

Friends of the Randell Research Center

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Live from the Mangroves & South Florida Exhibit Hall

Virtual Field Trip Reaches Students in Pinellas County

by Kara Schwartz, Florida Museum Annual Giving
and Development Coordinator

School may be out for summer, but our education teams are hard at work! With uncertainty about what the fall semester will look like, educators at the Florida Museum and the Randell Research Center (RRC) wanted to make sure that students wouldn't miss out on important experiences like field trips. They decided that if they couldn't bring students to the Museum, they would bring the museum experience to students!


Educators from the RRC and Florida Museum in Gainesville piloted a virtual field trip program on Friday, May 22, with a featured topic of estuaries. Interactivity and engaging content are at the core of any successful field trip experience, and the Florida Museum's education team wanted to make sure that these elements weren't lost with the transition to virtual field trips. Students and their teacher, who took part from their homes in Pinellas County, Florida, visited the South Florida People and Environments indoor exhibition with educator Alberto Lopez as a guide. At Pineland, RRC Co-Director Cindy Bear stood waist deep in the water to teach about the importance of mangroves. Teacher, Ms. Susan Brown



Alberto Torres, School Outreach Coordinator at the Florida Museum, gave a live view of the South Florida exhibit hall which was closed to the public and school groups. (Photo by Rajendra Shields.)

wrote that the 4th grade students “were so excited and they claimed it to be the best virtual field trip we’ve ever had!”

Educational field trips have been shown to have immense value, especially for students who otherwise might not have the opportunity to visit museums or cultural institutions beyond their immediate community. Thanks to the generous support of the Museum Associates Board and Passport Gala guests, the Sear Family Foundation, and the Smallwood Foundation, for the past several years the Florida Museum's educational teams in Gainesville and at the RRC have been able to fund museum field trips for Florida fourth graders. The RRC program specifically targets Title One schools, while the program at the Florida Museum in Gainesville reaches all Alachua County fourth graders. Both have had a tremendous impact on the community and feedback has been exceedingly positive.

The teams at the Florida Museum and the Randell Research Center are excited about the possibilities this new format offers and plan to continue engaging with classrooms across the state even when in-person field trips are once again available. If you are a teacher, or know one who is interested in these opportunities, please email us at rcc.flmnh.ufl.edu or call 239-283-2062. 



Using a cell phone, tripod, and wifi, Cindy Bear joined the Zoom session from in the estuary waters. (Photo by Charles O'Connor.)



Mystery of the Watercourts

New publication provides some answers

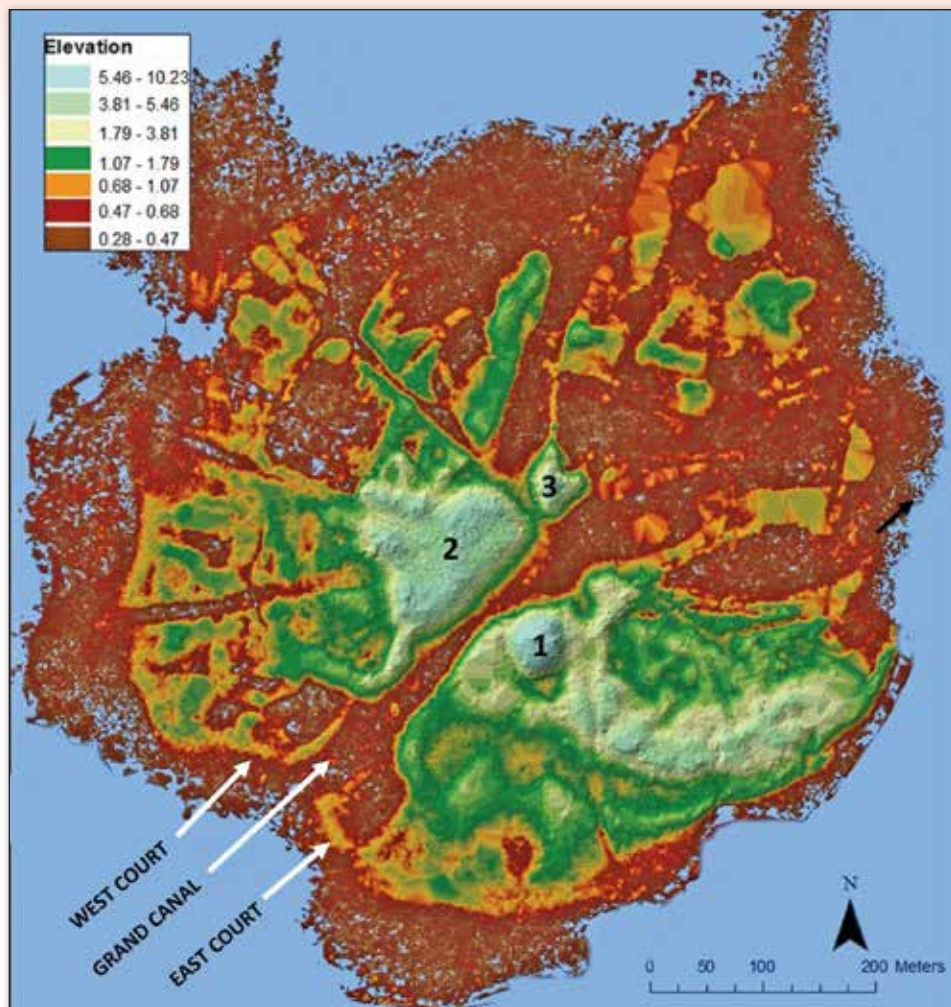
by Bill Marquardt

On March 30 an article was published in the *Proceedings of the National Academy of Sciences* entitled “Ancient Engineering of Fish Capture and Storage in Southwest Florida.” The research on which the article was based took place on Mound Key, an island in Estero Bay near Fort Myers Beach that was the capital of the Calusa Indian nation when Spaniards first arrived. The team of researchers included Karen Walker (co-director of the RRC), Bill Marquardt (former director of the RRC), and scientists and students from the University of Florida, University of Georgia, Florida Gulf Coast University, Flagler College, and the College of Idaho. Here is a summary of the article’s main points.

Visitors to the Mound Key Archaeological State Park know that the walking path crosses the Grand Canal, located next to the highest mound, known as Mound 1. Although the Grand Canal has been partially filled in since the time of the Calusa, it is still obvious.

At the mouth of the Grand Canal are located two roughly rectangular structures. Built on a foundation of oyster shells, these “watercourts” likely were tidal enclosures, or fish traps, which also served as holding pens for fish before they were cooked, smoked, or dried. Water and fish would enter the courts at high tide, the gates would be closed off, and the fish trapped as the tide went down. Fish could then be easily captured by spearing them or catching them in dip nets or seine nets.

Designing the courts required a thorough knowledge of daily and seasonal tidal variation, as well as fish behavior, which varies by species. The courts had to be able to let in some water



at high tide and allow water, but not fish, out at falling tides. Gates had to be designed to close and open for various purposes, such as herding fish in to sub-compartments, to clear out unwanted fish, or to let in schooling fish.

Storing aggressive carnivorous fish with fish species that they prey upon needed to be avoided. Some fish — mullet, for example — feed mostly on very small vegetal material such as algae and diatoms that they get from muddy sediments. Such fish would have been able to survive for longer periods of time in an enclosed court than certain other fish species. Mullet, and some other fish, can jump out of

LiDAR map of Mound Key. Numbers indicate Mounds 1-3; arrows point to the Grand Canal and two watercourts. (Map by Victor Thompson.)

the water, so the berms had to be high enough to prevent escape. The designers must have been present to direct the actual construction.

We don’t know precisely how the courts worked, but we think that storage would have been short-term — hours to a few days, not for months at a time, before the fish were consumed, or processed for future use by drying or smoking. We think the courts would have been refreshed at high tide and held some water seeping up through



When the Human Voices Were Silent

by Cindy Bear

Typically, spring months are busy with people on the grounds of the Calusa Heritage Trail. At those times, the soundscape must most resemble the era when Pineland was a busy Calusa town with the hum of conversation, the laughter of children, and hushed tones at the burial mound. When we paused tours, lectures, and research activities and closed the Visitor Center in support of efforts to stop the spread of the COVID-19 virus, the human voices went silent. I couldn't help but reflect on the challenges people before us had surmounted, or succumbed to, at this



An Osprey adult, on the left, feeds her chick on the platform at Ibis Pond. (Photo by Martha Huard.)

place. Simultaneously, I noticed how the animals and plants carried on and, in many instances, thrived because of our restoration work.

A pair of pileated woodpeckers raised a brood of three young in a hole in a dead standing tree (snag) purposefully created when we removed invasive exotic species. Two osprey pairs fledged chicks, one from a nest in a snag and one from a human-made platform. A yellow-billed cuckoo, found respite during migration and was added for the first time to our bird list. A butterfly orchid is blooming deep off the Trail where previously it was thwarted by an overstory of invasive exotic plants. In these cases, and more,



The male pileated woodpecker parent with his three chicks. (Photo by Martha Huard.)



A butterfly orchid, *Encyclia tampensis*, on the Smith Mound parcel. (Photo by Charles O'Connor.)

we made thoughtful decisions to support biodiversity through restoration. These are reassuring successes as we embark on planning how we will operate in the future amid public health concerns.

The trail is open for walking every day, but for now the restrooms, store, and classroom remain closed. Staff members Linda Heffner and Kaylin Jablonski continue to work from home while Andy Jendruisak and I remain on the Trail and in the office. And, each day we commit to protecting, preserving, and teaching about the unique archaeology, history, and ecology of Southwest Florida.

What are They Doing?

by Kaylin Jablonski

In past newsletters we've reported on how essential the lightning whelk was for Calusa Indians. Recently, a photo of lightning whelks in waters near the Calusa Heritage Trail had us asking, "what are they doing?"

Lightning whelks are persistent predators, feeding on two-shelled mollusks such as quahog clams. A whelk typically eats one bivalve in a month, taking several days to eat a large clam. They, in turn, are eaten by sea turtles, blue crabs and horse conchs. The photographed animals were not feeding.

Although little is known about lightning whelk reproduction, males have

been observed around a female during mating season. Steve Geiger, Research Scientist for the Florida Fish and Wildlife Research Institute, believes this to be a copulation event, in which multiple males provide sperm in a kind of packet or possibly to a receptacle vessel at the bottom of the foot. Geiger has seen up to four males with a female. Although he has found that there are often two presumptive males with one female, it isn't always the case, he has also observed a single female laying eggs with no males present.

Once a female is fertilized, she lays her fibrous egg casing, a chain of up to 200 pouches each containing several



A female lightning whelk laying her egg casing with another lightning whelk, probably a male, nearby. The photo was taken, in early March, through several inches of water. (Photo by Becky Hager.)

dozen nearly microscopic juvenile whelks. She then attaches the chain to underwater plant sediment using a special gland on her foot.

The photograph shows a female lightning whelk laying her egg casing, with another nearby, probably a male. We can't help but imagine that the Calusa also witnessed mollusks mating asking, "what are they doing?" and, like us, learned life under the water is fascinating.



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Continued from page 2

the bottoms of the courts, through the oyster-shell layer that had accumulated before the courts were built.

The larger of the two structures is about 36,000 square feet – more than seven times the size of a basketball court – with a surrounding berm of shell and sediment about 3 feet high. The smaller watercourt is about 28,750 square feet. Radiocarbon dates indicate that they were constructed between AD 1300 and 1400. They were almost surely still in use when Spaniards visited the island in 1566.

Many other societies in the Americas depended on fish for protein. Fishing dates back thousands of years on the coast of Peru, for example. In Florida, net fishing dates back 6,000 years on Useppa Island according to our work there. Fishing supported complex, populous societies in California, the North American Northwest Coast, and Florida. Coastal peoples from these areas did not grow staple agricultural crops, and neither did the Calusa. What makes the Calusa different is that they achieved the status of a kingdom that ruled all of South Florida, collected tribute, supported specialists, and traded with other societies hundreds of miles away. They engineered canals, amassed earthworks, and erected enormous buildings. Their warriors resisted

conquest by the Spaniards. Most other societies that achieve this level of complexity and power are principally farming cultures that are able to distribute surplus foods to ensure their influence. By investigating the watercourts, we now have more insights as to how engineering and ecological knowledge might have allowed the Calusa to capture, process, and distribute surplus fish, thereby extending their influence.

The detailed article can be found at www.pnas.org/cgi/doi/10.1073/pnas.1921708117 and will be available free of charge 6 months following its on-line publication.

Isabelle Lulewicz excavates watercourt berm and underlying oyster midden, Mound Key, 2017.

(Photo by Victor Thompson.)



RRC News

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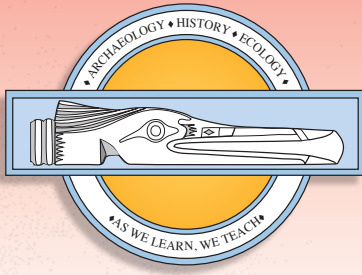
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Friends of the Randell Research Center

Pineland, Florida • July 2020
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You are cordially invited to join, or renew your membership in, the RRC's support society, *Friends of the Randell Research Center*. All Friends of the RRC receive a quarterly newsletter and free admission to the Calusa Heritage Trail at Pineland. Supporters at higher levels are entitled to discounts on our books and merchandise, advance notice of programs, and special recognition. Your continuing support is vital to our mission. It means more research, more education, and continued site improvements at the Randell Research Center. Thank you.

Sincerely,

Cindy Bear
Co-Director
Randell Research Center



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Photo by A. Bell.

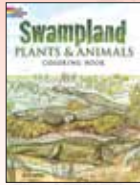
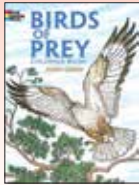
For more information about establishing an endowment, creating a bequest or charitable remainder trust, or giving gifts of property or securities, please contact Marie Emmerson, Senior Director of Development, emmerson@ufl.edu, cell: 352-256-9614.

The Randell Research Center is a program of the Florida Museum of Natural History, University of Florida.

Thank you for your support.



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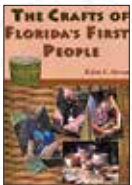
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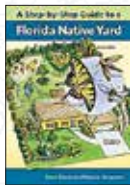
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- The Calusa and Their Legacy: South Florida People and Their Environments by Darcie A. MacMahon and William H. Marquardt, U. Press of Florida, hardcover, \$35
- The Archaeology of Pineland: A Coastal Southwest Florida Site Complex, A.D. 50-1710 edited by William Marquardt and Karen Walker, Monograph 4, hardcover, 935 pages, 408 figures, 231 tables, bibliographic references, \$100

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