



A Last Stand for Swamp Forests

Gen. Francis Marion, legendary Swamp Fox of the Revolutionary War, confided to his journals: "I look at the venerable trees around me and I know that I must not dishonor them." History attests that General Marion honored the trees that sheltered his strategic military forays for political freedom. Dishonor came in the 1880s, when our Southern swamps fell wholesale under ax and saw. These great swamps, originally extending from the Chesapeake Bay to east Texas, were decimated in the next few decades. Precious remnants that survived were drowned behind dams. Would any be saved?

Congaree, the last significant stand of old-growth riverbottom hardwood forest, found protection with its inclusion in the National Park System in 1976. The National Park System consists of more than 300 units comprising 80 million acres representing the best examples of our country's natural and cultural assets. Congaree not only enjoys this status but also has been designated part of the international Man and the Biosphere program to conserve genetic diversity and to act as an environmental baseline for research and monitoring. It is an ideal choice: The area boasts approximately 90 tree species, with numerous state-record-sized trees and a few national champions. The variety of trees equals half the number found in all of Europe. And loblolly pines as tall as 169 feet grow here in a rare association with hardwood swamps.

The forest's robust health matches its trees' record status and amply supports its wildlife inhabitants. One sign of a healthy forest is the presence of downed logs, a sign of the normal cycle of growth, death, and decay. Standing dead trees are homes and feeding sites for all 8 woodpecker species found in the Southeast, including the endangered red-cockaded woodpecker. Congaree's wildlife is generally representative of this region. The Swamp Fox no doubt would be proud that his venerable trees are now themselves honored by protection and providing refuge to bobcats, barred owls, and other wildlife.

Exploring Congaree Swamp

See the park's natural wonders afoot or by canoe. **Afoot.** Colored markers make the park's 6 trails easy to follow. The most popular trail, the Weston Lake loop trail, is a 3-mile loop through scenic floodplains. The popular Boardwalk provides wheelchair access to Weston Lake and foot access to

other loop trails. **Naturalist-guided walks** lasting 2 hours are offered on Saturdays at 1:30 p.m. Group tours may be prearranged. **By canoe.** A marked canoe trail invites you to explore **Cedar Creek:** See canoe access points on the map. Reservations may be made for guided canoe tours. Bring

your own canoe and life preservers. Canoes may be rented in the Columbia area. Contact the park for advice on camping permits if you are planning an overnight river trip.



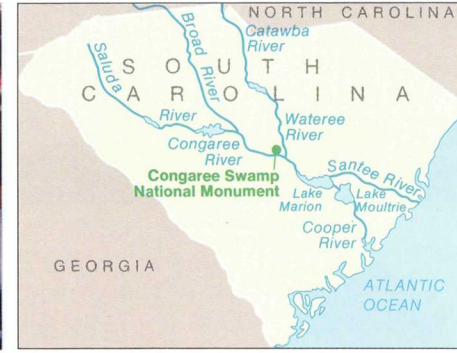
A great blue heron glides above Congaree Swamp's forest canopy. Ample river silts from

frequent floods nourish big trees and abundant wildlife.



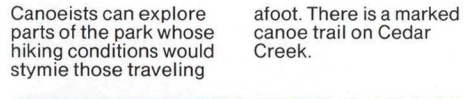
Naturalist-led programs will help you learn about this park and its important role in saving a

remnant of floodplain forests once abundant throughout the South.



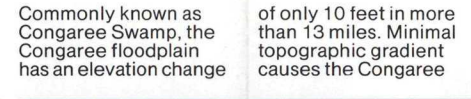
The Congaree River forms a small link in a river system whose watershed drains much of

South Carolina. Dams created lakes that drowned many forests like these.



Canoeists can explore parts of the park whose hiking conditions would stymie those traveling

afoot. There is a marked canoe trail on Cedar Creek.



Commonly known as Congaree Swamp, the Congaree floodplain has an elevation change

of only 10 feet in more than 13 miles. Minimal topographic gradient causes the Congaree

River to meander and form great looping bends.

Special adaptations enable many floodplain plants to survive periodic flooding.



Photographs by Tim Thompson



Information and Safety

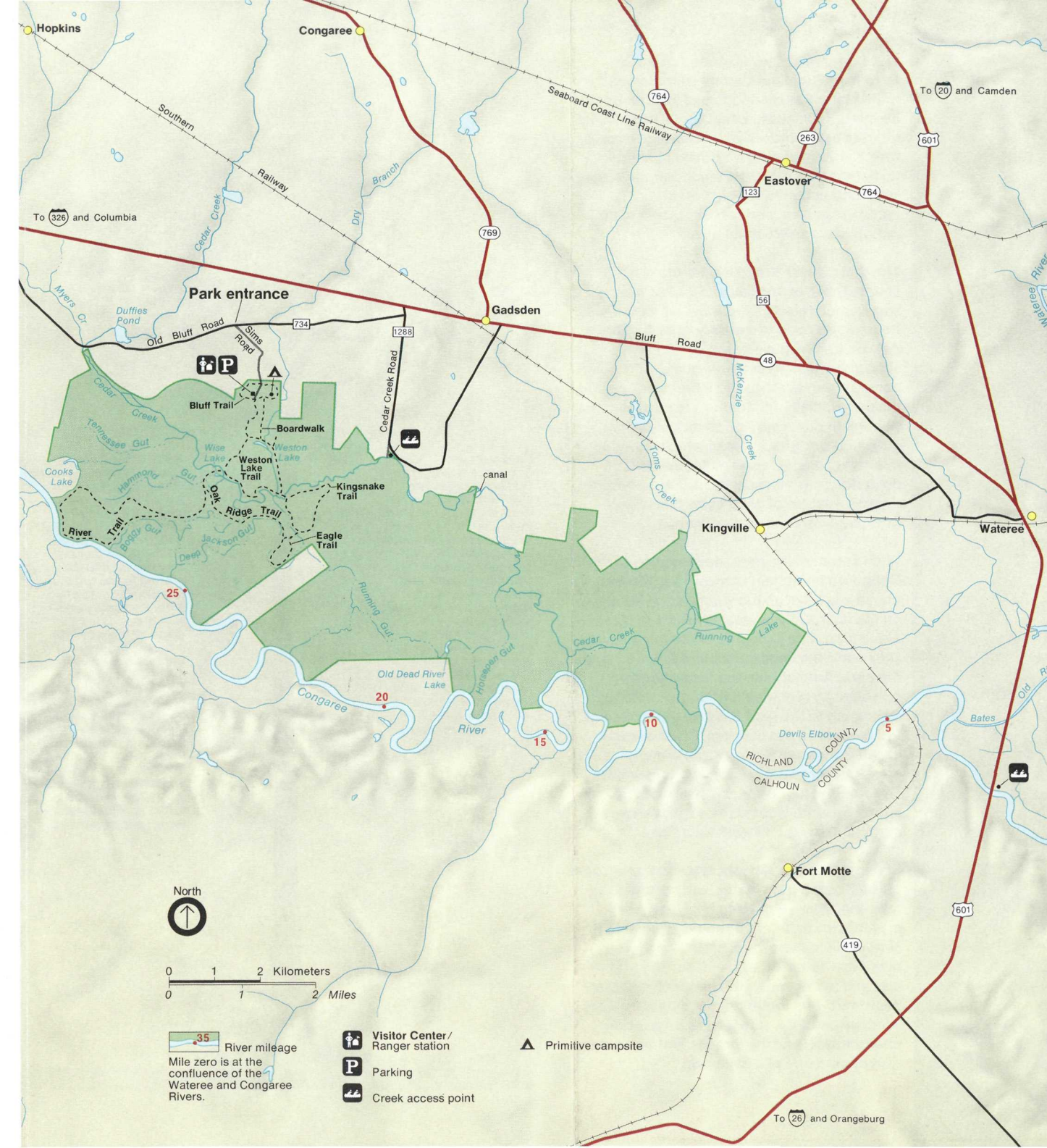
Information For information write or call the superintendent, Congaree Swamp National Monument, Suite 607, Strom Thurmond Federal Building, Columbia, SC 29201; telephone (803) 765-5571. The park is open daily from 8:30 a.m. to 5 p.m.

Register your vehicle at the ranger station (see map) and enjoy hiking, fishing, canoeing, or primitive camping. To ensure safety for all visi-

tors, bicycles or motor vehicles are not allowed on trails. **Pets** All pets must be kept on a leash and off the boardwalk and trails. **Fishing** A

South Carolina fishing license is required. Fishing is prohibited after sunset. **Camping** A free permit is required. Fires are prohibited ex-

cept in designated locations. **Regulations** The following are not permitted: littering, firearms, picking wildflowers, and disturbing wildlife.



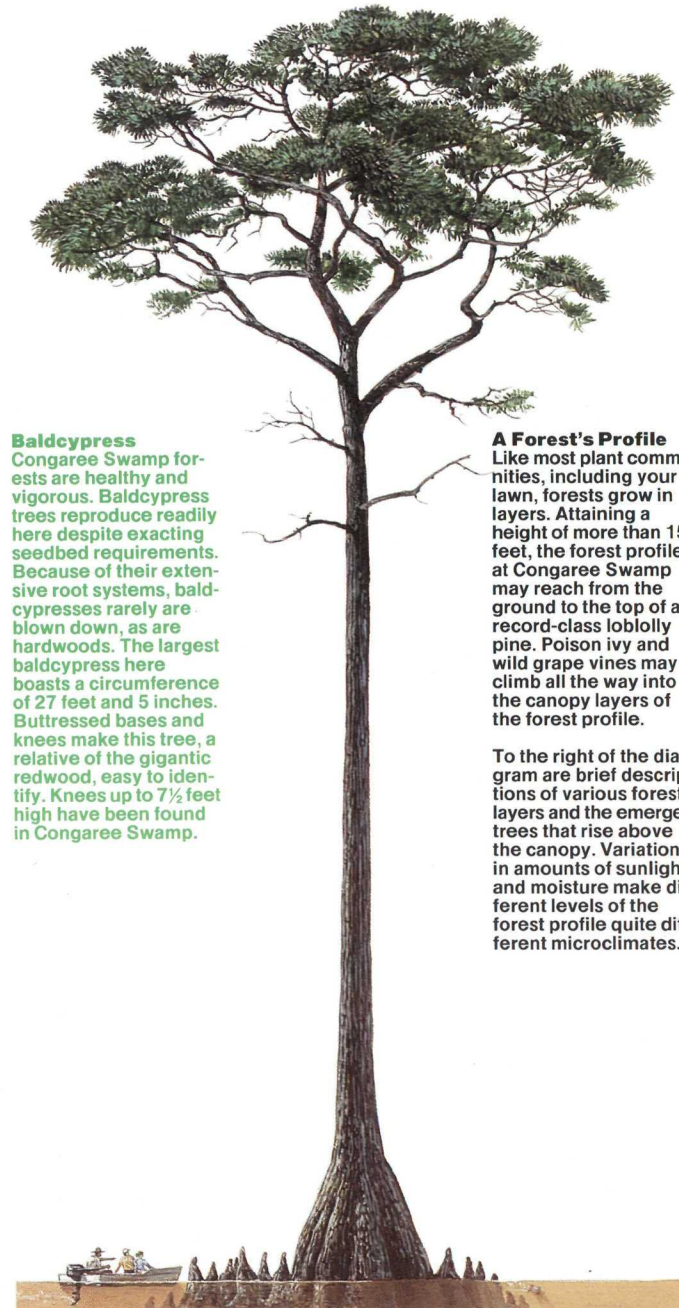
River, Floodplain, and Forest

The Congaree River is formed in South Carolina's Richland County with the confluence of the Saluda and Broad Rivers. Some 60 miles downstream the Congaree loses its identity as it joins with the Wateree River to form the Santee River. With its characteristic flooding currents, the meandering Congaree River can gradually cut off one of its many meanders, or river turns, to form an oxbow such as Weston Lake.

The Saluda and Broad Rivers drain 8,032 square miles of northwest South Carolina and western North Carolina. The extent of a flooding episode in the Congaree Swamp is determined by the amount of rainfall upstream in these rivers' watersheds. Flooding occurs on an average of 10 times per year in the park. Initially, inundations of the Congaree floodplain come via its network of creeks, guts, and sloughs, some of which were former riverbeds. Recurrent floodwaters deposit rich soils whose nutrients support the diverse mixture of giant trees that makes Congaree Swamp so significant.

Within most of the park the elevation of the Congaree floodplain ranges from 100 feet above sea level on the west side to 80 feet on the east. Only several levees and some elevated points known as cattle mounds can slow down the floodwaters that surge through the park. Animals survive these flooding episodes by reaching higher ground or by swimming to the bluff lines on either side of the river. (See the diagram, Cross-section of the Congaree River.) A park ranger once saw three pigs riding out floodwaters on a floating log. Deer can swim the river to higher ground. Bobcats and salamanders may climb trees and wait out a flood.

Shallow, disk-shaped root systems make Congaree Swamp trees particularly prone to toppling. When a big tree falls, its crown may leave a half-acre opening in the forest canopy. Hikers beware: brambles grow in these openings left by treefalls, and in summer and fall wasps frequent canebrakes, the boardwalk, and footbridges. Despite treefalls, some areas of the forest have huge open understories, and the large, silent trees may well remind one of a cathedral.



Baldcypress
Congaree Swamp forests are healthy and vigorous. Baldcypress trees reproduce readily here despite exacting seedbed requirements. Because of their extensive root systems, baldcypresses rarely are blown down, as are hardwoods. The largest baldcypress here boasts a circumference of 27 feet and 5 inches. Buttressed bases and knees make this tree, a relative of the gigantic redwood, easy to identify. Knees up to 7½ feet high have been found in Congaree Swamp.

A Forest's Profile
Like most plant communities, including your lawn, forests grow in layers. Attaining a height of more than 150 feet, the forest profile at Congaree Swamp may reach from the ground to the top of a record-class loblolly pine. Poison ivy and wild grape vines may climb all the way into the canopy layers of the forest profile.

To the right of the diagram are brief descriptions of various forest layers and the emergent trees that rise above the canopy. Variations in amounts of sunlight and moisture make different levels of the forest profile quite different microclimates.

Floodplain Forests
Dramatic changes in soil conditions caused by slight elevation changes produce diverse associations of tree species. Sycamores, whose roots tolerate periodic inundation, dominate stream banks. Baldcypress or tupelo dominate low areas of standing water. Overcup oak forest associations dominate slightly drier flats.

Elevation
Changes of only a few feet in elevation can result in entirely different types of trees. Dense stands of cherrybark oak, sweetgum, and holly thrive on higher, drier soils. On lower areas stands of water tupelo, baldcypress, and water ash grow. Loblolly pines and canebrakes are indicators of slightly higher ground.

Sweetgum/Mixed Hardwoods
Most common in the park, the sweetgum/mixed hardwoods association occurs throughout the floodplain. Sweetgum dominates along with swamp chestnut, laurel oaks, and green ash. Ironwood, holly, and sometimes pawpaws dominate its understory.

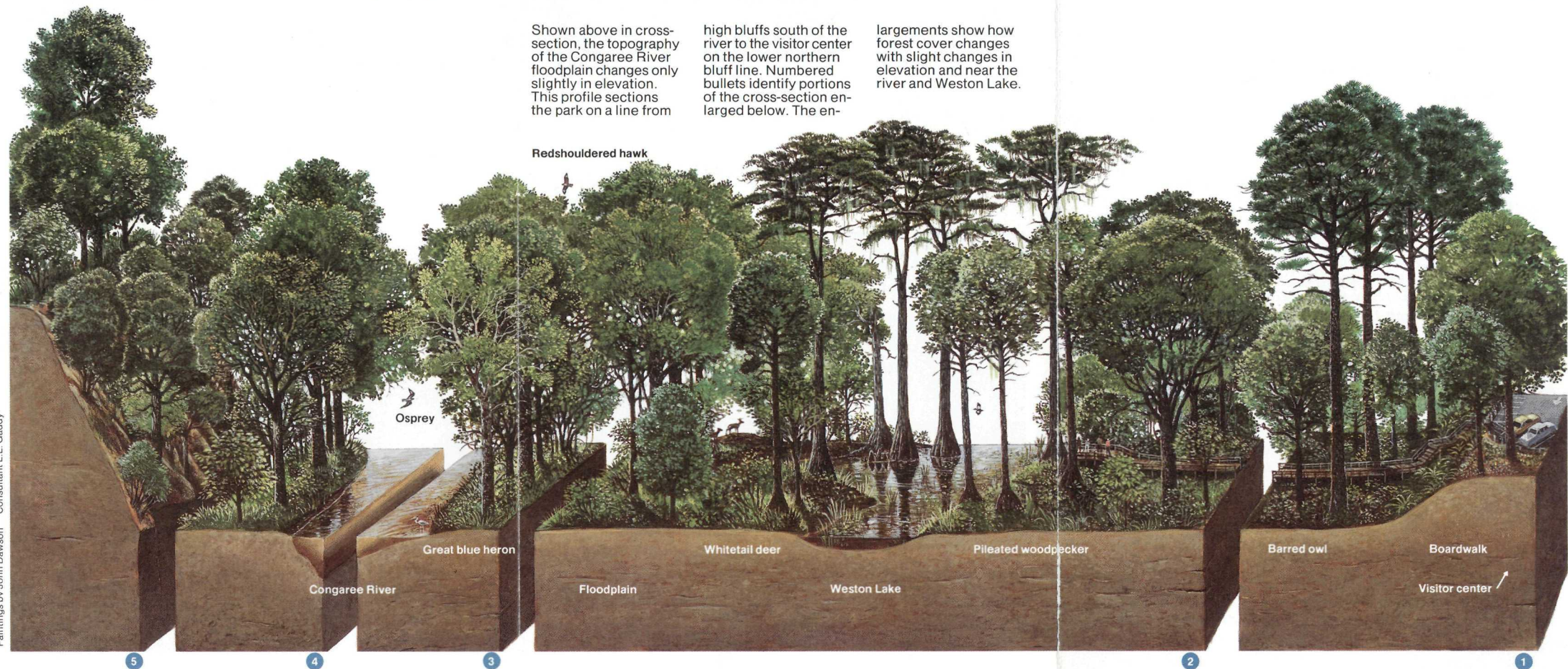


A Fall Begets Growth
When a big tree falls it creates a gap in the forest canopy that admits light to the forest floor and initiates a new plant succession episode. The tree's roots pull up soil, beginning the creation of pit-and-mound topography. As soil falls off the root system, it creates a mound on the pit's rim.



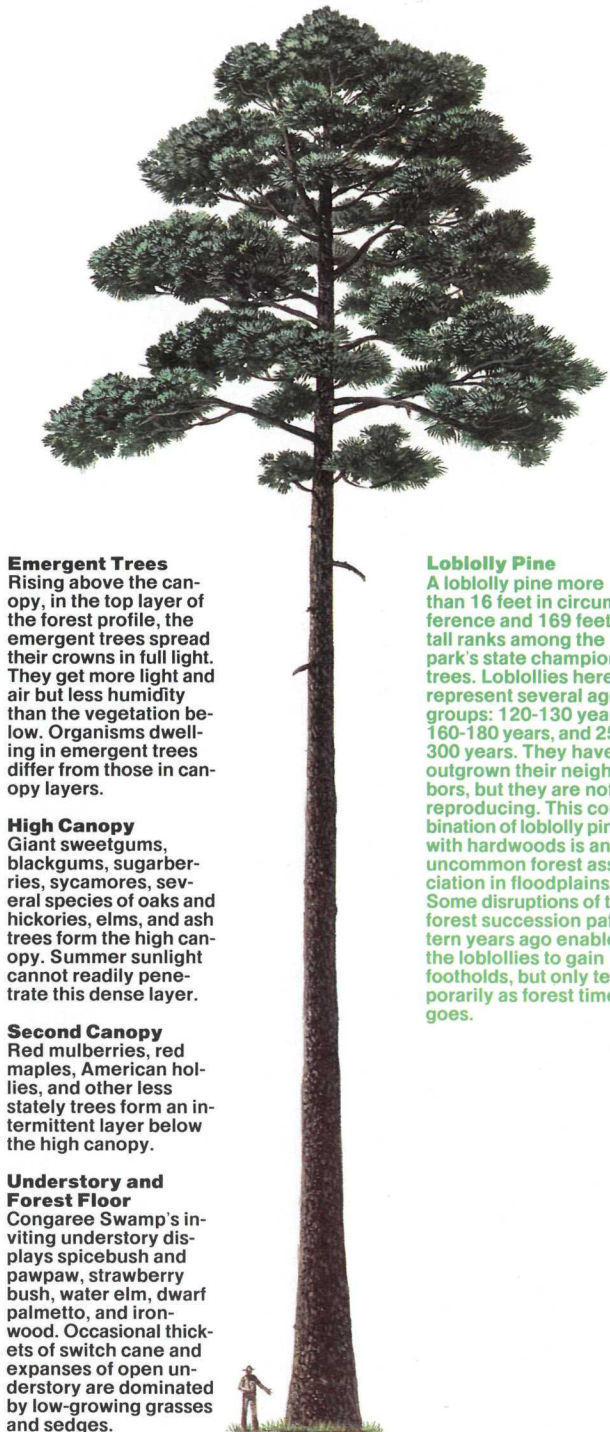
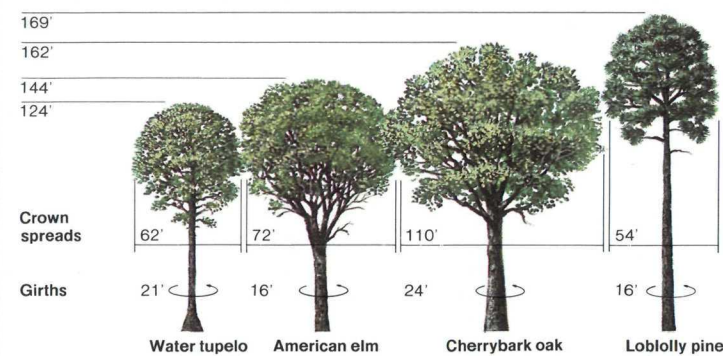
Cross-section of the Congaree River

Shown above in cross-section, the topography of the Congaree River floodplain changes only slightly in elevation. This profile sections the park on a line from high bluffs south of the river to the visitor center on the lower northern bluff line. Numbered bullets identify portions of the cross-section enlarged below. The enlargements show how forest cover changes with slight changes in elevation and near the river and Weston Lake.



Paintings by John Dawson Consultant L.L. Gaddy

Local record heights



Emergent Trees
Rising above the canopy, in the top layer of the forest profile, the emergent trees spread their crowns in full light. They get more light and air but less humidity than the vegetation below. Organisms dwelling in emergent trees differ from those in canopy layers.

High Canopy
Giant sweetgums, blackgums, sugarberries, sycamores, several species of oaks and hickories, elms, and ash trees form the high canopy. Summer sunlight cannot readily penetrate this dense layer.

Second Canopy
Red mulberries, red maples, American hollies, and other less stately trees form an intermittent layer below the high canopy.

Loblolly Pine
A loblolly pine more than 16 feet in circumference and 169 feet tall ranks among the park's state champion trees. Loblollies here represent several age groups: 120-130 years, 160-180 years, and 250-300 years. They have outgrown their neighbors, but they are not reproducing. This combination of loblolly pines with hardwoods is an uncommon forest association in floodplains. Some disruptions of the forest succession pattern years ago enabled the loblollies to gain footholds, but only temporarily as forest time goes.