vulpia octoflora* var. *octoflora*	eight-flower six-weeks grass, sixweeks fescue	X		
Poales	Typhaceae	*Typha latifolia*	broadleaf cattail, cattail, common cattail	X		
Poales	Xyridaceae	*Xyris caroliniana*	Carolina yelloweyed grass	X		
Polypodiales	Aspleniaceae	*Asplenium platyneuron*	ebony spleenwort	X		X
Polypodiales	Blechnaceae	*Woodwardia areolata*	chainfern, netted chainfern	X		X
Polypodiales	Blechnaceae	*Woodwardia virginica*	Virginia chainfern	X		
Polypodiales	Dennstaedtiaceae	*Pteridium aquilinum*	bracken, bracken fern, brackenfern, northern bracken fern, western brackenfern	X		
Polypodiales	Dryopteridaceae	*Dryopteris ludoviciana*	southern shield woodfern	X		
Polypodiales	Dryopteridaceae	*Polystichum acrostichoides*	Christmas fern	X		X
Polypodiales	Onocleaceae	*Onoclea sensibilis*	sensitive fern	X		X
Polypodiales	Polypodiaceae	*Pleopeltis polypodioides*	resurrection fern	X		
Polypodiales	Polypodiaceae	*Pleopeltis polypodioides* ssp. *polypodioides*	resurrection fern	X		
Polypodiales	Polypodiaceae	*Polypodium polypodioides*	resurrection fern	X		
Polypodiales	Pteridaceae	*Adiantum pedatum*	Northern maiden-hair fern	X		
Polypodiales	Thelypteridaceae	*Macrothelypteris torresiana*	swordfern	X		
Polypodiales	Thelypteridaceae	*Phegopteris hexagonoptera*	broad beech fern, southern beech fern	X		
Polypodiales	Thelypteridaceae	*Thelypteris kunthii*	Kunth's maiden fern	X		
Polypodiales	Thelypteridaceae	*Thelypteris noveboracensis*	New York fern	X		
Polypodiales	Thelypteridaceae	*Thelypteris palustris*	eastern marsh fern, marsh fern, meadow fern	X		
Polypodiales	Woodsiaceae	*Athyrium asplenioides*	Southern lady-fern	X		
Polypodiales	Woodsiaceae	*Athyrium filix-femina*	common ladyfern, ladyfern, subarctic ladyfern	X		
Polypodiales	Woodsiaceae	*Athyrium filix-femina* ssp. *asplenioides*	asplenium ladyfern	X		
Proteales	Platanaceae	*Platanus occidentalis*	American sycamore, sycamore	X		X
Ranunculales	Berberidaceae	*Berberis thunbergii*	Japanese barberry	X		
Ranunculales	Berberidaceae	*Podophyllum peltatum*	Indian-apple, May apple, mayapple, pomme de mai, wild-mandrake	X		
Ranunculales	Menispermaceae	*Cocculus carolinus*	red-berried moonseed	X		X
Ranunculales	Menispermaceae	*Menispermum canadense*	Canadian moonseed, common moonseed	X		
Ranunculales	Papaveraceae	*Corydalis flavula*	yellow corydalis	X		
Ranunculales	Papaveraceae	*Sanguinaria canadensis*	bloodroot	X		
Ranunculales	Ranunculaceae	*Clematis crispa*	blue jasmine leather-flower	X		
Ranunculales	Ranunculaceae	*Clematis viorna*	leather-flower clematis, vase-vine leatherflower	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Ranunculales	Ranunculaceae	*Clematis virginiana*	virginia virgin-bower	X		
Ranunculales	Ranunculaceae	*Hepatica americana*		X		
Ranunculales	Ranunculaceae	*Ranunculus abortivus*	early woodbuttercup, kidney-leaf buttercup, littleleaf buttercup, smallflower buttercup, smallflower crowfoot	X		
Ranunculales	Ranunculaceae	*Ranunculus acris*	meadow buttercup, tall buttercup	X		
Ranunculales	Ranunculaceae	*Ranunculus hispidus*	bristly buttercup	X		
Ranunculales	Ranunculaceae	*Ranunculus recurvatus*	blisterwort, littleleaf buttercup	X		
Ranunculales	Ranunculaceae	*Ranunculus sardous*	hairy buttercup	X		
Ranunculales	Ranunculaceae	*Thalictrum thalictroides*	windflower	X		
Ranunculales	Ranunculaceae	*Xanthorhiza simplicissima*	yellowroot	X		
Rosales	Cannabaceae	*Cannabis sativa*	grass, hashish, hemp, marijuana, Mary Jane, pot	X		
Rosales	Cannabaceae	*Celtis laevigata*	sugarberry, hackberry	X		X
Rosales	Elaeagnaceae	*Elaeagnus umbellata*	autumn olive, oleaster	X		
Rosales	Moraceae	*Morus alba*	mulberry, white mulberry	X		
Rosales	Moraceae	*Morus rubra*	red mulberry	X		X
Rosales	Rhamnaceae	*Berchemia scandens*	supplejack, rattanvine	X		X
Rosales	Rhamnaceae	*Ceanothus americanus*	Jersey tea, New Jersey tea	X		
Rosales	Rosaceae	*Amelanchier arborea*	Allegheny serviceberry, apple shadbush, common serviceberry, downy serviceberry, shadblow	X		
Rosales	Rosaceae	*Crataegus crus-galli*	cockspur hawthorn	X		
Rosales	Rosaceae	*Crataegus flava*	yellow hawthorn, yellowleaf hawthorn	X		
Rosales	Rosaceae	*Crataegus marshallii*	parsley-leaved hawthorn	X		X
Rosales	Rosaceae	*Crataegus phaenopyrum*	Washington hawthorn	X		
Rosales	Rosaceae	*Crataegus spathulata*	littlehip hawthorn	X		
Rosales	Rosaceae	*Crataegus viridis*	green hawthorn	X		
Rosales	Rosaceae	*Duchesnea indica*	indian mock-strawberry	X		
Rosales	Rosaceae	*Geum canadense*	white avens	X		
Rosales	Rosaceae	*Geum laciniatum*	rough avens	X		
Rosales	Rosaceae	*Geum virginianum*	pale avens	X		
Rosales	Rosaceae	*Malus angustifolia*	southern crab apple, southern crabapple	X		
Rosales	Rosaceae	*Photinia pyrifolia*	red chokeberry	X		
Rosales	Rosaceae	*Potentilla canadensis*	canada cinquefoil	X		
Rosales	Rosaceae	*Prunus angustifolia*	Chickasaw plum	X		
Rosales	Rosaceae	*Prunus serotina*	wild black cherry	X		
Rosales	Rosaceae	*Prunus serotina* var. *serotina*	black cherry	X		
Rosales	Rosaceae	*Prunus umbellata*	flatwood plum, hog plum	X		
Rosales	Rosaceae	*Pyracantha coccinea*	scarlet firethorn	X		
Rosales	Rosaceae	*Pyrus communis*	common pear, pear	X		
Rosales	Rosaceae	*Rosa palustris*	swamp rose	X		
Rosales	Rosaceae	*Rubus argutus*	prickly Florida blackberry, sawtooth blackberry	X		
Rosales	Rosaceae	*Rubus canadensis*	smooth blackberry	X		
Rosales	Rosaceae	*Rubus cuneifolius*	sand blackberry	X		X

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Rosales	Rosaceae	*Rubus hispidus*	bristly dewberry	X		
Rosales	Rosaceae	*Rubus trivialis*	southern dewberry	X		X
Rosales	Ulmaceae	*Planera aquatica*	planertree, water elm, water-elm	X		X
Rosales	Ulmaceae	*Ulmus alata*	winged elm	X		X
Rosales	Ulmaceae	*Ulmus americana*	American elm	X		
Rosales	Ulmaceae	*Ulmus rubra*	slippery elm	X		X
Rosales	Urticaceae	*Boehmeria cylindrica*	false nettle	X		X
Rosales	Urticaceae	*Laportea canadensis*	wood nettle	X		
Rosales	Urticaceae	*Parietaria pensylvanica*	Pennsylvania pellitory	X		
Rosales	Urticaceae	*Pilea pumila*	Canada clearweed, Canadian clearweed	X		
Rosales	Urticaceae	*Urtica chamaedryoides*	weaknettle	X		
Salviniales	Azollaceae	*Azolla caroliniana*	Carolina mosquitofern	X		
Santalales	Santalaceae	*Phoradendron leucarpum*	oak mistletoe	X		
Sapindales	Anacardiaceae	*Rhus copallina*	dwarf sumac, shining sumac	X		X
Sapindales	Anacardiaceae	*Rhus glabra*	smooth sumac	X		
Sapindales	Anacardiaceae	*Toxicodendron radicans* ssp. *radicans*	eastern poison ivy	X		
Sapindales	Anacardiaceae	*Toxicodendron vernix*	poison sumac	X		
Sapindales	Meliaceae	*Melia azedarach*	china berry	X		X
Sapindales	Rutaceae	*Poncirus trifoliata*	hardy orange	X		
Sapindales	Sapindaceae	*Acer negundo*	box elder	X		X
Sapindales	Sapindaceae	*Acer rubrum*	red maple	X		X
Sapindales	Sapindaceae	*Acer rubrum* var. *trilobum*	red maple	X		
Sapindales	Sapindaceae	*Acer saccharinum*	silver maple	X		
Sapindales	Sapindaceae	*Aesculus pavia*	red buckey	X		X
Sapindales	Sapindaceae	*Aesculus sylvatica*	painted buckey	X		
Saxifragales	Altingiaceae	*Liquidambar styraciflua*	sweetgum	X		X
Saxifragales	Haloragaceae	*Proserpinaca palustris*	marsh mermaid-weed	X		
Saxifragales	Haloragaceae	*Proserpinaca pectinata*	comb-leaved mermaid-weed	X		
Saxifragales	Hamamelidaceae	*Hamamelis virginiana*	American witchhazel, witchhazel, witch-hazel	X		
Saxifragales	Iteaceae	*Itea virginica*	Virgina willow, Virginia sweetspire	X		X
Saxifragales	Penthoraceae	*Penthorum sedoides*	ditch stonecrop, Virginia penthorum	X		
Saxifragales	Saxifragaceae	*Heuchera americana*	alumroot, American alumroot	X		
Schizaeales	Lygodiaceae	*Lygodium japonicum*	Japanese climbing fern	X		X
Selaginellales	Selaginellaceae	*Selaginella apoda*	meadow spikemoss	X		
Solanales	Convolvulaceae	*Cuscuta compacta*	sessile dodder	X		
Solanales	Convolvulaceae	*Dichondra carolinensis*	carolina pony-foot	X		X
Solanales	Convolvulaceae	*Ipomoea coccinea*	Mexican morningglory, red morningglory, redstar, scarlet morningglory, starglory, woolly tidestromia	X		
Solanales	Convolvulaceae	*Ipomoea cordatotriloba*	cotton morningglory, tievine	X		
Solanales	Convolvulaceae	*Ipomoea lacunosa*	small-flower white morningglory	X		
Solanales	Convolvulaceae	*Ipomoea nil*	whiteedge morningglory, whiteedge morning-glory	X		

Table A-1 (continued). Vascular plant species known to occur at Congaree National Park (NPSpecies 2016) and species detected during 2014 monitoring efforts [1—listed in NPSpecies; 2—new in previous study; 3—new in this study].

Order	Family	Scientific Name	Common Names	1	2	3
Solanales	Convolvulaceae	*Ipomoea pandurata*	bigroot morningglory, man of the earth, man-of-the-earth	X		
Solanales	Convolvulaceae	*Jacquemontia tamnifolia*	hairy cluster-vine	X		
Solanales	Convolvulaceae	*Stylisma humistrata*	southern dawnflower	X		
Solanales	Solanaceae	*Physalis virginiana*	lanceleaf groundcherry, Virginia ground cherry, Virginia groundcherry, Virginia ground-cherry	X		
Solanales	Solanaceae	*Solanum americanum*	American black nightshade		X	
Solanales	Solanaceae	*Solanum carolinense*	horse nettle	X		X
Solanales	Solanaceae	*Solanum pseudocapsicum*	Jerusalem cherry	X		X
Solanales	Solanaceae	*Solanum ptychanthum*		X		
Solanales	Sphenocleaceae	*Sphenoclea zeylanica*	chickenspike	X		
Vitales	Vitaceae	*Ampelopsis arborea*	pepper-vine, sweet pepper-vine	X		X
Vitales	Vitaceae	*Ampelopsis cordata*	heartleaf pepper-vine	X		
Vitales	Vitaceae	*Parthenocissus quinquefolia*	virginia creeper	X		X
Vitales	Vitaceae	*Vitis aestivalis*	summer grape	X		X
Vitales	Vitaceae	*Vitis aestivalis* var. *aestivalis*	summer grape	X		
Vitales	Vitaceae	*Vitis cinerea* var. *floridana*	Florida grape	X		
Vitales	Vitaceae	*Vitis rotundifolia*	muscadine, muscadine grape	X		X
Vitales	Vitaceae	*Vitis vulpina*	fox grape, frost grape, wild grape	X		

Appendix B. Plant species detected in sampling locations.

Table B-1. Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Acer negundo	X	X	X	X			X	X		X		X	X	X	X			X		X		
Acer rubrum	X	X	X	X	X	X	X		X	X	X	X			X	X	X	X	X	X	X	X
Aesculus pavia						X																
Ambrosia artemisiifolia							X					X		X								
Ampelopsis arborea	X	X	X			X	X	X	X			X		X	X				X			
Apocynum cannabinum																					X	
Arisaema dracontium																		X		X		
Arisaema triphyllum	X											X						X				
Arundinaria gigantea		X		X	X	X	X		X	X	X	X	X		X	X				X		X
Asclepias perennis																			X			
Asimina triloba			X	X	X	X	X	X		X	X		X	X	X	X		X		X		X
Asplenium platyneuron						X						X										
Asteraceae											X											
Bacopa sp.																					X	
Berchemia scandens	X								X			X			X							X
Betula nigra						X						X										
Bignonia capreolata	X			X	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X
Boehmeria cylindrica			X	X		X	X	X	X	X	X	X	X	X	X		X	X		X	X	X
Callicarpa americana					X	X						X								X		
Campsis radicans	X	X	X			X	X		X	X		X	X	X	X	X	X	X	X			X
Carex sp.	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
Carpinus caroliniana	X	X		X	X	X			X		X		X			X				X		X
Carya alba	X										X											
Carya aquatica		X																				
Carya ovata				X		X		X						X	X					X		
Carya sp.	X					X									X							
Celtis laevigata		X	X	X	X		X	X		X	X	X	X	X	X	X		X		X		X
Cephalanthus occidentalis		X			X				X													
Chasmanthium latifolium							X						X	X	X		X	X				

Table B-1 (continued). Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Chasmanthium sessiliflorum			X			X		X	X			X	X	X	X	X		X				X
Cirsium nuttallii												X										
Clematis sp.											X											
Cocculus carolinus			X									X		X	X							
Commelina virginica												X					X					
Cornus foemina																			X			
Crataegus marshallii							X	X							X					X		X
Crataegus sp.		X	X				X					X										X
Cyrilla racemiflora					X																	
Decumaria barbara																	X				X	
Dichanthelium sp.	X				X	X	X					X		X								
Dichondra carolinensis												X										
Dioscorea villosa	X		X		X																	
Diospyros virginiana	X											X										
Elymus sp.													X		X			X		X		
Erechtites hieraciifolia					X							X							X			
Euonymus americanus	X					X																
Eupatorium capillifolium												X										
Eupatorium sp.												X										
Fabaceae												X		X								
Fagus grandifolia						X																
Filicopsida						X												X				
Fraxinus pennsylvanica		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Galium sp.					X							X	X							X		
Gelsemium sempervirens	X				X							X										
Gleditsia triacanthos												X										
Gonolobus suberosa											X	X		X	X					X		
Hibiscus moscheutos		X																				
Hydrocotyle umbellata						X				X											X	
Hymenocallis sp.																	X					

Table B-1 (continued). Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Hypericum hypericoides	X																					
Hypericum sp.								X														
Hypoxis hirsuta					X	X																
Ilex ambigua			X								X		X			X						
Ilex decidua		X		X		X	X	X	X	X		X		X	X			X	X	X		X
Ilex opaca	X				X	X				X	X		X	X	X	X					X	
Ilex sp.																					X	
Impatiens capensis				X									X									
Ipomoea sp.														X								
Itea virginica																					X	
Juglandaceae	X																					
Juglans nigra						X																
Juncus sp.	X				X																	
Justicia ovata						X				X		X					X					
Lespedeza cuneata												X										
Leucothoe axillaris																					X	
Ligustrum sinense							X	X				X	X	X	X					X		X
Lindera benzoin								X					X									
Liquidambar styraciflua	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Lonicera japonica					X	X						X	X		X						X	
Lygodium japonicum							X					X									X	
Magnoliopsida	X		X	X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X
Melia azedarach												X										
Microstegium vimineum				X	X	X		X				X	X		X					X		
Mikania scandens						X																
Mitchella repens	X				X	X					X	X										
Morus rubra	X															X						X
Nyssa aquatica				X		X	X		X	X							X		X		X	X
Nyssa sp.																					X	
Nyssa sylvatica var. *biflora*	X				X	X										X	X				X	

Table B-1 (continued). Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Onoclea sensibilis								X													X	
Osmunda cinnamomea	X																					
Ostrya virginiana											X											
Oxalis stricta								X				X		X								
Packera glabella				X									X									
Parietaria floridana																					X	
Parthenocissus quinquefolia	X					X	X	X	X		X	X	X	X	X			X		X	X	X
Paspalum notatum												X										
Passiflora lutea												X										
Persea borbonia					X																X	
Persea palustris					X																	
Phlox sp.	X																					
Phytolacca americana												X										
Pinus taeda	X				X	X						X										
Planera aquatica		X				X										X	X		X			
Platanus occidentalis	X	X	X	X		X	X					X	X	X	X			X		X		X
Poaceae	X											X						X		X		
Polygonum sp.			X		X	X	X	X		X		X	X	X	X		X			X	X	
Polystichum acrostichoides										X												
Populus heterophylla		X					X		X					X		X			X			
Prenanthes sp.	X					X																
Pteridium aquilinum												X										
Quercus alba	X																					
Quercus falcata													X			X						
Quercus laurifolia	X	X	X	X	X		X	X	X	X	X			X	X		X	X			X	X
Quercus lyrata		X		X	X	X	X		X							X	X		X			X
Quercus michauxii	X				X	X					X	X	X			X				X		X
Quercus nigra	X	X	X		X	X						X										
Quercus pagoda					X	X		X				X			X							
Quercus phellos	X		X		X	X																

Table B-1 (continued). Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Quercus sp.	X			X				X														
Quercus velutina			X																	X		
Rhus copallinum					X																	
Rhynchospora sp.					X	X	X							X								X
Rubus cuneifolius						X						X									X	
Rubus sp.									X													
Rubus trivialis	X		X		X							X		X					X			
Ruellia caroliniensis												X										
Sabal minor						X			X													
Sagittaria latifolia						X																
Salix nigra		X					X															
Sambucus canadensis	X			X																	X	
Samolus parviflorus								X														
Sanicula canadensis	X				X							X	X									
Saururus cernuus		X		X	X	X		X	X	X		X	X				X	X	X	X	X	X
Smilax bona-nox	X					X																
Smilax laurifolia																					X	
Smilax rotundifolia	X	X	X	X	X		X	X	X			X		X	X	X	X	X	X	X		X
Smilax sp.			X		X	X				X	X		X	X	X							X
Solanum carolinense												X										
Solanum pseudocapsicum															X					X		
Solidago sp.								X				X										X
Stellaria media												X										
Taxodium ascendens		X					X		X	X		X					X		X		X	
Taxodium distichum						X											X					
Thelypteris sp.					X					X										X		
Tillandsia usneoides				X		X	X								X			X				
Toxicodendron radicans	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X		X
Trachelospermum difforme							X															
Ulmus alata				X	X	X	X					X			X			X				

Table B-1 (continued). Vascular plant taxa detected at each sampling location across all strata at Congaree National Park in 2014. Numbers to the right of taxon column indicate sampling location.

Taxon	43	45	46	47	48	49	51	52	53	54	55	57	59	62	63	64	66	67	69	70	71	74
Ulmus rubra	X	X	X	X			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X
Ulmus sp.				X																		
Vaccinium corymbosum	X																					
Vaccinium elliottii					X	X																
Viola sp.	X	X		X	X	X		X		X	X	X	X	X	X		X					X
Vitis aestivalis		X				X		X				X		X								
Vitis rotundifolia	X		X	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	X
Woodwardia areolata					X	X						X									X	

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