



**Winter 2011**  
**The official newspaper**  
**of Congaree National Park**

# Superintendent's Message

Welcome to Congaree National Park! Throughout 2011, we will be celebrating the 35th anniversary of the park. In 1976, the original park lands were designated as Congaree Swamp National Monument, a unit of the National Park Service. In 2003, the park was expanded in size and changed designation to become Congaree National Park, the 57th park site in the nation to achieve this honor. 2011 is an exciting time to visit the park, as there will be special events held throughout the year to celebrate this milestone in the park's history. Check the calendar or ask a ranger for program information.

Winter at Congaree provides visitors with the opportunity to view the forested floodplain from a different perspective. You will notice that with many of the deciduous leaves gone you can see for greater distances, making it an excellent time for birding! Temperatures are cooler, which makes for great hiking weather. However, this time of year is when we may have some of our

largest flood events so be sure to check on trail conditions before you head out. If the trails are flooded, the elevated boardwalk offers a chance to see these essential flood waters bringing their nutrients deep into the forest. Once the waters recede, it is easier to view first-hand the small differences in the shape of the forest floor, as many areas will remain wet for days after a flood event.

Perhaps you have a New Year's resolution to spend more time with your friends and family or even a personal commitment to improving your physical or mental health in the coming year! Be sure to include time at Congaree National Park in your plans, as it is a great low-cost way to achieve many of your personal goals for 2011. With more than 20 miles of hiking and paddling trails, a 2.5 mile accessible boardwalk, and nearly 27,000 acres to explore, no gym membership comes with the sort of wilderness experience you can get while working out at Congaree National Park!

Best to you for 2011,

Tracy Swartout



Tracy Swartout, Park Superintendent

# See. Learn. Do. Help.

CB Genrich, Park Volunteer

"I'm a VIP at Congaree National Park." It makes me proud to say that. I'm part of the Volunteers In Parks Program. I wear a shirt with a patch that says "National Park Service Volunteer" and a shiny badge with my name on it, and I wear it proudly. Here is my story.

I travel and move around a lot. About a year ago, I came to visit this place for the first time since it became a national park. It was just good luck that I came during Swampfest! which is a cultural celebration of the Lower Richland County Area. I also met researchers from New Jersey and had a chance to hike all day with them in a light rain. I got to see, learn, and do so much during that visit.

It was during that visit that I learned about the VIP program, and that I could help the park, like so many others do. At the time, I didn't really know what to expect. But soon enough I made plans to return to the area and volunteered extensively for a month. I got to see, learn, do and help so much that it has become a recurring travel destination for me.

I have worked with maintenance, interpretation, and resource management. Everyone at the park knows me now, and they ask me "what do you want to do?" and I say "what do you need me to do?" We work things out so I can do what I enjoy while providing them with the help they need.

I have seen hundred- year- old Bald Cypress trees, and the stumps of their much larger ancestors, still there after being cut down a hundred years ago, learned how old- growth forests provide important habitat and why they need to be preserved and protected. I have ridden in a skiff up the Congaree River in the morning, and back down at sunset, with Kingfishers and Great Blue Herons flying about. I helped a USC researcher identify, measure and record hundreds of trees in an old meander of the Congree River, at times walking and standing in a foot of water. I have seen, learned, done, and helped like this and much more. That was just today.

On previous days I have seen otter and wood ducks from a canoe on Cedar Creek while putting up mile markers for the canoe trail, and answered questions from visitors on Owl Prowls, canoe tours, and in the visitor center. I reenacted a scene of a hunting and fishing camp during Congaree Campfire Chronicles. I have taken core samples in Tom's Slough for carbon dating, and taken photos for the park archives of the boardwalk, during a flood, with four inches of snow blanketing the forest.

I have seen, learned, done and helped more in this park than I would have imagined possible before I became a VIP. I am grateful for the opportunity and hope to do more.

EXPERIENCE YOUR AMERICA™

To:

Congaree National Park  
100 National Park Road  
Hopkins, SC 29061



## Emergencies

Call 911 or contact a park ranger. Be aware that cell phone service is patchy throughout the park.





National Park Service  
U.S. Department of the Interior

Congaree National Park

The *Boardwalk Talk* is a publication of the National Park Service for the orientation and education of visitors to Congaree National Park.

The National Park Service was established on August 25, 1916, "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for future generations." In 1976, Congaree became part of the National Park Service as Congaree Swamp National Monument to preserve the largest remaining tract of old-growth bottomland hardwood forest in the United States. It was re-designated as Congaree National Park in 2003.

**Superintendent**

Tracy Swartout

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100 National Park Rd.  
Hopkins, SC 29061

**Phone**

(803) 776-4396

**Website**

www.nps.gov/cong

**Email**

cosw\_information@nps.gov

**Operating Hours**

Congaree National Park is open 24 hours a day, 7 days a week. The Harry Hampton Visitor Center is open from 8:30 a.m. to 5:00 p.m. and open until 7:00 p.m. on Fridays, Saturdays and Sundays during Daylight Savings Time. The visitor center is closed on December 25th.

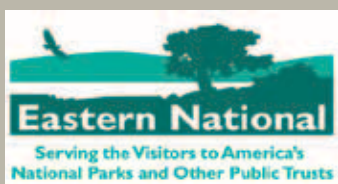
**Fees**

Congaree National Park does not charge an admission fee and all programs are free of charge.

**Climate**

Winter: low 30s to high 60s  
Spring: low 50s to high 80s  
Summer: low 60s to high 90s (& humid)  
Fall: low 50s to high 80s

**Eastern National**



Eastern National, a non-profit cooperating association with the National Park Service, supports the mission of the National Park Service by producing educational materials, and has provided the generous funds for this publication.

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The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

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# Things To Do

**CAMPING**

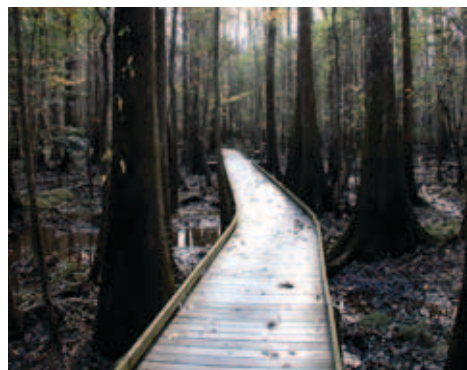
The Primitive Campground has fire rings, portable toilets, and picnic tables. There are eight sites available on a first-come, first-served basis. Each site is limited to eight campers. The Bluff Campground provides picnic tables and fire rings and is ideal for group camping.

Camping is also permitted by hiking or canoeing into the backcountry. To minimize human impact in this designated Wilderness Area, campfires are *prohibited* in the backcountry. All campers are required to obtain a camping permit and a list of regulations at the Harry Hampton Visitor Center prior to camping.

**CANOEING/KAYAKING**

Traveling by canoe or kayak is a great way to enjoy this primeval Wilderness while floating past some of the tallest trees in eastern North America. Paddling is also a thrilling way to encounter the diverse wildlife of the Park including deer, otters, turtles, snakes, and raccoons. In addition

to adventures on Cedar Creek, opportunities are also available on the Congaree and Wateree River Blue Trails. Please check with rangers for trail maps and current conditions.



Low Boardwalk

**FISHING**

All waterways except Weston Lake are open to fishing with a valid South Carolina fishing license. Please do not use the boardwalk to access waterways if you are carrying fishing gear. Obtain a complete list of fishing regulations from the Harry

Hampton Visitor Center or online at [www.nps.gov/cong](http://www.nps.gov/cong).

**WALKS AND TALKS**

Rangers provide a variety of guided walks, talks, campfire programs, and canoe tours. For a complete list of ranger guided interpretive programs, see pages six and seven. Listen and learn as rangers give talks on various topics or take you on a hike through the old-growth forest.

**BIRDING**

Congaree National Park is designated as a Globally Important Bird Area by the American Bird Conservancy. Many migratory birds can be found during the spring and fall migrations. Bring binoculars and ask rangers for a list of documented species within the park.

**PICKNICKING**

A picnic shelter with trash, recycling receptacles, and grills is available on a first-come, first-served basis at the Harry Hampton Visitor Center.

## On the Edge of the Bluff

John Galbary, Park Volunteer

Beginning along the northern bluff of the Congaree River, you will wind your way along the edge, between bluff and muck swamp, between two ecosystems of rich biodiversity. If you had been standing here 20,000 years ago, the banks of the river would have been a stone's throw away with silent, light brown water flowing slowly past. Much change has come upon the land. Now, old man river is about four miles away to the southeast, cutting an even higher bluff with some areas up to 200 feet tall on the south side of the river. Take a moment to think of the river, once flowing slowly past, not far from your feet, and how far it had to meander to its present location.

Congaree National Park is a land of big trees, old-growth floodplain forest, and biodiversity. South Carolina once had one million acres of floodplain forest. Where did it go? The forest fell to the ax, the plow, and dams; we built our country with the great trees that once grew for hun-

dreds, and sometimes a thousand years. Now the great forests are almost all gone, and this 27,000 acre remnant is preserved and protected, for you, and future generations.

Formed by the confluence of the Broad and Saluda Rivers, the Congaree takes its name from the Native Americans who lived at its headwaters and traveled its broad winding expanses. Congaree means "the people of the scraping place," or "where the boats scrape the bottom of the river." The Congaree people fished, hunted and gathered along the land you walk on now. Standing on the northern bluff you are 110 feet above sea level. With a walk to the river, you would descend another ten feet. Many times a year the Congaree floods to the edge of the northern bluff. Spreading nutrients, water, soil and seeds, it replenishes the forest. All of the land on the floodplain was once river bottom. The watershed north and west encompasses all of the upstate of South

Carolina and western North Carolina, draining an area of 8,000 square miles, the size of New Jersey, into this immense floodplain.

The great mountains of the Appalachians, 200 miles away to the northwest, were once over five miles taller than they are today. Millions of tons of rock-eroded soil covers the land from Asheville to Congaree. As the mass of those tall mountains has worn down and diminished, there is a renewed up-thrusting going on, ever so slowly, shifting our rivers to the southeast where the Congaree now flows.

### Floodplain Safety Message

Congaree National Park is a floodplain forest. Water levels on Cedar Creek and the Congaree River fluctuate and changing water levels may make hiking, camping, and canoeing difficult. Please be aware of current water level conditions before you begin exploring. For current conditions visit or call the Harry Hampton Visitor Center at (803) 776-4396.

## Kayaking Tips

Because it is easy to begin kayaking, many people have made it their preferred method of paddling, but few have learned how to advance the power of their stroke. The American Canoe Association recommends these three easy tips to double the efficiency of your double-bladed paddle.

**GET VERTICAL**

Holding your paddle vertically will maximize the power of your stroke. Vertical paddling will dip the face of the paddle further into the water and create more leverage to propel yourself forward. This technique will also help your boat track better, which will make a huge difference for people in shorter boats.

**PEDAL POWER**

Have you ever tried to sit with your legs crossed and shoot a basketball? Not having anything to brace your

feet against makes this task difficult. The same goes for kayaking. Properly adjusted foot pedals enable you to be "grounded" in the boat. It will also connect your stroke to the larger muscle groups in the legs and relieve some of the strain on your upper body.

**PUSH FORWARD**

Many people think of the kayak stroke as merely pulling the paddle back through the water to propel yourself forward. Any seasoned kayaker will tell you that is only half the story. Pushing the paddle forward on the side in the air and pulling backwards on the side in the water will greatly improve your efficiency. This will utilize both your biceps and your triceps and help you to get a little more distance out of each stroke.



Paddling Cedar Creek

# After the Park

Vikki Pasco, Teacher-Ranger-Teacher

Students and parents at Round Top Elementary (RTE) know me as Mrs. Pasco, Kindergarten Assistant, and as Mrs. Pasco of the Nature Navigator Science Club. This past summer, I put on a new hat (literally) when I applied and was accepted into the Teacher-Ranger-Teacher (TRT) program at Congaree National Park. The TRT program allows teachers to work as rangers in the National Park Service and receive the same training, uniforms (including the flat hat), and park experiences as full-time rangers. Upon returning to schools, teachers take their experiences as a ranger back to share with colleagues, students, and parents.

Even before becoming a TRT, I worked to introduce the children of RTE to nature. My kindergarten classroom is home to a turtle, a hamster, lizards, birds, and special guest visitors, including the occasional snake. I developed an after school club called Nature Navigators, where children learn about the environment through hands-on projects, walks on the school's nature trail, and through listening to guest speakers. When a colleague told me about an opportunity to become a park ranger at Congaree National Park for the summer, I immediately applied for the TRT Program.

I was ecstatic when I found out I had been accepted! I spent the summer learning about the old-growth floodplain forest and leading hikes, Owl Prowls and canoe tours on Cedar Creek. When I wasn't leading a tour or greeting visitors at the visitor center, I was able to rove along the trails throughout the enchanted bottomland forest, becoming intimately acquainted with its natural resources. What a wonderful summer hiking, canoeing and talking about nature! Summer ended and it was time to return to RTE with the challenge of taking my experiences as a ranger back to school.

I decided that the best way to share the natural beauty of the old-growth forest with my students was to give them the opportunity to experience Congaree firsthand. I organized a canoe tour on Cedar Creek for my Nature Navigator Club and their families. One of my students would tell me every time I saw her in anticipation of the trip, "Mrs. Pasco I'm going to go canoeing." Before the adventure, we met

ing between my roles of park ranger and teacher. I plan to have a family canoe tour at Congaree with every session of my Nature Navigator Club.

The following weekend, I returned to Cedar Creek, but this time I was accompanied by a group of RTE employees and their families. A great way to connect students with their national park is



Ranger-guided lesson at Round Top Elementary

and worked on the junior ranger book as a group so the students could get their junior ranger badges at the park.

On a beautiful Saturday morning in October, 28, Nature Navigators and their families floated the black water creek in canoes under towering old Bald Cypress and tupelo trees, experiencing the tranquility and wonder of Congaree. As the children paddled along, they were able to observe woodpecker holes, dragonflies, and interwoven vines hanging like curtains from tree branches. Our Congaree canoe adventure was a successful meld-

through their teachers. After the tour, one of my colleagues told me that she had raved at her church the next day about the wonderful time she and her children had, and how it was something they had never done before. Now, the TRT program was experiencing a ripple effect into the community apart from the school.

When we went canoeing, Ace the aviator bear (our school's mascot), came with our group. Ace was able to ride on the front of my kayak. While Ace was at Congaree, he got his very own *Passport to your National Parks* book.

The next trip I have planned for the school is for my kindergarten students and their families. They will attend an Owl Prowl that I will lead at Congaree in December. The Owl Prowl will serve as an optional enrichment to the tree home unit. We began this unit with a special program about tree homes with props borrowed from Congaree National Park.

I really wanted to be able to reach all the students in my school and their families, and that opportunity came when my principal asked if I would like to write a column for the school's newsletter about my experience as a National Park Service Ranger. I am now writing a monthly column called Flat Hat Chat to tell RTE families about my experiences as a park ranger and to inform my readers of different experiences that can be enjoyed within our national parks. Already several families have told me that they have gone to Congaree for the first time to hike or for a special event after reading my column.

All TRTs will wear their uniforms to school during National Park Week, April 16-24, 2011. The National Park Service has been called "America's Best Idea" and I think the TRT program is one of the National Park Service's best ideas.

# Birds in the Neighborhood

Kathleen O'Grady, Park Ranger

Calling all Citizen Scientists! One of the most rapidly declining songbird populations in North America needs your help! The Rusty Blackbird (*Euphagus carolinus*) population is crashing at an alarming rate. Within the past 40 years, ornithologists at the Cornell Lab of Ornithology estimate that 85 percent of the population has been lost. Although the exact reasons are not clear, it appears that winter habitat loss and degradation are contributing factors for the decline. The good news is that in 2005, the International Rusty Blackbird Technical Working Group was formed to begin long term monitoring and data collection. One way you can help is by participating in the "Blitz" that is being conducted from January 19th through February 13th, 2011.

You do not need to be a birder to assist, but it would be helpful to have an idea of this species' behavior during winter months. This medium size, nine-inch blackbird with yellow eyes can be found in large flocks foraging for seeds and fruits in a variety of areas, although their

favorite habitats are fields, woodlands and forested floodplains. Rusty Blackbirds have been located in Congaree National Park the past two years and reported to the Cornell University of Ornithology e-Bird site ([www.ebird.org](http://www.ebird.org)). Visitors, as well as park staff and volunteers, have had the opportunity to get good views of them along the Sims Trail, the Boardwalk Loop Trail, the Kingsnake Trail, and the Weston Lake Loop Trail. There are opportunities to see this special bird and record your sightings if you are out hiking. In order to learn more about this species of concern and how to assist with the "Blitz," the Smithsonian Migratory Center has all the answers. You can access the website at <http://nationalzoo.si.edu/>.

Join us on February 5th or 12th for the Great Backyard Bird Count Training Sessions and February 19th for the Great Backyard Bird Count. See page seven for details. Your observations can make a difference in saving the Rusty Blackbird from extinction.



Participating in citizen science

## Pets in the Park



Pets are welcome at Congaree National Park; however, they are not permitted on the boardwalk. Pet access to the trail system is located just outside the Harry Hampton Visitor Center. While visiting the park, keep your pet on a leash no longer than six feet in length or physically confined at all times so as not to disturb other visitors or animals that have a home in Congaree.

Do not leave your pet unattended in a vehicle or tied to an object in the park.

Clean up after your pets. Biodegradable bags are located at the Primitive Campground and at the beginning of the Bluff Trail outside the Harry Hampton Visitor Center. Dispose of these bags in any outdoor park garbage can.

# Hanging Around Above the Floodplain

Michael G. Hollins, Park Volunteer

Among the limbs of the canopy there hangs a large spider. Known locally as the Banana Spider (because of the elongated abdomen) or Golden Silk Orbweaver (the web is golden in appearance), the scientific name is *Nephila clavipes*. The genus name *Nephila* is derived from the Greek language with a combination of the words “spin,” “thread,” and love,” loosely translating to “fond of spinning.”

The species name *clavipes* is derived from Latin combining the words “lock-pick” and “foot” because their legs are designed for web spinning with the tips pointing inward rather than outward as seen in many wandering and ground spiders.

Research conducted at Tulane University has found that *Nephila* webs are very distinctive from other webs, with a large amount of silk per web. The central orb can stretch for more than one yard with support strands reaching several more feet. The female starts by weaving non sticky spirals with space for up to twenty strands in between and then fills in the spaces with sticky threads. As the spider ages, the number of sticky strands

decreases. The current school of thought is that as she ages, she gets bigger and does not require the web to ensnare and hold prey, just to restrict its movements long enough to get to it. The hub or web center is left open. This is where the spider “hangs out.” Each web is protected on one side by a maze of barrier strands that appear to have no distinguishable shape.



Golden Silk Orbweaver

To finish up the web, she will suspend small pieces of bark and prey carcasses in a barrier strand. It is believed that this strand is to warn birds of the web’s location.

When it comes to web maintenance, she will replace sections of the orb daily. This is peculiar in that other orb weavers will replace the whole orb daily. Another distinctive feature of the web is its golden color. The gold color is produced by xanthurenic acid, two quinones, and a fourth unknown compound. The amount of gold color can be adjusted by the spider as she weaves her web. She can adjust the pigment to blend in with the foliage, acting like a camouflage, or it can be intensified to attract bees. The golden hue reflected is specific to insect vision spectrums, turning the web into an attractive beacon.

As with most other wild animals, these spiders will bite if provoked. The bite will be locally painful with some swelling and redness that usually disappears after twenty-four hours. *Nephila* fangs are coarse and may leave scars on hard tissue like fingers. Should you happen to walk into a web and believe the spider to be on you, brush the animal off, but do not try to grab and throw it.

Like most spiders, *Nephila clavipes* are gender dimorphic, meaning the females are larger than the males. The females can grow up to two inches along the body while the males are usually less than one

inch. In order to be attractive to a potential mate and avoid becoming a meal, males perform an intricate dance to announce their presence and intention. After mating she may eat her fellow.

According to researchers at Tulane University, mating occurs between July and September. In late fall, the female lays her eggs on a special micro-weave web that she bundles up to make an egg sack. A brood may consist of two or three egg sacks. She will attach the sacks to a nearby tree or other structure. One female may lay several egg sacks per season and have only one generation per year. Males die off in late September and females in mid-December. Eggs hatch after about one month, and the spiderlings remain in the egg sac, emerging in spring. After emerging, the spiderlings build a communal web and live there for about two weeks. Then, they disperse and lead solitary lives until mating.

These spiders provide a wonderful viewing experience throughout floodplain. If you are interested in learning more about spider species, visit the bookstore at the Harry Hampton Visitor Center and pick up a copy of *Spiders of the Carolinas* by naturalist L.L. Gaddy.

## Spanish Moss

Marilyn Carver, Park Ranger

Spanish Moss is an often misunderstood plant because of its name. In his article, “Spanish Moss: Its Nature, History and Uses,” Dennis Adams explains how Spanish Moss grows and the many ways people have used it in the past.

This plant is not really a moss. It hangs down from the limbs of host trees, trapping water and nutrients in cup-like permeable scales running along the grey strands that make up the plant. As an epiphyte (a plant living on another plant), it uses other plants for structure, but is not a parasite. It has the capability of making its own food. Along the strands of Spanish

Moss, narrow grayish-green leaves can be found growing up to two inches in length.

The plant also generates a tiny pale greenish-blue blossom that can give off a light fragrance at night. Eventually, the blossom bursts open to produce a seed that birds or the wind carries off to reproduce new plants. Living among the strands and leaves of Spanish Moss can be an assortment of reptiles and insects that hide or take up residence. Red bugs known as Chiggers are commonly found among the thick mass of strands, while birds and bats are known to build and weave nests from it.

Many Native American stories and legends surround Spanish Moss. One of the legends, according to Adams, tells the story of a Spanish soldier who fell in love at first sight with an Indian chief’s daughter. The chieftain forbade the couple to see one another. The Spaniard was too lovestruck and continued to see the maiden secretly. The father discovered them together and ordered his braves to tie the Spaniard to the top of an ancient oak tree. The Spaniard could have surrendered his love for his freedom, but he refused. The braves watched over him as he grew weaker. He did not give in to the Chieftain and held strong claiming that his love would continue growing even after his death. When he died, his body remained in the tree and his beard continued to grow. The Indian maiden said she would only marry another man if the Spaniard’s beard stopped growing. As time went on, the beard continued growing, spreading over many trees throughout the land. It is said that when the Spanish Moss dies, the Spaniard’s love will have died along with it.

The plant has been used in various ways throughout time. Native Americans weaved Spanish Moss into clothes as early as the 1500s. Settlers in the area found it useful for fishing nets and saddle blankets. According to Adams, the most profitable use for the plant was as stuffing in furniture, mattresses, and car seats because cool air could freely move throughout the filaments creating comfortable seating during hot, humid summers. Adams writes that in 1939, 10,000 tons of Spanish Moss were harvested in Louisiana for a recorded price of \$2.5 million.

From 1900 to 1975, the plant was processed in commercial mills found in Florida and Louisiana. During the 1930s drought, Louisiana farmers compensated their crop losses by harvesting Spanish Moss. Today, the primary use for the plant is in floral arrangements.

Despite the folklore and historic uses, Spanish Moss will always be associated with stately Southern mansions and humid Southern forests where it gracefully hangs from the limbs of Bald Cypress and Live Oak trees.



Strands of Spanish Moss



Spanish Moss stands out on a deciduous tree in winter

### Please Remember

Feeding wildlife, along with the removal, disturbance, destruction, or disfigurement of any park resource, is unlawful. If everyone took just one piece of Spanish Moss, or any other plant, our national heritage would soon be gone. Thank you for helping to protect your National Park.

# Digging Through the Floodplain

Billy Armstrong, Park Intern

Allow me to introduce myself. My name is Billy Armstrong. I just graduated from Boston College this past May with a degree in Environmental Science. I studied how rivers flow, what happens to a river when a dam is removed, and flooding trends in New England over the 20th Century. Although I had never been to South Carolina and didn't know a soul in the Palmetto State, the opportunity to put my degree to work studying this unique floodplain forest was too alluring. Two weeks after graduation, I found myself standing in the visitor center gazing at the Bald Cypress and reading about de Soto's expedition through the area.

I came to the park through the GeoCorps/Geoscientists in Parks program, which is hosted by the Geological Society of America. This program pairs college undergraduates and recent graduates with national parks in need of assistance with geology projects. David Shelley, Education Coordinator at the Old-Growth Botomland Forest Research and Education Center here at Congaree and de facto park geologist, had been brewing up such a project related to his doctoral work mapping the park's geology and landforms.

As you may know, Congaree National Park is not a swamp, but a floodplain. This means that the area is low-lying and frequently filled with water when the river floods, usually in the late winter and early spring months. When the river floods, it deposits sediment in certain places and erodes the river banks in other places. Over time, this allows the river to move across the landscape. About 3.5 million years ago, the Congaree River ran up near SC Highway 378 (Garners Ferry Road). Since then, it has slowly moved back and forth, cutting the bluffs on the northern and southern margins of the park and shaping the valley and floodplain (which dates back at least 21,000 years). The geomorphology (a term used to describe land shapes and landforms) of the floodplain provides a record of the river's movement over time. From the Congaree River, the records are the remnants of old river bends where the river, at some point in time, used to flow.

My job at the park has been to narrow down that "at some point in time" by studying the deposits of sand and clay. Working under a scientific research permit, I dug a series of holes in order to

collect a series of sediment samples using a tool called a hand auger, which could be described as a cross between a fence post digger and a giant corkscrew. These holes, which were dug with significant help from staff, interns, and volunteers, were four inches wide, up to 15 feet deep, and scattered around the park. Adding up all of the holes I dug during my six month internship here, I dug through approximately 475 feet of sand and clay using the hand auger. If that were a single hole it would be deep enough to bury the National Champion Loblolly Pine Tree almost three times! Once back in the lab, I sifted through the sediment samples looking for bits of dead plant material such as leaves, charcoal, acorns and seeds that fell into the river or soil and were buried. This is sort of like panning for gold. I then sent those fragments to partners at the Center for Applied Isotope Studies at the University of Georgia. Scientists there used a technique called radiocarbon dating to determine how old each fragment is. Armed with the date and information about where the sample was collected, we can begin to understand certain river processes, like how fast the river deposits sediments over long timescales, how fast

river bends grow and move, how fast the river moves, and when certain features of interest in the park were formed. As a result of my work, we are learning some interesting things about the history of the Congaree River.



Collecting a sediment sample in the field

## CongaReeSearch Files: Weston Lake and the Acorn

David C. Shelley, Ph.D.

How old is Weston Lake? This has been a burning question for many park explorers. As part of an ongoing research project, research interns Billy Armstrong and Ruthanne Coffey, along with Education Coordinator David Shelley, helped answer this question. The result is a story about an acorn.

Rivers move. This movement is much like a high pressure fire hose that writhes and flails after it has fallen from a firefighter's hand. Although rivers like the Congaree do not jump up and down, they do move very slowly, in more or less the same wiggly way.

A river's movement affects how sand and clay are stacked up underneath the floodplain. The water in a river moves sand and clay differently. Under normal conditions, with flowing water, the sand and gravel settle down to the bottom. The clay gets carried away downstream. To visualize this, think about still sand bars along the rivers edge, surrounded by flowing, murky brown water.

When a river channel moves, it leaves behind an old channel that can become a lake called an oxbow lake. With no flowing water to carry away the clay, the clay slowly settles to the bottom, where it covers the old sand layers. River water spreading through the floodplain during a flood slowly brings in more clay. All of this clay is mixed with peat (leaves, sticks, logs, acorns, and other plant parts) as it settles down. Eventually, the clay and peat may fill up an oxbow lake entirely and make the mucky soil in which Bald Cypress and tupelo trees can thrive. At this point the old channel is no longer called



The buried acorn

an oxbow lake, but instead gets called a slough (pronounced "slew"). Deep underneath the muddy muck of the slough, there is still old sand left behind when the channel had fast-moving water.

Working under a scientific research permit, researchers drilled a 15-foot deep hole into Weston Lake Slough near Bridge D on the Weston Lake Loop Trail. They used hand augers borrowed from the SC Department of Natural Resources Geologic Survey and the University of South Carolina. The top 13 feet of the sample were all clay and peat. Below 13 feet there was sand that must have stacked up while there was moving water in the channel. The point where the sand touches the clay is called the "boundary layer," and this marks the time when the river channel moved away. Billy Armstrong sifted through a sample of sandy clay from the boundary layer and found a tiny acorn. This acorn had to grow above the surface, drop into the water, and get buried just as the river moved away.

Billy sent the acorn off for radiocarbon dating analysis at the University of Georgia. The science of radiocarbon dating analysis relies on the same science behind

medical imaging, cancer treatments, nuclear power, and nuclear weapons. Radiocarbon dating works because there are actually three different types of carbon atoms called isotopes. Roughly one carbon atom in every trillion is a naturally-occurring radioactive isotope. Plants take up this radioactive carbon along with all the other carbon in the air, and make it part of their leaves, sticks, seeds, roots, and more. Over time, the radioactive carbon will give off a little bit of energy and turn into a nitrogen atom. This change, or "decay" as scientists call it, always happens predictably over time. Scientists can measure the amount of radiocarbon left in a sample and figure out how much radioactive carbon has turned into nitrogen. Radiocarbon analysis is an amazing tool for dating samples up to 50,000 years old.

The analysis from the University of Georgia revealed that the acorn was 2,860 +/- 23 years old. The "plus or minus 23 years" means that scientists are *basically* comfortable saying that the acorn is 2,860 years old, but *definitely* sure that the acorn is between 2,883 and 2,837 years old. This is kind of like worrying about an extra inch or two when you are measuring something a hundred feet long. The overall measurement is still valuable.

So what does it mean if the acorn is 2,860 +/- 23 years old? Since it fell into Weston Lake just about the time the river moved away, this data means that the Congaree River channel moved away, forming Weston Lake around 850 B.C., or, more precisely, between 873 B.C. and 827 B.C.!

To put this in the context of human history, this is during the "Early Iron Age" in

the Greek/Mediterranean World.

At this time:

- The written Greek alphabet was being invented.
- The Iliad and the Odyssey were being written down.
- It would be 50 years before the Olmecs started to build the pyramids in Mexico.
- It would be 74 years before the first Olympic games.
- It would be 97 years before the traditional date for the founding of Rome.

There is still a lot more to learn about other sites around the park. Billy and Ruthanne, along with other staff, scientists, and volunteers, collected many samples. The work is ongoing and researchers are still collecting, analyzing, and reviewing data. In the end, this information will tell visitors, park rangers, and scientists about how the Congaree's ancient landscape is put together and how fast the river moves across the land. Understanding the river's past movements affects how scientists predict future river movements, analyze data about forest measurements, and analyze data about where champion trees are found. These data will also determine how fast the clay is stacking up. This is important because scientists know that human actions since the 1700s, like land clearing upstream, have added an incredible amount of clay and soil into South Carolina's rivers. This can affect how soil develops, which affects how the next generation of champion trees will grow here at Congaree National Park. This information is simply amazing and adds rich perspective on just how long this floodplain forest has been flooding, changing, and growing.

# JANUARY 2011

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						<b>1</b> 9:30a Nature Discovery 1:30p Flat Hat Chats
<b>2</b> 1:30p Weston Lake Wilderness Hike 2:00p Guided Canoe Tour	<b>3</b> 1:30p Tree Trek	<b>4</b> 1:30p Flat Hat Chats	<b>5</b> 1:30p Flat Hat Chats	<b>6</b> 1:30p Tree Trek	<b>7</b> 1:30p Who Came Before 7:00p Owl Prowl	<b>8</b> 9:30a Nature Discovery 1:30p Skins & Bones 2:00p Guided Canoe Tour
<b>9</b> 1:30p Weston Lake Wilderness Hike	<b>10</b>	<b>11</b>	<b>12</b> 1:30p Flat Hat Chats	<b>13</b>	<b>14</b> 1:30p Flat Hat Chats	<b>15</b> 9:30a Nature Discovery 1:30p Flat Hat Chats 2:00p Guided Canoe Tour
<b>16</b> 1:30p Flat Hat Chats	<b>17</b> 1:30p Flat Hat Chats	<b>18</b> 1:30p Flat Hat Chats	<b>19</b> 1:30p Tree Trek	<b>20</b> 1:30p Amazing Adaptations	<b>21</b> 1:30p Congaree Loblollies	<b>22</b> 9:30a Nature Discovery 1:30p Flat Hat Chats 2:00p Guided Canoe Tour
<b>23</b> 1:30p Amazing Adaptations 2:00p Guided Canoe Tour	<b>24</b> 1:30p Flat Hat Chats	<b>25</b> 1:30p Surviving Scorch	<b>26</b> 1:30p Nature Discovery	<b>27</b> 1:30p Tree Trek	<b>28</b> 1:30p Flat Hat Chats	<b>29</b> 9:30a Nature Discovery 1:30p Flat Hat Chats
<b>30</b> 1:30p Congaree Loblollies 2:00p Guided Canoe Tour	<b>31</b> 1:30p Tree Trek					

# FEBRUARY 2011

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		<b>1</b> 1:30p Flat Hat Chats	<b>2</b> 1:30p Tree Trek	<b>3</b> 1:30p Flat Hat Chats	<b>4</b> 1:30p Weston Lake Wilderness Hike	<b>5</b> 8:30a Great Backyard Bird Count Training 9:30a Nature Discovery 1:30p Flat Hat Chats
<b>6</b> 1:30p Flat Hat Chats 2:00p Guided Canoe Tour	<b>7</b> 1:30p Tree Trek	<b>8</b>	<b>9</b> 1:30p Amazing Adaptations	<b>10</b> 1:30p Flat Hat Chats	<b>11</b> 1:30p Tree Trek	<b>12</b> 8:30a Great Backyard Bird Count Training 9:30a Nature Discovery 1:30p Flat Hat Chats 2:00p Guided Canoe Tour
<b>13</b> 1:30p Tree Trek	<b>14</b> 1:30p Who Came Before	<b>15</b> 1:30p Amazing Adaptations	<b>16</b> 1:30p Surviving Scorch	<b>17</b> 1:30p Weston Lake Wilderness Hike	<b>18</b> 1:30p Tree Trek	<b>19</b> 8:30a Great Backyard Bird Count 9:30a Nature Discovery 1:30p Flat Hat Chats
<b>20</b> 9:30a Birds & Branches 1:30p Flat Hat Chats 2:00p Guided Canoe Tour	<b>21</b> 1:30p Tree Trek	<b>22</b> 1:30p Flat Hat Chats	<b>23</b> 1:30p Tree Trek	<b>24</b> 1:30p Congaree Loblollies	<b>25</b> 1:30p Weston Lake Wilderness Hike	<b>26</b> 9:30a Nature Discovery 1:30p Skins & Bones
<b>27</b> 1:30p Flat Hat Chats 2:00p Guided Canoe Tour	<b>28</b> 1:30p Amazing Adaptations					

# MARCH 2011

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		<b>1</b> 1:30p Flat Hat Chats	<b>2</b> 1:30p Tree Trek	<b>3</b> 1:30p Amazing Adaptations	<b>4</b> 1:30p Nature Discovery	<b>5</b> 9:30a Nature Discovery 1:30p Flat Hat Chats 2:00p Guided Canoe Tour
<b>6</b> 1:30p Weston Lake Wilderness Hike 2:00p Guided Canoe Tour	<b>7</b> 1:30p Who Came Before	<b>8</b> 1:30p Congaree Loblollies	<b>9</b> 1:30p Tree Trek	<b>10</b> 1:30p Flat Hat Chats	<b>11</b> 1:30p Congaree Loblollies	<b>12</b> 9:30a Nature Discovery 10:00a Guided Canoe Tour, Advanced 1:30p Flat Hat Chats
<b>13</b> (DST) 9:30a Birds & Branches 1:30p Flat Hat Chats 2:00p Guided Canoe Tour	<b>14</b> 1:30p Tree Trek	<b>15</b> 1:30p Flat Hat Chats	<b>16</b> 1:30p Flat Hat Chats	<b>17</b> 1:30p Amazing Adaptations	<b>18</b> 1:30p Who Came Before 8:00p Owl Prowl	<b>19</b> 9:30a Nature Discovery 1:30p Skins & Bones 2:00p Guided Canoe Tour
<b>20</b> 1:30p Skins & Bones 2:00p Guided Canoe Tour	<b>21</b> 1:30p Who Came Before	<b>22</b> 1:30p Congaree Loblollies	<b>23</b> 1:30p Amazing Adaptations	<b>24</b> 1:30p Flat Hat Chats	<b>25</b> 1:30p Tree Trek 8:00p Owl Prowl	<b>26</b> 1:30p Flat Hat Chats 2:00p Guided Canoe Tour
<b>27</b> 1:30p Congaree Loblollies 2:00p Guided Canoe Tour	<b>28</b> 1:30p Tree Trek	<b>29</b> 1:30p Flat Hat Chats	<b>30</b> 1:30p Flat Hat Chats	<b>31</b> 1:30p Tree Trek		



# Program Descriptions

## Attending Ranger Guided Programs

### MEET THE RANGER

All programs meet at the Harry Hampton Visitor Center unless noted otherwise.

### BE PREPARED

Wear weather appropriate clothing, sturdy walking shoes, and bring water.

### RESERVATIONS

Certain programs require reservations by calling (803) 776-4396.

### CANCELLATIONS

Programs may be cancelled for inclement weather and/or park emergencies.

### PETS

Pets are not permitted to attend ranger guided programs.

### AMAZING ADAPTATIONS

Stroll around the 2.4 mile Boardwalk and become familiar with some of the amazing adaptations that allow plants and animals to survive here.

### BIRDS AND BRANCHES

Fly into the visitor center and meet a ranger for a guided hike. Bring your binoculars and search out who may be currently residing in the forest.

### GREAT BACKYARD BIRD COUNT TRAINING (FEBRUARY 5 AND 12)

Join rangers to learn about the winter bird species in Congaree National Park and take a walk to observe some of the species before the Great Backyard Bird Count on February 19th.

### GREAT BACKYARD BIRD COUNT (FEBRUARY 19)

Join rangers and volunteers to help collect real scientific data as part of this nationwide bird count. For more information visit [www.birdsource.org/gbbc/](http://www.birdsource.org/gbbc/). Beginners welcome. Limited supply of binoculars are available. Sign up by calling (803)776-4396.

### CONGAREE LOBLOLLIES

Stroll down the Sims Trail and out the Weston Lake Loop Trail to measure some of the large Loblolly Pines in the park. Develop your own theory on how they got here and visit the current National Champion Loblolly Pine!

### FLAT HAT CHATS

Listen and learn as rangers give 15 minute talks on different topics including Congaree history, fire, the creation of the park, and owls. Please visit the Harry Hampton Visitor Center for specific times.

### GUIDED CANOE TOUR

Enjoy the ambiance of this old-growth forest while paddling under Bald Cypress and tupelo trees. Bring water, a snack, and a change of clothes. Reservations required; Reservations for 1st-quarter of 2011 will open December 15th. Call (803) 776-4396.

### GUIDED CANOE TOUR, ADVANCED (MARCH 12)

This 4-6 hour canoe tour is for the experienced paddler who is ready to get muddy and portage over fallen trees while paddling from Bannister Bridge Canoe Access to Cedar Creek Canoe Access. Reservations required; Reservations taken December 15th. Call (803)776-4396.

### NATURE DISCOVERY HIKE

Discover the floodplain on this guided boardwalk hike. We'll explore the forest, looking and listening for animals.

### OWL PROWL

Explore the world of owls on this guided night hike in the forest. We almost always hear the owls asking, "Who cooks for you, who cooks for you, who cooks for y'all?" Reservations for 1st quarter of 2011 open December 15th. Call (803) 776-4396.

### SKINS AND BONES

For kids of all ages! Have you ever wondered what animals are wearing under and over their skin? Join a ranger for a look at some of the skulls and furs of the Congaree mammals.

### SURVIVING SCORCH

Join a ranger for a guided walk along the Bluff Trail to learn about fire ecology and search for evidence of fire activity.

### TREE TREK

Discover Congaree National Park's primeval forested floodplain. Experience the extraordinarily diverse wildlife while walking among the towering trees.

### WESTON LAKE WILDERNESS HIKE

Immerse yourself in a designated Wilderness Area as you hike 4.5 miles on the Weston Lake Trail. Perhaps you'll spot a River Otter in Cedar Creek!

### WHO CAME BEFORE

Join a ranger on a hike through time. Learn about the people who ventured into Congaree before it became a park.



Ranger-guided canoe tour on Cedar Creek



## Junior Ranger Program

Hey Kids! You can become a Junior Ranger and help protect your National Park! Stop by the Harry Hampton Visitor Center to pick up a Junior Ranger workbook and complete activities as you discover Congaree.



## Firearms in the Park

A new federal law allows people who can legally possess firearms under applicable federal, state, and local laws, to legally possess firearms in this Park. However, firearms are prohibited in federal buildings. It is the responsibility of visitors to understand and comply with all applicable state, local, and federal firearms laws before entering this park. As a starting point, please visit our state's website at [www.sled.sc.gov/SCStateGunLaws1.aspx?MenuID=CWP](http://www.sled.sc.gov/SCStateGunLaws1.aspx?MenuID=CWP) to become familiar with the state gun laws in South Carolina.

While this law affects a person's ability to possess a firearm in the Park, using firearms within Congaree National Park is still prohibited by law.

## Guided Canoe Tours: New Reservation Policy

Free ranger-guided canoe tours are one of the most popular ways to experience Congaree National Park. Based on feedback from our visiting public, we have changed the reservation process.

During a ranger-guided canoe tour, rangers provide instruction and interpretation as you paddle a park provided canoe along Cedar Creek. Congaree National Park provides seven canoes, paddles and PFDs (Personal Flotation Devices). The schedule of canoe tours is available on page six of this publication, and at [www.nps.gov/cong](http://www.nps.gov/cong).

Reservations can be made via telephone ONLY. Requests via voicemail will NOT be accepted. Please do NOT leave a voicemail for reservations.

Children must be at least five years of age to attend.

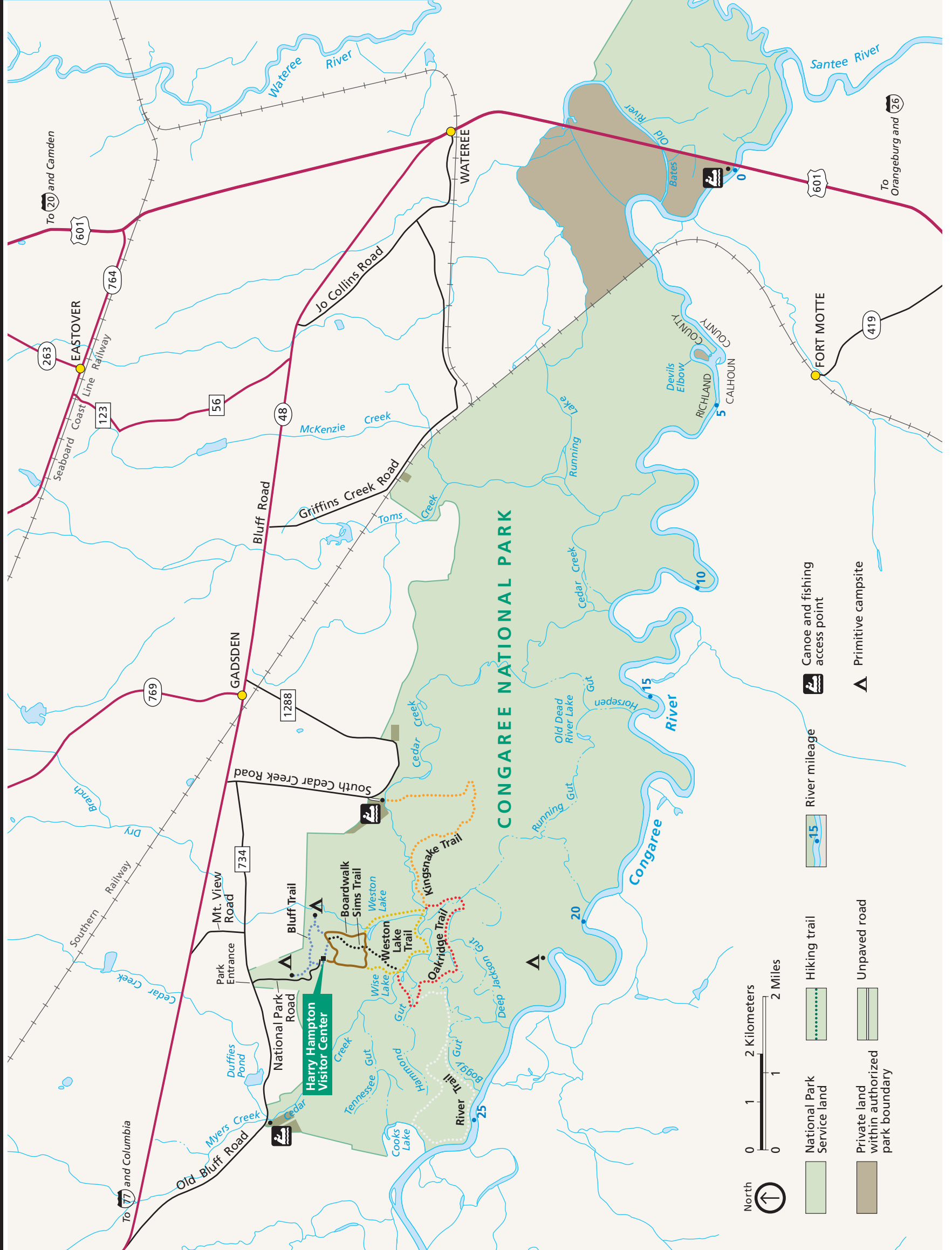
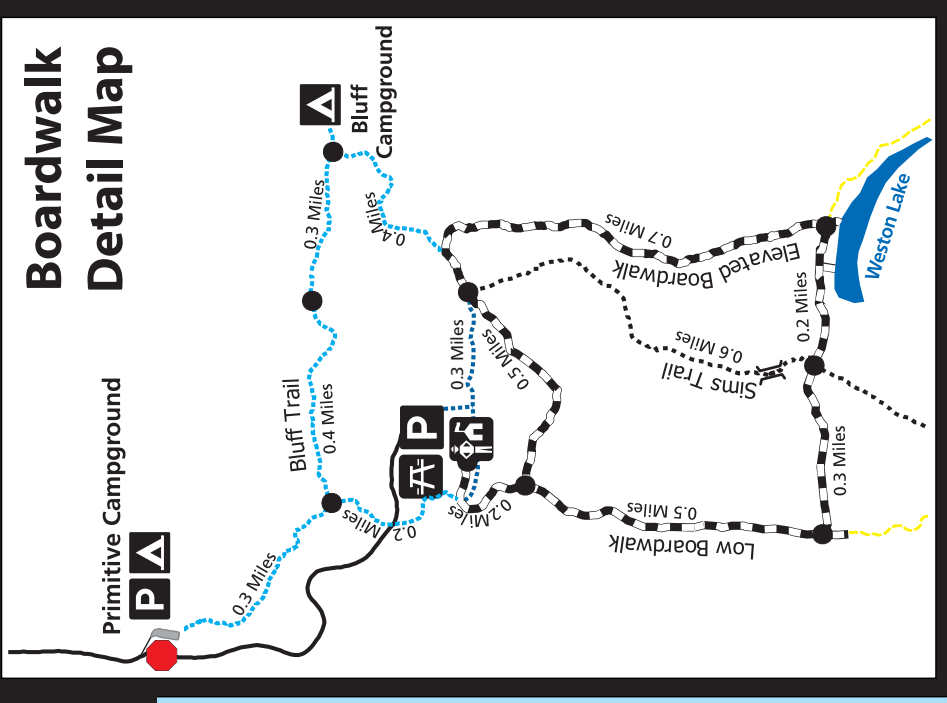
Extra clothes in a dry bag are required during 1st quarter (January 1-March 31) tours; water and insect repellent are recommended. Wear sturdy shoes that attach to your feet and can get muddy.

Tours will be cancelled in the event of lightning, if air temperature is below 45 degrees at the time of the tour, if the water level on Cedar Creek is above ten feet, or if winds exceed 30 miles per hour.

If you have questions, please call (803) 776-4396.

### Individual tours    Organized groups

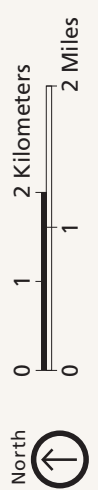
- Reservations taken quarterly. For the 1st quarter of 2011 (January 1-March 31), reservations will open December 15th and will close when filled to capacity. For the 2nd quarter (April 1-June 30), reservations will open on March 15, 2011.
- Reservations taken quarterly. For the 1st quarter of 2011, (January 1- March 31), reservations are closed. For the 2nd quarter of 2011, (April 1-June 30) reservations for groups will open January 1 and close February 15.
- Group size must be between 10 and 18 people, and be members of an organized group, club, or common affiliation.
- Each individual caller may reserve up to two canoes for up to six seats per tour. Each individual may make only one reservation per quarter.



#### Trail Descriptions

Trail mileage is given to indicate the actual length for each trail. For a detailed trail map, visit the Harry Hampton Visitor Center.

- Boardwalk: 2.4 Miles**
- Sims Trail: 1.2 Miles**
- Bluff Trail: 2.1 Miles**  
**Blue Blazes**
- Weston Lake Loop Trail: 2.5 Miles**  
**Yellow Blazes**
- Oakridge Trail: 3.2 Miles**  
**Red Blazes**
- River Trail: 5.0 Miles**  
**White Blazes**
- Kingsnake Trail: 3.6 Miles**  
**Orange Blazes**



- National Park Service land
- Private land within authorized park boundary
- Hiking trail
- Unpaved road
- Canoe and fishing access point
- River mileage
- Primitive campsite