



Boardwalk Talk

The official newspaper of
Congaree National Park
Spring 2010

Welcome to Spring at Congaree!

Fran Rametta, Park Ranger

Spring in Congaree is scarlet Red Maple blossoms, green-brown catkins hanging by the thousands from the tops of Bald Cypress trees, rainbow-colored reflections from bacteria on the surface of rainwater pools, and the buzz of insects. These are all signs of spring that have occurred for centuries on the floodplain.



Visitors enjoy a ranger guided walk at NatureFest 2008.

Join us this spring at our annual NatureFest, a one day celebration in Congaree National Park to celebrate National Park Week, National Junior Ranger Day, Earth Day, the International Year of Biodiversity, and "Going Green." It will highlight a "Variety is the Spice of Life" self-guided trail, and showcase a "green village." This event is based at the Harry Hampton Visitor Center and will be held Saturday, April 24th from 10:00 a.m. until 5:00 p.m.

The United Nations proclaimed 2010 to be the International Year of Biodiversity. Biodiversity is the variety and abundance of living things. Part of the mission of Congaree National Park is to

protect its variety and abundance of life. The number of plants alone exceeds 900 species. From the tiniest amoeba to the tallest Loblolly Pine, Congaree abounds with life forms. The National Park Service is mandated to protect the biodiversity of Congaree National Park by an act of Congress which is stated in the Organic Act of 1916:

"to protect and preserve by such manner and such means as to leave (the Park) unimpaired for future generations."

Congaree National Park is also guided by enabling legislation which states:

"to preserve and protect . . .an outstanding example of a . . .southern hardwood forest . . .in Richland County, South Carolina."

Biodiversity supports us by improving air quality, purifying water, and pollinating flowers that give us food. Non-material benefits include spiritual and aesthetic values, knowledge and education.

Congaree National Park protects biodiversity through forest boundaries and by raising awareness of the need to protect the variety of life on Earth.

*"In the end,
we will conserve only what we love,
we will love only what we understand,
we will understand only what we are taught."*

Baba Dioum, African ecologist

Safety First: Poison Ivy

WHAT IS POISON IVY?

Poison Ivy (*Toxicodendron radicans*) is a woody vine that can be found creeping along the forest floor and climbing up the tall trees of the Congaree. You will want to avoid touching all parts of the plant as oil called urushiol can cause an irritating, itchy, red rash on your skin. The rash may consist of small and large red blisters. Some people may be more susceptible to an allergic reaction than others, so be aware of the vegetation you are near in the forest.

WHAT DOES IT LOOK LIKE?

Learning to identify Poison Ivy is the best way to avoid contact. It has shiny, green compound leaves that grow in pairs of three leaflets. The leaflets vary from toothed to wavy, lobed or smooth. Remember: "Leaflets three, let it be." Vines you spot on the forest floor will have small leaflets, while large mature vines with large leaflets can be found clinging onto tree trunks with many small aerial roots, giving the vine a dark, "hairy" appearance. Remember: "If it's hairy, it's scary."

DOES THE PARK REMOVE POISON IVY?

Poison Ivy is native to South Carolina and is a valuable part of the ecosystem. During spring you will see small white flowers on the vine, and by summer you will see clusters of white berries. The berries are an important food source for songbirds who have a home in Congaree, and for those passing through on their migration journeys.

WHAT DO I DO IF I COME IN CONTACT WITH POISON IVY?

If you come in contact with Poison Ivy, avoid rubbing your eyes and other parts of your body and wash your skin with warm soapy water as soon as possible. Avoid touching objects that may have come in contact with Poison Ivy including backpacks, clothing, and dogs.



Poison Ivy with berries



Poison Ivy vine

Pets in the Park

Pets are welcome at Congaree National Park; however, they are not permitted on the Boardwalk, except to access the trail system via the first

set of stairs. 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.

Cleanup after your pets by using a bag. Biodegradable bags are located at the Primitive Campground and at the beginning of the Elevated Boardwalk.

EXPERIENCE YOUR AMERICA™

To:

Congaree National Park
100 National Park Road
Hopkins, SC 29061





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

Mailing Address

Congaree National Park
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.

EXPERIENCE YOUR AMERICA™

Superintendent's Message

Welcome to Congaree National Park! We are pleased to have you visiting with us, and trust that this publication will be both informative and beneficial to you while you are here. In your hands you are holding the first edition of our newly redesigned quarterly newsletter, the *Boardwalk Talk*. After many years as an internal publication that was geared towards sharing new information with our dedicated park volunteers, we have decided to expand the *Boardwalk Talk's* circulation to include the public we are all honored to serve. While you are visiting, please be sure to sign the guest book and let us know how we are doing. If you are interested in being a part of our team, ask for a list of current volunteer opportunities and a volunteer application.

As a unit of the National Park Service, Congaree represents one of the many

treasured, protected landscapes in America. Originally set aside to ensure that the biodiversity and champion trees of our old-growth bottomland hardwood forest were protected, the floodplain of the park is also home to a variety of cultural sites that are important to our area's history. In fact, this area is known to have had evidence of human activity for nearly 500 years. Be sure to ask one of our park rangers how people may have used the park throughout history. You may be surprised by the answer!

This issue of the *Boardwalk Talk* includes items of interest as well as information about our programmed activities. If you are planning to return for a scheduled event, always check with the park by phone or in person to see if weather conditions or water levels will impact your plans.



Tracy Swartout

Tracy Swartout, Park Superintendent

Thanks again for visiting Congaree National Park. We hope to see you again, soon.

Things To Do

CAMPING

The Primitive Campground has fire rings, portable toilets and picnic tables. There are seven 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*. Please obtain a free 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. Besides adventures on Cedar Creek, opportuni-

ties are also available on the Congaree and Wateree River Blue Trails. Please check with rangers for current conditions.



Canoeing on Cedar Creek

FISHING

All waterways except Weston Lake are open to fishing with a valid South Carolina state fishing license. Please do not use the Boardwalk to access waterways if you are carrying fishing gear. Please obtain a complete list of fishing regulations from the Harry Hampton Visitor Center or online at www.nps.gov/cong.

Emergencies

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

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 has been 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 and recycling receptacles is available on a first-come, first-served basis at the Harry Hampton Visitor Center.

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. 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 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.

among the branches and leaves of the tree. This is also an easy read for a new reader and an excellent book to read to children of any age.

The bookstore in the Harry Hampton Visitor Center has many publications to assist in the enjoyment and education of visitors to Congaree. Learn about the flora and fauna of the park with a field guide, or look back in time with a history book about forests in the Southeast. Through Eastern National, your purchase supports the interpretive and educational programs of Congaree National Park.

Book Review!

Jane Weilert, Park Volunteer

What do Turkey Vultures and trees have in common? They both can be seen at the Congaree and they are both subjects of two new children's books available in the Eastern National Bookstore located in the Harry Hampton Visitor Center.

Vulture View by April Pulley Sayre (Henry Holt & Co., \$16.95) tells the story of nature's cleanup crew in simple poetic verse. It's a day in the life of a Turkey Vulture from the catching of warm morning air thermals to flying high in the sky, then using the cool evening air to fly down to roost. During the day, the Turkey Vulture meets other animals but is searching for the wonderful smell of rotten, stinking, reeking dead deer meat (illustrated very tastefully). The book explores the role of the scavenger in nature. It also explains the theory of flight in terms anyone (even adults) can understand. The illustrations by Steve Jenkins are collage type art with colorful texture. This book would be a find for a new reader. It would also be a wonderful book to read to children and

makes the Turkey Vulture seem almost cuddly.

A Grand Old Tree by Mary Newell DePalma (Arthur A. Levine Books, \$16.99) is a story about a tree and the tree's life cycle. It begins with "Once there was a grand old tree..." The author tells and illustrates the story of the tree flowering, bearing fruit, sowing seeds, and living through the seasons. Eventually, she (the tree is referred to as a female) falls. The story continues as her trunk becomes home to many creatures (like our fallen trees in the Congaree) until finally the grand old tree becomes part of the Earth. However, her many children, grandchildren, and great grandchildren's branches are still reaching high into the sky. The book jacket describes the story as a beginning, middle and ending that leads to many new beginnings. The colorful and simple illustrations are filled with many creatures, and flowers that will delight children. This book is illustrated to elicit giggles as children find the birds and squirrels hidden

Volunteers in Parks

Do you enjoy spending time outdoors? Do you enjoy interacting with people? Do you enjoy canoeing and kayaking? Are you interested in science?

If you answered yes to any of these questions, Congaree National Park has opportunities for you. Volunteers help protect and preserve Congaree National Park in a variety of ways including staffing the information desk, maintaining trails, assisting with guided canoe tours and conducting research as a citizen scientist.

Numerous volunteer opportunities are available each year at Congaree. Volunteers work in all divisions, including Natural and Cultural Resources, Education, Interpretation, and Facility Main-



Volunteers help clean up the Park.

tenance. Volunteers are also needed to assist with special events held at the Park and off-site. Opportunities accommodate a wide range of skills and interests.

NATURAL AND CULTURAL RESOURCES

Resource volunteers assist the Park with non-native plant removal, assist researchers in the field as needed, collect spatial data with GPS/GIS, as well as assist with data management. Contact: Theresa Yednock at (803) 647-3974.



INTERPRETATION AND EDUCATION

Interpretation and Education volunteers assist the park with weekly canoe tours, guided walks, talks, visitor services, and evening programs. Volunteers can also assist with school groups and off-site education/interpretation programs. Contact: Fran Rametta at (803) 647-3969.

FACILITY MAINTENANCE

Facility Maintenance volunteers assist the Park with trail work (canoe trail, hiking trails, and boardwalks), construction projects, litter removal and day-to-day operations. Contact: John Torrence at (803) 647-3981.

SPECIAL EVENTS

Volunteers can assist the Park during the annual NatureFest (April), Public Lands Day (September), Swampfest! (October), and Congaree Campfire Chronicles (November), providing valuable assistance to park visitors and park staff. Contact: Fran Rametta at (803) 647-3969.

Snake Sense

Corinne Fenner, Park Ranger

Just the mention of the word snake raises blood pressure and sparks fear in people; eyes widen, faces crinkle, and children cringe. Visitors inquire where snakes might be found, and what to do if a snake falls from a tree into their canoe. What is it about snakes that spark such fear? Is it the fact they have no shoulders or legs? Or is it that they are so well camouflaged you may be looking right at one and not even notice it?

Throughout time the venomous Water Moccasin has instilled fear in humans, who have misinterpreted its adaptations for survival as aggression. These snakes play a vital role in the balance of this ecosystem. The female gives birth to nearly 20 live young every two years, just as wading birds are returning from migration. The small snakes provide these birds with food and energy needed to complete their jour-



Red-spotted Purple Butterfly on Water Moccasin

neys. Adult Water Moccasins are a staple food source for the Eastern Kingsnake, who feeds primarily on venomous snakes. Non-venomous water snakes will flee immediately upon the presence of a predator. The Water Moccasin will attempt to deter a predator, and warn one when he or she is too close for comfort. This action of standing its ground has given the Water Moccasin a bad reputation and has instilled fear in humans.

When large mammals like you travel too close to a Water Moccasin, it opens its bright white mouth. The bright white mouth stands out in sharp contrast among the browns, greens and grays of the old-growth forest, and warns you of its presence. It has given the Water Moccasin another name over time: the Cottonmouth.

This mechanism of warning allows the intruder to back away safely and allows the snake to save its precious venom for survival. It needs this venom to kill its food including small mammals, fish, and frogs, not you.

Blooming Beauties

Kate Hartley, Park Ranger

If you ask three rangers or visitors which season at Congaree National Park is their favorite, you might get eight or nine different answers. Each of the four seasons has its own special sights and sounds; however, you will probably not get an argument from anyone if you name spring as your favorite season. Trees begin to leaf out with a special light green color only seen in spring and a variety of wildflowers dress up the forest. It seems this winter has been especially long, so these harbingers of warmer weather are sure to be celebrated. As you explore Congaree National Park, look down on the forest floor and up into the canopy to observe these blooming beauties:

RED MAPLE (*Acer rubrum*)

The red and yellow flowers of the Red Maple get a head start by budding out in January and are an early sign of spring.

CROSS-VINE (*Bignonia capreolata*)

Look for the bright orange and yellow bell-shaped flowers on this vine from April to June.

DOG-HOBBLE (*Leucothoe fontanesiana*)

The flowers of Dog-hobble are small creamy-white blossoms that droop in clusters. The name comes from bear hunters in the upstate, whose hunting dogs could not run through this dense shrub, while bears loped through easily.

PAWPAW (*Asimina triloba*)

The Pawpaw blooms for six weeks and has upside-down flowers that are maroon and velvety.

BLAZING STAR (*Liatrix spicata*)

This plant has showy spikes with plentiful, tiny purple flowers.

HORSE-SUGAR (*Symplocos tinctoria*)

Beginning in March, you may see this small tree along the Elevated Boardwalk with yellow fragrant flowers in dense clusters.

BUTTERWEED (*Packera glabella*)

This bright showy yellow flower with a sweet smell can be found throughout Congaree from early spring to early summer.



WILD CRABAPPLE (*Malus angustifolia*)

Wild Crabapple trees stick out among the pines on the bluff in early spring with lovely pink blossoms.

FLOWERING DOGWOOD (*Cornus florida*)

The Flowering Dogwood is a common small tree with greenish—white blossoms which usually reach their peak in April.

PIEDMONT AZALEA (*Rhododendron canescens*)

The sweet smelling pink flowers of the Piedmont Azalea are bright in early spring. They can be found along National Park Road and the Elevated Boardwalk.



Birds in the Neighborhood

Kathleen O'Grady, Park Ranger

If you have ever wondered about the birds that help keep Congaree National Park clean and green, make time to discover the Turkey Vulture (*Cathartes aura*) and the Black Vulture (*Coragyps atratus*). Both species are bald-headed. Turkey Vultures have red heads while Black Vultures have gray heads.

They are known for soaring above the trees and holding their wings in a V-shape to catch rising columns of air called thermals. While gliding high above the trees, they look for dead animal carcasses, also known as carrion, from small mammals to large grazers. With a keen sense of smell and incredible eyesight, these high flyers find recently deceased meals. These large

black birds, which weigh between two and five pounds, have few known predators and will regurgitate semi-digested meat if threatened. This is an effective deterrent. Nicknamed the "Carrion Crow," the Turkey Vulture is very social and roosts in large community groups on dead trees.

At night, this bird will lower its body temperature by about 11 degrees. This results in a slightly hypothermic condition, allowing for energy conservation.

The next time you visit the park, check above the tree canopy for one of nature's best scavengers.



Turkey Vultures

A Quick Snack

Blake Hunter, Park Intern

When visitors think about various woodpecker species at Congaree National Park, one specific name comes to mind, the Ivory-Billed (*Campephilus principalis*). However, there are actually eight other wonderful woodpecker species waiting to be observed! Lately, several park interns have become enamored by the Red-headed Woodpecker (*Melanerpes erythrocephalmus*) species and its interactions with the Eastern Gray Squirrel (*Sciurus carolinensis*).

Recently, my observations at Congaree National Park have included witnessing Red-headed Woodpeckers confronting Eastern Gray Squirrels, hovering over them and pecking at them. The Eastern Gray Squirrel is a tree squirrel native to the eastern and Midwestern United States and is abundant at Congaree National Park. These squirrels, who feed on nuts and berries, come looking for the food that the Red-headed Woodpecker has stored. The Red-headed Woodpecker's aggressive nature allows for an argument to ensue over potential food. These confrontations can last ten minutes or more. The Eastern Gray Squirrel will often leave and look for food in other places.

The Red-headed Woodpecker is considered to be one of the most aggressive and one of the most omnivorous members of the woodpecker family. It demonstrates loud calls that sound like "churr-churr" and "yarrow-yarrow-yarrow." Adult males and females are easily identified by their red heads, necks, and throats. Their remaining under parts are white and their upper parts are mostly black with a blue or green iridescence. It is a medium-sized woodpecker measuring between 8 ½" and 9 ½" (21-24 cm). The species ranges east of the Rockies from southern Canada to

the Gulf States. The Red-headed Woodpecker's diet consists of seeds, nuts, fruit, insects, mice, bird eggs, and other species' nestlings. It prefers to store food under the bark and in the wood cracks of trees. The Red-headed Woodpecker is only one of four woodpeckers to store food, and is the only one known to cover the food with wood or bark. It usually breeds in deciduous woodlands and open wooded swamps where dead standing trees called snags are present. In Congaree, they are typically seen in the upland areas of the park. Unfortunately, the Red-headed Woodpecker is declining over much of its breeding range. The main reason for the decline is forest disturbance, as habitat has been degraded by the harvesting of snags, clearcuts, agricultural development, channeling of rivers, fire suppression, and monoculture crops.

If you are wandering along the boardwalks of Congaree National Park and witness what appears to be a bird and a squirrel fighting, do not be alarmed. It may well be a Red-headed Woodpecker and an Eastern Gray Squirrel fighting over a quick snack. It is an amusing and fascinating sight that can be quite puzzling at first glance. They are truly fascinating birds and serve a major role in shaping the biodiversity of Congaree National Park.



MARTIAN LAMMERTINK

Red-headed Woodpecker

In Search of Harry

Stuart Greeter, Park Ranger

Harry Hampton was the first proponent of preserving the Congaree. His picture appeared on the cover of *South Carolina Wildlife* in the 1950s, standing beside a tremendous Bald Cypress tree. John Cely, a graduate student at Clemson, saw the picture and had a hard time believing there were trees that big in South Carolina. John wrote Harry, inquiring about the picture, and Harry invited John on a hike.



Harry Hampton

The two visited "the swamp" and because of their efforts to preserve this remnant old-growth forest, the Congaree Swamp National Monument was established in 1976. Harry passed on in 1980, but thanks to his vision, we now have a 26,000 acre National Park.

Harry never actually took John to the tree in the photo, but he did tell John where it was. John was always interested in finding that particular tree, and finally started searching in earnest 20 years ago. Sometime around 1995, John found the tree in the photo.

John created the hand-drawn map of Congaree National Park, available in the Harry Hampton Visitor Center. It is often referred to as "the best map there is," which is pretty astonishing considering all the advances in satellite photography and GPS equipment we now have. John shows a number of the "big trees" on his map and thought it appropriate to name one in honor of Harry. The "Harry Hampton Cypress" on John's map is the same tree that appeared on the cover of *SC Wildlife* in the 1950s. While conducting a "big tree survey" in the mid-90s, Dr. Bob Jones measured Harry's tree. It is the tallest Bald Cypress tree in the Congaree, at 148 feet. John says it is quite appropriate, since Harry was a tall, thin, lanky person who stood about six feet, three inches.

If you would like to visit Harry's tree, you can purchase John's map, take your compass and navigation skills, and take a hike. You can also keep an eye on the interpretive program schedule, on page seven of this publication, and join a ranger guided Big Tree Hike. It's about a four mile hike, and takes three to four hours to complete.

Thoughts on our National Parks

"There is nothing so American as our National Parks. The scenery and wild life are native and the fundamental idea behind the parks is native. It is, in brief, that the country belongs to the people; that what it is and what it is in the process of making is for the enrichment of the lives of all of us." President Franklin Delano Roosevelt

The Spotted Turtle Wants to Meet You

Heather Otte, Park Intern

It is mid-morning on a March day at Congaree National Park. The sun shines past wispy clouds, and balmy temperatures invite everyone outside. A tree partially submerged in a low-lying area off the Elevated Boardwalk, makes better lounging than any hammock, at least as far as the Spotted Turtle is concerned.

The diminutive Spotted Turtle will reach a size of only five inches, and is known in the scientific community as *Clemmys guttata*. But don't allow such a daunting name to distance you from these affable turtles. This species is recognizable by its smooth black shell sprinkled with an even coating of round, yellow spots. Spots cover the legs and head too, though they can sometimes appear orange around the mouth. Females have a light colored jaw and orange eyes; males have dark jaws and brown eyes. These patterns are unique to each individual, like facial features to humans. Envision returning to a pond or muddy stream every few days and meeting the same turtles each trip. Like your neighbors, they soon become distinguishable!

With a normal lifespan of 26 to 50 years, these turtles could be long-time friends.

Spotted Turtles are not limited by their range, but are limited by their habitat. They can be found from Michigan east to Maine, and south along the Atlantic to Florida, and live in shallow, muddy streams, flooded fields and hardwood swamps near wet pastures. These turtles are commonly seen from February to June before the summer vegetation hides their movements as they search for food.



The Spotted Turtle is a small, secretive turtle.

Spotted Turtles are omnivorous, meaning they eat both plants and animals, like most humans.

These turtles enjoy aquatic grass, algae, bugs, snails, and tadpoles. When the summer becomes hot, they will dig a hole in a cool, wet place and go into summer hibernation, sometimes staying there until a winter hibernation place must be found. Winters are spent in a communal underwater den, like an abandoned muskrat burrow, with other Spotted Turtles.

They will emerge when air temperatures climb above freezing. Late winter finds the turtles spending most of their time basking in the sun, but when mating season begins in March males can be seen frantically chasing females in the water. Normally in June, as the waters dry up, females leave their homes to build a nest in sandy open areas. She will dig a hole two inches deep in the evening and lay three or four eggs, fill the hole and drag the underside of her shell across the top of the nest to hide it. The eggs will hatch about three months later. This new generation must survive eight to ten years before they will be able to reproduce.

Spotted Turtles are suffering from habitat loss and fragmentation across their entire

range. This is the biggest threat to wildlife in the South and across the nation. Much of the Spotted Turtle population decline in South Carolina is due to collectors from surrounding areas removing them for the pet trade in the US and abroad.

Spotted Turtles also struggle with predators, both native and invasive. Native turtle predators such as raccoons regularly feed on turtles and their eggs. Invasive, or introduced predators like feral hogs also have a devastating effect on turtle populations. Keep your eyes open for this park resident.

Please Remember

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

CongaResearch Files: Cedar Creek Floods

David Shelley, Ph.D., Education Coordinator

The fall of 2009 and winter of 2010 have brought many floods to Congaree National Park! Visitors find the experience of a flood magical, even when the Low Boardwalk and trails are under water. The water surface provides a mysterious reflection of the grand trees above, a visual conversation between ground, water, and sky. Wildlife is often very active and concentrated due to flood waters.

Visitors often ask how recent floods compare to past floods. The short answer is that the recent floods have been a rare chance to see a floodplain forest ecosystem working full steam. A longer answer, though, depends on how the question is asked. There are many ways to measure or describe a flood. Comparing floods is not theoretically different from debating the MVP in a Major League Baseball World Series. This is because there are many ways to compare a ball player's performance - runs, batting average, games played, home runs, perfect innings, walks, and double plays just to name a few. There are also many ways to compare floods using terms like depth, frequency, timing, rate and duration.

Even when people don't see a "flood," water levels are always changing. This is true for surface water that we can see in a river, creek, stream, or floodplain. It is also true for groundwater in the rocks and soil beneath our feet. Water depth is perhaps the simplest measurement. Scientists measure water depth repeatedly over time to see how and when water levels change. A graph of this data, called a hydrograph (from the Greek words meaning "water writing"), looks like a series of peaks and valleys. A hydrograph is a lot like the graphs used to track stock market values, heart rhythms on an EKG, or rising CO₂ levels associated with climate change. These all represent repeat measurements over time.

The Resource Management division at Congaree National Park funds work with the United States Geological Survey, or USGS, to collect water level measurements on the Congaree River and on Cedar Creek. The actual monitoring site, or gage (and yes, the USGS spells it "gage" instead of "gauge"), on Cedar Creek, for example, is located at the end of Sims Trail. A sensor measures the water level every 30 minutes, and these data are uploaded to the World Wide Web via satellite link in real time. A link to this website is available on the park's website (<http://www.nps.gov/cong/planyourvisit/canoe-trail-conditions.htm>). The USGS gage on Cedar Creek was installed in 1982, and has monitored water levels continuously for more than 16 years (over 5,900 days) from December 1993 to present. These measurements can be used to ask – and answer – many questions about floods at Congaree National Park.

HOW DEEP DOES THE WATER GET IN CEDAR CREEK?

The five deepest water levels measured at the gage were 15.07 feet (spring 2003), 14.08 feet (summer 2004), 13.45 feet (spring 2003), 13.40 feet (winter 2005), and 13.04 feet (winter 2010).

HOW OFTEN DOES CEDAR CREEK FLOOD?

This depends on how you define a flood.

Park staff have noticed that the ground around the Low Boardwalk begins to "flood out," or go under water, when the Cedar Creek gage passes eight feet. The Cedar Creek data indicate that there were 58 flood peaks, or pulses that rose above eight feet, since 1993. This is an average of 3.2 floods per year, but yearly counts range from nine floods in 2009 to only one flood



in the 14.08 foot flood in the summer of 2004, which happened right after Hurricane Frances dumped enormous amounts of rain across South Carolina. Historical documents also describe larger freshets, or floods, associated with hurricanes and tropical storms.

each in 1994, 2001, and 2008. 2010 has already seen three floods during January and early February.

An estimate of 3.2 floods per year is quite different from another report that Congaree National Park floods 10-12 times per year. Why the difference? The "10-12 floods per year" number was calculated using a different definition of flood depth measured on another gage on the Congaree River. Based on observations near the river, scientists used a lower water level to define a "flood" when river water starts backing up the creeks and guts nearest it. The water level on the Congaree River does indeed rise to or past that flood level about 10-12 times per year on average. This does not mean, though, that the water rises high enough to cover the Low Boardwalk 10-12 times per year.

WHAT SEASON DOES CEDAR CREEK FLOOD?

Most of the floods happen in the winter. Out of the 58 total floods with water levels over eight feet, 28 were in the winter, 12 were in the spring, six were in the summer, and 12 were in the fall. This annual flood pattern also holds true when analyzing smaller floods. It is interesting because it is reversed from rainfall, which is actually highest in the summer and lowest in the winter. Why the difference? Congaree's trees, of course! Trees are the world's best pumps even though they don't have a moving mechanical part. In the summer, tree roots pump amazing amounts of water, and their leaves essentially "sweat" or "breathe" the water into the air. Scientists call this evapotranspiration. In the winter, however, even though there is less rain the trees are mostly dormant and not pumping, so this water sits around longer. One exception to the typical, seasonal flood pattern on Cedar Creek is found

Flood patterns are important for park visitors and managers to understand. Visitors might think about the chance for flooding during a visit. Floods can make hiking wet or impossible, but may be a special opportunity, too. Park staff study flood patterns to guide plans for programming, boardwalk maintenance, trail maintenance, scientific research, and bridge construction. Resource managers use these data to study how water levels affect plants and animals, and how water levels are related to groundwater underneath the floodplain soil. Managers also monitor flood patterns to see if there are long-term changes due to watershed development or climate change. Current regional climate trends point toward an increase in the frequency and intensity of hurricanes; a general decrease in winter, spring, and summer rain, and an increase in fall rain.

Next time you look at a creek or a river, or a flood at Congaree National Park, remember that water is always changing. Research is ongoing. Please do not disturb any scientific equipment you find out at Congaree National Park but feel free to ask rangers about what projects are currently underway. Remember, the goal of all of this work is to help ensure the best possible visitor experience and preserve our National Parks for generations to come!

Public Input Sought on Plans to Improve Cedar Creek Canoe Access

Congaree National Park is planning to upgrade two existing canoe landing sites along the Cedar Creek Canoe Trail at Bannister Bridge and South Cedar Creek access points. Both landing areas have designated parking and receive a high degree of visitor use. The park proposes to improve the existing landing sites, stabilize the creek banks to reduce erosion, and expand visitor parking at both locations. Improved access will enhance overall visitor experience, reduce the risk of visitor accidents and injuries, and protect park resources.

The National Park Service encourages public participation throughout the planning phases of this project. The public will have two opportunities to formally comment on project alternatives; once during initial project scoping and again following release of the Environmental Assessment. We are currently in the scoping phase of this project, which concludes on March 31, 2010. Please voice your ideas, comments, or concerns about this project by submitting your comments online at the NPS Planning, Environment, and Public Comment website at <http://parkplanning.nps.gov>. All comments will be considered during preparation of the Environmental Assessment.

Floodplain Safety Message

As a floodplain forest, water levels on Cedar Creek and the Congaree River fluctuate. 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.

Visitors paddle over the flooded Boardwalk.

HOW LONG DO CEDAR CREEK FLOODS LAST?

During the last 16 years, the average flood stayed above the eight foot level for five days. The longest flood (in the winter of 2003) lasted 24 days! Floods tend to last longer in the spring and are shorter in the fall.

HOW DO RECENT FLOODS COMPARE?

2009 had the most individual floods in the last 16 years. With three floods in the first two months of 2010, Cedar Creek could be in for another record-breaking year. From November 1, 2009 to February 18, 2010, the water level was above eight feet for 55 total days (out of 109 total), which is 50% of the time. During the last 16 years, however, the water level was above eight feet for 310 days (out of 5,923 total), which is only 5% of the time. This means that the last few months have seen about ten times more flooding than the 16-year average! Although this is not an unusual pattern when compared with normal seasonal trends, these data are still impressive.

The highest water recorded during recent floods was 13.04 feet on Monday, February 8, 2010. During the last 16 years (5,914 days) only 11 days have had water levels this deep or deeper. These high-water days are clustered into 5 flood events or about one flood every 3.2 years. This can be a tricky point, though, because it does *not* mean that scientists can *predict* a flood every 3.2 years. It does, however, mean that the chance (probability) for a "deep flood" during any given year is about 31%. Note that a frequency of one "large flood" every 3.2 years is not the same as the average of 3.2 "floods" (defined by a Cedar Creek water level above eight feet) per year.

APRIL 2010

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---------------------------------------|--|-------------------------------------|---|--|--|
| | | | | 1 1:30p Flat Hat Chats (4) | 2 1:30p Weston Lake Wilderness Hike 8:00p Owl Prowl | 3 9:00a Guided Canoe Tour 9:30a Nature Discovery 2:00p Tree Trek |
| 4 1:30p Surviving Scorch | 5 1:30p Amazing Adaptations | 6 1:30p Tree Trek | 7 1:30p Who Came Before? | 8 2:00p Roving Ranger at Weston Lake Overlook | 9 10:00a Flat Hat Chats (2) 8:00p Owl Prowl | 10 9:00a Guided Canoe Tour 9:30a Nature Discovery 10:00a Muck and Mud 1:30p Flat Hat Chats (4) |
| 11 9:00a Guided Canoe Tour 2:00p Surviving Scorch | 12 | 13 1:30p Amazing Adaptations | 14 1:30p Tree Trek | 15 2:00p Who Came Before? | 16 1:30p Tree Trek 8:00p Owl Prowl | 17 9:00a Guided Canoe Tour 9:30a Nature Discovery 10:00a River Trail Tromp 12:00p Roving Ranger at Cedar Creek Access 1:30p Wise Lake Wander |
| 18 9:00a Guided Canoe Tour 1:30p Tree Trek | 19 1:30p Wise Lake Wander | 20 1:30p Roving Ranger at Weston Lake Overlook | 21 1:30p Who Came Before? | 22 1:30p Tree Trek | 23 1:30p Cha Cha Cha Changes | 24 NatureFest! |
| 25 9:00a Guided Canoe Tour 2:00p Roving Ranger Breezeway | 26 2:00p Who Came Before? | 27 1:30p Wise Lake Wander | 28 1:30p Tree Trek | 29 2:00p Tree Trek | 30 1:30p Roving Ranger on Boardwalk 8:00p Owl Prowl | |

MAY 2010

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---------------------------------------|---|-------------------------------------|---|--|---|
| | | | | | | 1 9:00a Guided Canoe Tour 9:30a Nature Discovery 10:00a Big Tree Hike 1:00p Butterfly ID Skills 1:30p Tree Trek |
| 2 9:00a Guided Canoe Tour 1:30p Flat Hat Chats (4) | 3 1:30p Tree Trek | 4 1:30p Tree Trek | 5 1:30p Who Came Before? | 6 2:00p Roving Ranger at Weston Lake Overlook | 7 1:30p Flat Hat Chats (4) 8:00p Owl Prowl | 8 8:30a Welcome Back Wood Warblers 9:00a Guided Canoe Tour 9:30a Nature Discovery 1:30p Wise Lake Wander |
| 9 9:00a Guided Canoe Tour 10:00a River Trail Romp 2:00p Roving Ranger at Wise Lake | 10 2:00p Who Came Before? | 11 | 12 1:30p Tree Trek | 13 2:00p Amazing Adaptations | 14 8:00p Campfire Program | 15 9:00a Advanced Canoe Tour 9:30a Nature Discovery 10:00a Tricky Tracks 1:30p Roving Ranger at Cedar Creek Access |
| 16 9:00a Guided Canoe Tour 2:00p Roving Ranger at Cedar Creek Access | 17 | 18 1:30p Tree Trek | 19 1:30p Who Came Before? | 20 1:30p Flat Hat Chats (4) | 21 1:30p Roving Ranger on Boardwalk 8:00p Owl Prowl | 22 9:00a Guided Canoe Tour 10:00a River Trail Tromp 1:00p Butterfly ID Skills 1:30p Weston Lake Wilderness Hike |
| 23 9:00a Guided Canoe Tour 9:30a Birds and Branches 1:30p Weston Lake Wilderness Hike | 24 2:00p Flat Hat Chats (2) | 25 1:30p Roving Ranger on Boardwalk | 26 1:30p Tree Trek | 27 2:00p Wise Lake Wander | 28 1:00p Oakridge Trail Hike 8:00p Owl Prowl | 29 9:00a Guided Canoe Tour 10:00a Big Tree Hike 1:30p Wise Lake Wander |
| 30 9:00a Guided Canoe Tour 1:30p Tree Trek | 31 1:30p Tree Trek | | | | | |

JUNE 2010

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|--|--|---|--|
| | | 1 1:30p Congaree Loblollies | 2 1:30p Who Came Before? | 3 2:00p Who Came Before? | 4 9:30a Amazing Adaptations 1:30p Weston Lake Wilderness Hike 2:00p Roving Ranger on Boardwalk 8:00p Owl Prowl | 5 9:00a Advanced Canoe Tour 9:30a Nature Discovery 1:30p Tree Trek |
| 6 9:00a Guided Canoe Tour 2:00p Roving Ranger at Weston Lake Overlook | 7 1:30p Tree Trek | 8 1:30p Roving Ranger at Weston Lake Overlook | 9 1:30p Tree Trek | 10 1:30p Congaree Loblollies | 11 1:30p Flat Hat Chats (4) 8:00p Owl Prowl | 12 9:00a Guided Canoe Tour 1:30p Wise Lake Wander |
| 13 9:00a Guided Canoe Tour 1:30p Roving Ranger at Weston Lake Overlook | 14 1:30p Tree Trek | 15 1:30p Tree Trek | 16 1:30p Congaree Loblollies | 17 2:00p Amazing Adaptations | 18 1:30p Flat Hat Chats (4) 8:00p Campfire Program | 19 9:00a Guided Canoe Tour 9:30a Nature Discovery 1:30p Wise Lake Wander |
| 20 9:00a Advanced Canoe Tour 1:30p Weston Lake Wilderness Hike | 21 1:30p Roving Ranger on Boardwalk | 22 | 23 1:30p Tree Trek | 24 1:30p Tree Trek | 25 8:00p Owl Prowl | 26 9:00a Butterfly Count 9:00a Guided Canoe Tour 9:30a Nature Discovery 10:00a River Trail Tromp 12:00p Roving Ranger at Cedar Creek Access 1:30p Tree Trek |
| 27 9:00a Guided Canoe Tour 9:30a Birds and Branches 2:00p Tree Trek | 28 1:30p Who Came Before? 9:00a 5th Grade Summer Ecology Camp begins | 29 1:30p Tree Trek | 30 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.

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.

Saturday, April 24th is National Junior Ranger Day. Join park rangers at Congaree as we celebrate with our annual NatureFest celebration. You will have the opportunity to earn Junior Ranger Day items like patches, pins, and certificates by participating in NatureFest activities.

Junior Ranger Ecology Camp!

The Old-Growth Bottomland Forest Research and Education Center at Congaree National Park will host two separate week-long summer camp sessions for rising fifth-graders during June and July, 2010. Session I runs from June 28 - July 2, and Session II runs from July 12 -16, 2010.

Each session runs Monday to Friday from 9:00 a.m. to 3:00 p.m. The curriculum focuses on outdoor activities including hiking, canoeing, scientific data collection, art projects, writing, and hands-on standards-based science lessons taught by National Park Service staff. This curriculum is structured around the South Carolina state education standards for 4th and 5th grade science inquiry (literacy), ecology, and allied subjects. Programs emphasize floodplain ecology, research skills, and resource stewardship. Upon completion of camp, each camper will be sworn in as an official National Park Service Junior Ranger.

The camp is free of charge, but advance registration (in person) is required. More information about summer camp and camp registration will be sent in an upcoming press release. For details about the 2010 Junior Ranger Ecology Camp, please contact David Shelley, Education Coordinator at (803) 776.4396, ext. 3966, or visit our website at www.nps.gov/cong.

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.

BIG TREE HIKE

Join a ranger on this 6 mile off trail hike to some of the largest trees at Congaree. Look forward to scoring a few to see if they're "champions". Reservations required. (803)-776-4396

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.

BUTTERFLY COUNT

This is a one day inventory conducted by volunteer citizen scientists throughout North America. Help search for and identify butterfly species within various habitats of Congaree National Park. Reservations required.

BUTTERFLY IDENTIFICATION SKILLS

Learn how to tell one species of butterfly from another during this indoor Powerpoint presentation and outdoor hike. All ages welcome to participate. Reservations required (803) 776-4396

CAMPFIRE PROGRAM

Learn about the nocturnal animals that have a home at Congaree while enjoying a crackling campfire.

CHA CHA CHA CHANGES

Change is the only constant at Congaree. Hike with a ranger and look for signs of the subtle and dramatic changes that take place in the floodplain.

CONGAREE LOBLOLLIES

Stroll down 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, swamps vs. floodplains, and owls. The calendar on page six indicates the number of talks each day. 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.

GUIDED CANOE TOUR (ADVANCED)

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. (803) 776-4396.

MUCK AND MUD

Hey Kids! Do you know what's squirming and wiggling in the mud in the park? Join a ranger for a hike to Weston Lake to see what creatures you can catch!



Junior Rangers learn to fight fire.



Flat Hat Chat

NATURE DISCOVERY HIKE

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

NATUREFEST

NatureFest will celebrate National Park Week, the International Year of Biodiversity, "Going Green" and will demonstrate many of the little and big things we can do to live more in tune with our environment. This one day celebration takes place from 10:00 a.m. to 5:00 p.m.

OAKRIDGE TRAIL HIKE

Bring water and sturdy hiking boots for this 6.6 mile hike among some of the park's largest oaks.

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 required. (803) 776-4396

RIVER TRAIL TROMP

Explore the path less traveled. Join a ranger on this 10 mile, five hour wilderness hike to the Congaree River. Bring a sack lunch to enjoy on the river's edge.

ROVING RANGER

Rendezvous with a ranger at various locations throughout the park including Weston Lake Overlook, Cedar Creek Canoe Access, or along the Boardwalk. The ranger may have some exciting things to show you, and you'll have the opportunity to ask the expert questions. A ranger will be at the specified location for two hours.

SURVIVING SCORCH

Join a ranger for a guided hike 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.

TRICKY TRACKS

Hey Kids! Have you ever wondered whose footprints you were following in the park? Join a ranger for some games that will help you recognize animal tracks and then search for some along the trail.

WELCOME BACK WOOD WARBLERS

Join Park staff for a one hour talk to discover what migrating birds are flying in the forest and enjoy a birding stroll on the Boardwalk.

WESTON LAKE WILDERNESS HIKE

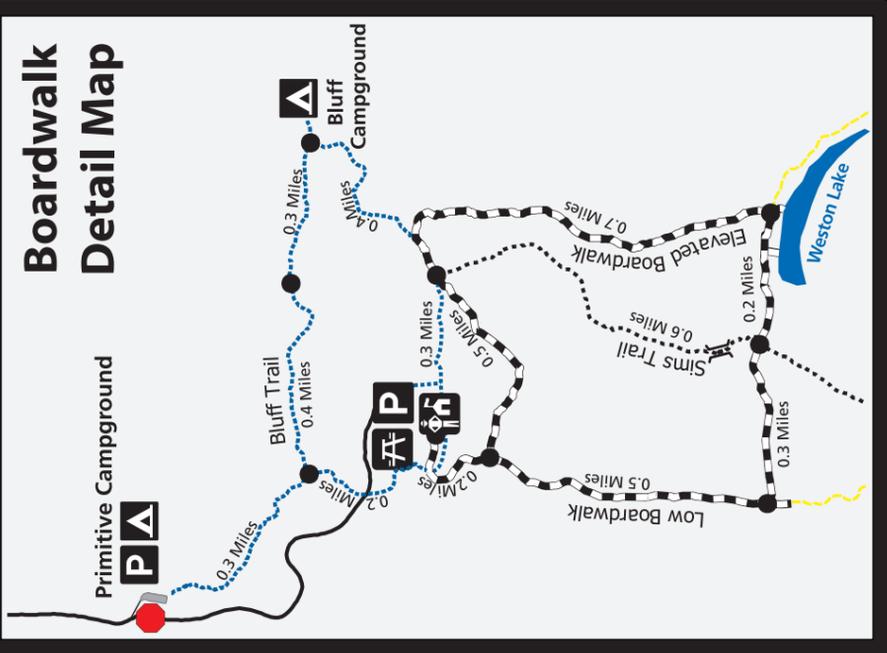
Immerse yourself in a designated Wilderness Area as you hike 4.5 miles on the Weston Lake Trail. Perhaps you'll spot a River Otter in Cedar Creek!

WHO CAME BEFORE

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

WISE LAKE WANDER

Join a ranger for a stroll to Wise Lake. This 2.5 mile hike will include a visit to Cedar Creek. Bring your fishing gear and your SC Fishing License if you want to fish!



Trail Descriptions

Trail mileage is given to indicate one-way travel for each trail. For a detailed trail map, visit the Harry Hampton Visitor Center.

Boardwalk: 2.4 Miles

Sims Trail: 1.2 Miles

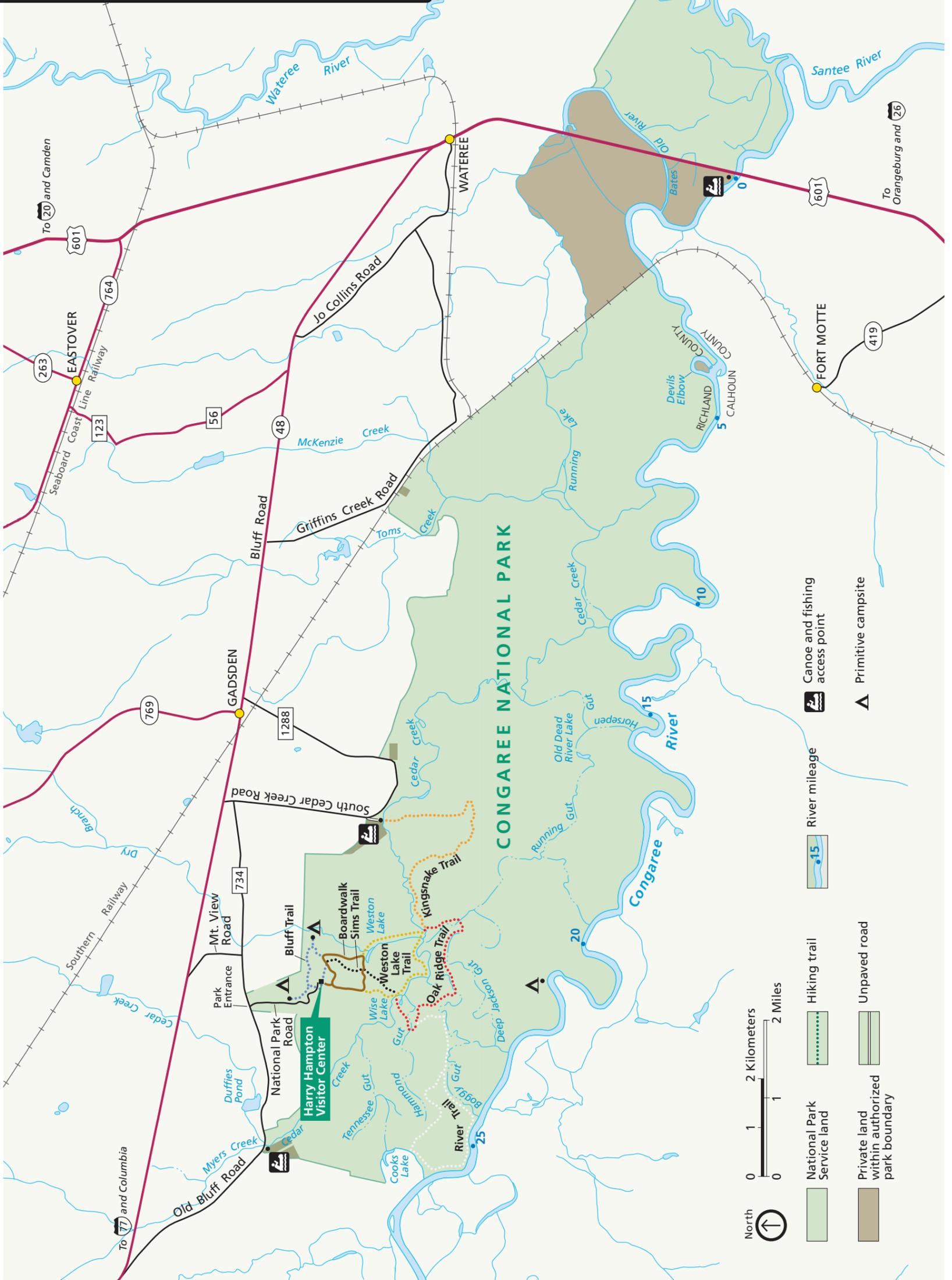
Bluff Trail: 2.1 Miles
Blue Blazes

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
- River mileage
- Canoe and fishing access point
- Primitive campsite