



Friends of Congaree Swamp News

www.friendsofcongarree.org

Winter 2021

Save the date

Adopt-a-Trail Workday

The Yellow-throated Warbler Adopt-a-Trail Workday is set for **Saturday, Feb. 27.**

It's time for clearing on the Sims Trail, the Boardwalk, the Weston Lake Loop Trail and the Oakridge Trail.

Trails have received a good amount of attention since the onset of the COVID-19 crisis from park staff, ACE volunteers, student interns, and Friends members, so we should not face the overwhelming trail damage we have had the last several years.

We will work in smaller groups than usual and wear masks (not that our groups are ever so big) as a means of social distancing.

While out on the trails, we may be able to hear our mascot for the winter trail clearings, the Yellow-throated

See *Save the date*, page 7

INSIDE

President's Corner.....	2
Installation.....	3
Christmas Bird Count.....	4

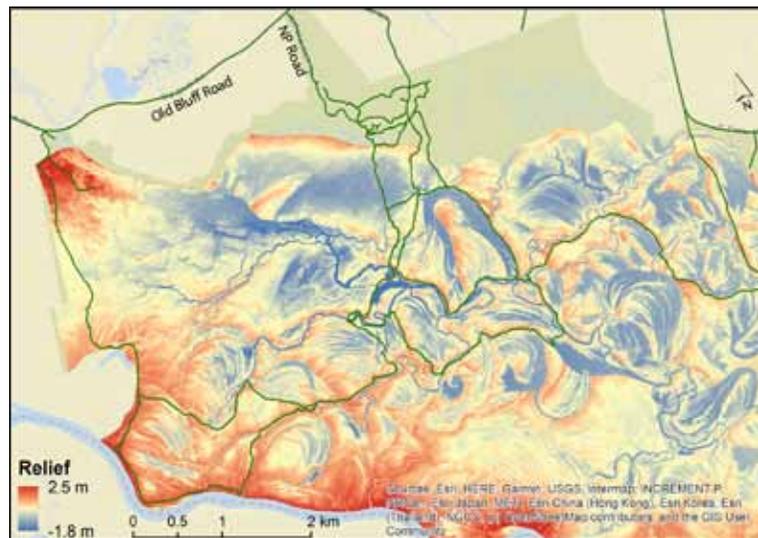
Floodplains function as nature's drainage systems

By Prof. Raymond Torres

Floodplains are ubiquitous Earth surface features that occur across a variety of landscapes, from arid deserts to humid swamps. You'll find them from steep mountainous terrain to gently sloping environments, as in the Great Plains and along the North American coastal plain that extends from Long Island, N.Y., to northern Belize.

Floodplains serve as storage for nutrients and the sediment eroded from upland areas, playing an important role in the carbon cycle and providing many benefits to society.

The southeastern United States has a unique set of moderately sized floodplains, especially in what we colloquially refer to as the "lowcountry." You can appreciate this every time you drive along



This relief map portrays the upstream portion of Congaree National Park. Note the well-defined, high-relief river embankment for this entire reach of the Congaree River, punctuated by a handful of deep guts, particularly Deep Jackson Gut in the bottom center and Boggy Gut adjacent to the River Trail. River water flowing into these guts controls the early stages of flooding in the western portion of the park. For the downstream portion of the park (not depicted), the river embankment is not as consistently high, and hence the downstream portion of the floodplain is more susceptible to overbank flooding.

I-95 and it seems that every 50 miles or so you find yourself driving through a roughly 10-mile-wide swath of green with a river somewhere within.

The river typically is not centrally located in the floodplain

See *Floodplain*, page 6



President's Corner

Dr. John Grego

Water/Ways

The Water/Ways exhibit completed its two-month run at the park on Jan. 13. More than 3,000 visitors from 49 states and several foreign countries attended, which would typically be a success by any measure—it certainly impressed our exhibit sponsors at S.C. Humanities.

Unfortunately, one of the major goals of the SITES program (Smithsonian Institute Traveling Exhibition Service)—visitation from the local community—was not as high as hoped. When the park talked with community partners, over-riding concerns about COVID-19 precluded visits to the exhibit.

The touch panel kiosk that Friends of Congaree Swamp purchased was not operational in time for the exhibit, though the two exhibit-specific kiosks certainly provided a sense of the potential for a permanent video kiosk. We have curated an excellent set of videos, and park staff has placed a high priority on adding the kiosk to the Visitor Center as a permanent interpretive display.

Friends of Congaree Swamp had the good fortune to welcome the participants to EboniRamm's Communal Pen virtual workshop sponsored by S.C. Arts Commission on Dec. 5 and Dec. 12, and sit in on a portion of the opening session. EboniRamm subsequently agreed to conduct a mini-workshop as part of the Water/Ways Symposium. One of the delights from the symposium activities

has been working with new partners like EboniRamm and Laura Marcus Green.

The park leveraged funding from other sources to re-imagine some of its existing programs in coordination with Water/Ways. The Columbia Museum of Art, the park's years-long partner in its popular LEAF (Linking Ecology and Art of the Floodplains) program for third-grade students, recorded lab modules on location at the park, rather than the typical fall field trips held at the Learning Center and Outdoor Classroom.

In addition, the NCNW (National Council of Negro Women), which has worked with the park to fund field trips to the park for more than 5,000 Title One



students, donated \$6000 in National Park Service funding for video recording and production equipment to record virtual field trips. Though these resources are particularly needed during the pandemic, they will greatly expand the park's outreach in years to come as well.

As much as the park enjoyed hosting the exhibit, there must have been some relief when it closed. The exhibit strained park staff and volunteer resources, as it was housed in the auditorium and required dedicated docents while other staff and volunteers worked in the bookstore and the entrance kiosk.

I would like to thank the members of the organizing committee, particularly Greg Cunningham and Kate Hartley. Greg and Kate had experience with SITES, having helped with the set-up and takedown of the Crossroads exhibit organized by SERCO at the Harriet Barber House in 2019. Our monthly and then weekly meetings kept projects on track, and Greg and Kate put in countless hours either administering, publicizing or hosting the exhibit once it arrived.

Water/Ways Symposium

The Water/Ways virtual symposium exceeded expectations on multiple counts. Our organizing committee originally thought 140 participants would be an aspirational goal, so we were

Friends of Congaree Swamp News is published quarterly by Friends of Congaree Swamp, P.O. Box 7746. Columbia, SC 29202-7746. It is distributed free by mail to Friends members and other interested parties.

All content is copyrighted and may not be reproduced except by express permission of Friends of Congaree Swamp.

Subscription requests or changes of address may be sent to the above address or emailed to friendsofcongaresswamp@gmail.com. Please visit our Web site at www.friendsofcongaresswamp.org.

Friends of Congaree Swamp advocates for Congaree National Park and its unique environment.

Dr. John Grego, President

Sharon H. Kelly, Editor

See Grego, page 3

Installation mirrors dynamics of the park

By Vincent Harris
The Post & Courier

With his “Swales & Sloughs” installation, Greg Stuart wanted to create a surreal, immersive experience.

Stuart, an associate professor of experimental music and music literature at the University of South Carolina, created it to accompany *Water/Ways*.

Frequent flooding helps to create a forest rich with biodiversity at Congaree National Park, and Stuart, an acclaimed experimental music composer and percussionist, aimed to put people right in the middle of the park with “Swales & Sloughs” without creating a straightforward nature display. The installation combined 600

constantly shifting photographs that Stuart took in the park with natural sounds, bits of percussion and flashes of white noise.

“There are two components to the installation: sound and images,” Stuart described. “And each component has its own set of parameters it follows. ... Starting from scratch I wrote the code that produces the sounds and the images you see when you view the installation.”



Stuart said that the sounds one hears in “Swales & Sloughs” exist in three different layers, the first of which are field recordings.

“I made location recordings at 50 different sites throughout Congaree National Park,”

See Installation, page 5

Grego

continued from page 2

delighted when the number of participants climbed past 200. The themes of the *Water/Ways* exhibit provided an ideal framework for the symposium organizers to invite a complementary and diverse set of speakers. And the sessions themselves led to enthusiastic online conversations and meeting plans after the symposium.

Running a virtual conference was an education, even with the outstanding support provided by Marie Romanelli of Delaney Group, the firm we hired for the conference.

Delaney provided tutorials for speakers and participants alike so that everyone could take advantage of the features of Whova, the meeting platform.

Based on the postings I saw on Whova, many participants embraced the platform and actively used its features. I particularly liked scrolling through the participant profiles, reading their initial ice-breaker greetings, and reviewing the meet-ups and meetings as participants set up post-symposium special topics meetings. And the ability to vote in support of each other’s questions led to active and enthusiastic question-and-answer sessions.

Delaney provided YouTube videos of each session, and the links are now posted permanently on our website. Both Friends and the park will likely edit the videos for different audiences as well.

We would like to thank sponsors who contributed specifically to the symposium: Central Midlands Council of Governments, Richland County Conservation Commission and Congaree Biosphere Region.

Plans are already being made for a research conference for next year. It’s been a long time since the last conference in 2008 and we are considering a more regular conference schedule.

Christmas Bird Count sets milestone

The 28th Congaree Swamp Christmas Bird count set a milestone this year—the first time we have recorded 100 or more species without including the Two Farms sector, with its excellent waterfowl habitat, in the count.



Brown Thrasher

The weather certainly wasn't promising at the outset, but it appears most parties negotiated the rainy conditions in the morning with an appropriately late start. One of the parties was accompanied by Calvin and Illia Kwon from ESRI (the company that licenses ArcGIS) at 7 a.m. to test Survey123, a new app Calvin has developed with Kathy Dale of National Audubon Society for use with Christmas bird counts nationwide.

We essentially added two new routes within Congaree National Park, including an improvised off-trail paddling route in the center of the park, and full coverage of the park's trail system, though flooding on several of the trails limited access for our parties.

Most of the species commonly associated with

the floodplain were present in abundance, with the exception of Winter Wren, which likely found drier habitat.

Our Calhoun County parties found their always greatly appreciated complement of outstanding species, including Virginia Rail and Marsh Wren (Dennis Forsythe), Common Ground Dove (Lex Glover/Ann Nolte/Hank Stallworth), Sedge Wren, Henslow's Sparrow, Lincoln's Sparrow, and Grasshopper Sparrow (Cathy Miller/Carl Miller/Matt Johnson/Dick Watkins). In Richland County, species of note included a second Lincoln's Sparrow (Caroline Eastman), Northern Pintail (flyover observed by Joshua Rose/Dave Schuetrum/Scott Wietetcha), Northern Bobwhite (Kathleen O'Grady/Alice Steinke/Julie Mobley), and Northern Parula (Jon Manchester/Clay Parker).

No new species were added to the count, but we tied high counts for Osprey (1), Merlin (1), Gray Catbird (6), and Northern Parula (1). Our new high counts included some of the most charismatic full-time residents and winter visitors at the park: Great Egret (11), Ruddy Duck (8), Common Ground Dove (10), Barred Owl (49), Red-bellied Woodpecker (237), Blue-headed Vireo (48),

Blue Jay (147), Sedge Wren (4), Brown Thrasher (32), Orange-crowned Warbler (15), Pine Warbler (195), Black-and-white Warbler (22), Grasshopper Sparrow (2), and Lincoln's Sparrow (2).

This was an irruption year for some northern species, as they foraged farther south than usual for alternate food sources. We successfully located Pine Siskin, Red-breasted Nuthatch and Purple Finch, but missed the

bird everyone is looking for this year—Evening Grosbeak.

Reviewing species total, our counts for Barred Owl and Pileated Woodpecker should be at

least the third highest in the country, and some of the other species counts bear watching as well. In our next newsletter, we will share an update on any national rankings of interest.

We would like to acknowledge George McCoy and Richard Sasnett, who were unable to join us on the count this year. Richard and George covered Totness Hunt Club and a reach of Congaree River for the Congaree Swamp CBC for many years and were always reliable for excellent additions to the list.

Species and Count

Pied-billed Grebe 6
Double-crested Cormorant 21



White-eyed Vireo

See *CBC*, page 5

Installation

continued from page 3

he explained. “That involved hiking through the park, finding a place where I think there are some interesting things going on and making a recording.

The location recordings are mixed with recordings Stuart made playing various percussion instruments, and what he calls “sustained tones and bits of filtered noise the computer will produce.”

These sounds accompanied Stuart’s images from the park, but this isn’t merely a

loop of photos and ambient noise. The photos and sounds don’t follow a set pattern.

“It’s actually a kind of dynamic environment. It would never be the same thing going in a loop. You can have everything from a single image presented clearly with up to four images being mixed together. There are times in the sound where it will thin out to almost nothing, but it can very quickly become quite thick and then just kind of dissipate.

“Same thing with the images, going from something you can clearly recognize from

the park, to something more impressionistic, a combination of multiple images.”

Thanks to the code Stuart created, “Swales & Sloughs” is never the same experience twice.

“I wanted to make a piece that took the dynamic processes of the way the park floods as a kind of model,” he offered. “The park floods periodically, so you have long periods where nothing is really changing, and then all of a sudden flood waters can inundate the park

See Installation, page 7

CBC

continued from page 5

Anhinga 7
Great Blue Heron 15
Great Egret 11
White Ibis 1
Black Vulture 107
Turkey Vulture 133
Canada Goose 15
Wood Duck 165
Northern Pintail 12
Lesser Scaup 1
Hooded Merganser 5
Ruddy Duck 8
Osprey 1
Northern Harrier 5
Sharp-shinned Hawk 3
Cooper’s Hawk 3
Red-shouldered Hawk 36
Red-tailed Hawk 7
American Kestrel 15
Merlin 1
Wild Turkey 3
Northern Bobwhite 4
Virginia Rail 1
Killdeer 43
Wilson’s Snipe 4
American Woodcock 2
Rock Pigeon 8
Mourning Dove 162
Common Ground Dove 10
Eastern Screech-Owl 1
Barred Owl 49
Great Horned Owl 1

Belted Kingfisher 8
Red-headed Woodpecker 140
Red-bellied Woodpecker 237
Yellow-bellied Sapsucker 111
Downy Woodpecker 68
Hairy Woodpecker 11
Northern Flicker 219
Pileated Woodpecker 131
Eastern Phoebe 122
Loggerhead Shrike 5
White-eyed Vireo 4
Blue-headed Vireo 48
Blue Jay 147
American Crow 195
Carolina Chickadee 210
Tufted Titmouse 150
Red-breasted Nuthatch 3
White-breasted Nuthatch 24
Brown-headed Nuthatch 36
Brown Creeper 12
Carolina Wren 234
House Wren 26
Winter Wren 34
Marsh Wren 2
Sedge Wren 4
Golden-crowned Kinglet 184
Ruby-crowned Kinglet 366
Blue-gray Gnatcatcher 3
Eastern Bluebird 136
Hermit Thrush 83
American Robin 1141
Gray Catbird 6
Northern Mockingbird 38
Brown Thrasher 32
European Starling 15

American Pipit 18
Cedar Waxwing 22
Orange-crowned Warbler 15
Northern Parula Warbler 1
Yellow-rumped Warbler 164
Pine Warbler 195
Palm Warbler 5
Black-and-white Warbler 22
Common Yellowthroat 13
Eastern Towhee 91
Chipping Sparrow 279
Field Sparrow 8
Henslow’s Sparrow 1
Savannah Sparrow 41
Fox Sparrow 19
Grasshopper Sparrow 2
Song Sparrow 187
Lincoln’s Sparrow 2
Swamp Sparrow 45
White-throated Sparrow 406
Northern Cardinal 326
Red-winged Blackbird 9706
Eastern Meadowlark 29
Rusty Blackbird 49
Common Grackle 167
Brown-headed Cowbird 203
Baltimore Oriole 1
Purple Finch 8
House Finch 12
Pine Siskin 50
American Goldfinch 234
House Sparrow 14
Total Species 101
Total Count 17,189
Count week: Painted Bunting

Floodplain

continued from page 1

because it is continuously, albeit slowly, migrating across the floodplain by the processes of erosion at one bank, and deposition on the opposite. In fact, in the Southeast most of the lowcountry river channels are largely positioned in the southern parts of the floodplain, a product of large scale but gentle warping of the Earth's crust centered near the North Carolina-Virginia border.

Southeastern lowcountry floodplains are unique in that the river systems that created them are rather short. For instance, the straight-line distance from Caesars Head State Park (source area of the Saluda River) to the mouth of the Santee River (the "sink"), or the "source to sink" straight-line distance is less than 250 miles. This is rather short considering the same measure on comparable or larger rivers in the U.S. can be more than 10 times greater. What this means is the river doesn't have a lot of "time" or "space" to accumulate the sediment necessary to construct the floodplain and yet we see very well-developed floodplains all over Georgia and the Carolinas.

Within this context, the Congaree River, a tributary to the Santee River, has a floodplain with a maximum width of about 5 miles.

As mentioned above, the Congaree River's channel lies mostly along the southern part of the floodplain, and as a consequence Congaree National Park, being north

of the river, contains the bulk of the corresponding floodplain surface area.

The floodplain sedimentary fill has a maximum depth of about 40 feet, and this is largely based on a series of SCDNR drill holes. Nonetheless, you can think of the floodplain being the surface expression of a "prism" of sediment 50 feet thick that tapers to zero feet (near Columbia) to the north but perhaps as thick as 70 feet to the south, especially where the bluffs confine, or fix, the river position near the 601 bridge.

Upon initial inspection, one assumes that the Congaree River floodplain surface is essentially flat, and devoid of any real structure. However, the migration of the Congaree across its floodplain, the inundation of the floodplain and erosional processes collectively create a land surface topography with very subtle relief. In other words, the local topographic features of the floodplain are typically less than 1.2 meters high.

These floodplain surface features have been very precisely documented in the national park maps created by John Cely over the past 30 years. The very low relief of the national park has important implications for how flood waters enter, move across, and eventually leave the floodplain.

For example, you can conceptualize how as the inundation water level rises some topographic "obstructions" to flow may become submerged and water no longer has to flow around large and small high areas,

but over them. Further, our recent analyses of topography along the main river has shown that the levees, the naturally occurring topographic highs, are not uniformly developed, meaning that some parts of the levee are higher than others, some have large and small breaks and in some places along the river there are no levees at all.

This spatial variability in levee formation combined with the very subtle topographic variability throughout the floodplain has great implications for the inundation and emergence of the floodplain surface as well as the temporal and spatial variability in floodplain currents, and course, the corresponding effects on the transport of seeds and nutrients, and creation of aqueous pathways for biota to traverse the floodplain.

Our recent analyses of the topography of Congaree National Park and the variation of Congaree River stages show that the textbooks may be wrong! The widely accepted conceptual view of floodplain inundation is that a floodplain does not flood until the river stage exceeds the top of the levee, or "bank full" conditions.

Given that the levee development is poor to excellent along the Congaree River, it follows that river water can enter the floodplain at high but below the bank full stage. Hence, floodplain flooding is not a binary, or off-on process, but instead is more of a continuous process where water

See Floodplain, page 7

Save the date

continued from page 1

Warbler, always the first migrant to return to the park.

We will meet at the Visitor Center at 9 a.m. and finish in the early afternoon. Work gloves, light hiking boots, plenty of water, and a snack are recommended. If you have loppers, long-handled shears or bow saws, bring them along. Park staff will provide gear if you do not have any.

Please contact John Grego at friendsofcongareeswamp@gmail.com or 803-331-3366 if interested.

Cedar Creek Moonlight Paddle

Congaree National Park at night is a magical and mystical experience, even more so during, or near, a full moon. Throw a paddle in a kayak or canoe and you have the makings of a memorable event.

Friends of Congaree Swamp will do just this with a moonlight paddle on Cedar Creek on **Saturday, April 24**. Meet at the South Cedar Creek canoe launch at 8:00 p.m. From there we will paddle and drift down to Dawson's Lake and return to the landing around 11 p.m.

Bring a flashlight (headlamp works best) and a change of clothes in a dry bag. This outing will be limited to ten boats and is solely for members of the Friends of Congaree Swamp.

Contact John Cely at cowasee@gmail.com or 803-782-7450 to register.

Floodplain

continued from page 6

can enter the floodplain through breaks in the levee or where the levee is poorly developed.

Meanwhile, at other locations where the levee is better developed river water is kept within the channel. As you might expect, such a complex arrangement of water entry, or inundation pathways exerts a strong control on floodplain currents, and this helps explain why we see current in the floodplain do a complete 180-degree change in direction in a matter of minutes. We refer to this style of inundation as the “inundation continuum” concept; it encapsulates the idea that floodplain flooding is not binary, but is a type of “fuzzy” inundation.

On the other hand, these findings may be limited to the Congaree River floodplain. It is up to me and my team of graduate and undergraduate

Installation

continued from page 5

and fill up various ducts and flues throughout the park. I wanted to make something that would be modeled on the rate of change you could experience in the park.”

Stuart said that making an unpredictable installation took a lot of effort.

“The images were totally new to me,” he detailed. “I hadn't ever worked with images in this program before and I'm not the world's most sophisticated programmer. I can just barely get it to do

students, and colleagues at the University of South Carolina to conduct additional studies at other floodplain locations, and to do the numerical and analytical modeling to demonstrate that the conditions for fuzzy inundation are not limited to South Carolina.

Notwithstanding, it is interesting to think that the research conducted at our national park might someday, hopefully rather soon, lead to the revision of geoscience, engineering and environmental science textbooks that highlight how floodplains operate.

We hope that our efforts will enable land managers to better manage floodplains, or assign value to the various floodplain benefits to society.

Prof. Torres' team includes Haiqing Xu and Shailesh van der Steeg, also from the School of Earth Ocean and Environment at USC Columbia; Erica Viparelli of the Department of Civil and Environmental Engineering at USC Columbia; and Jessica Sullivan of the Department of Biology and Geology at USC Aiken.

enough things that I find personally interesting.

“There was a lot of work figuring out how to get the images and the sound to run together and basically not crash the computer.

“Mostly I'm trying to make something that allows for unexpected things to happen,” Stuart concluded.

“It takes a lot of work to get it to be volatile in a way that's compelling to me, and it's my hope that others will find something in that.”

Editor's note: This article was excerpted from the “Free Times” and edited to fit.



PRST STD
U.S. Postage
PAID
Permit #1365
Columbia, SC

Post Office Box 7746
Columbia, SC 29202-7746
www.friendsofcongarree.org

Join Friends of Congaree Swamp today!

Yes, I want to support conservation of Congaree Swamp for future generations. Enclosed is my tax-deductible contribution of \$ _____. (Please make checks payable to Friends of Congaree Swamp.)

Individual \$15 Name(s) _____
 Family \$35 * Mailing address _____
 Advocate \$50 City _____ State _____ Zip _____
 Partner \$100 ** Phone _____ Email _____
 Benefactor \$500
 Patron \$1000
 Nonprofit \$50
 Corporate \$1000

Please keep your information current to receive special notices about field trips, events, scheduling changes and acknowledgements in addition to a quarterly newsletter.

*For a contribution of \$35 or more, you may choose one:

- Baseball cap maroon _____ tan _____
- Tan visor _____
- Bandana with map of Congaree National Park gold _____ blue _____ red _____

**For a contribution of \$100 or more you will receive a copy of "The Natural History of Congaree Swamp."

In addition, I would like to donate \$ _____ as a gift.

Thank you for supporting Friends of Congaree Swamp!

Friends of Congaree Swamp, P.O. Box 7746, Columbia, SC 29202-7746
FOCS is a nonprofit 501(c)3 organization, EIN 56-2057087
