

Friends of the Randell Research Center

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Pineland's Dark Ages

by Karen Walker, Donna Surge, and Ting Wang

These days, climate change is center-stage. Understandably most of the attention is on global warming and sea-level rise. Many wonder what a warmer future will be like in places around the world, including southwest Florida. But what would life in coastal southwest Florida be like if the *opposite* happened? Pineland's ancient residents, a fishing people, likely discovered the answer to that question.

By A.D. 500, a lot of people were living at Pineland and rather profitably. But beginning about A.D. 550, a disruptive cascade of three cooling events and sea-level falls may have occurred there, ending around A.D. 850. This, a working hypothesis, is based on regional climate and sea-level records paired with Pineland's archaeology. Much of this time span is often referred to as the "Dark Ages" in European history in part because it was a time of cold climate, drought, famine, and plague ("Vandal Minimum" is another name). People in many places in the world experienced similar hardships. A famous example is that of the Mayan people, who were impacted by a series of droughts culminating in the ninth century. Were these centuries also a "Dark Age" for Pineland's residents?

Much of the excavated archaeological evidence says "yes." While some of us instantly think that a little cooling off in subtropical south Florida surely was a good thing (and maybe it was initially), we must consider that the associated conditions of sea-level fall and possibly drought might have been problematic, especially for people who depended on the shallow waters of Pine Island Sound for fish and shellfish. The evidence is varied:

- a sudden and sustained availability and use of migratory ducks for food (indicating cooler temperatures);
- a shift from black-mangrove firewood to pine, and a reduction of available ribbed mussels (both suggesting a drying of wetlands);
- a shift in house locations from higher, landward areas to lower, seaward elevations (suggesting lowered water levels);
- deposition of middens on dry land at elevations

Ting Wang using the micro-mill to collect samples from Pineland clam shell.

(Photo by Z. Zhong.)



A day at Pineland during the early part of the cool, dry Vandal Minimum climatic episode. (Drawing by M. Clark.)

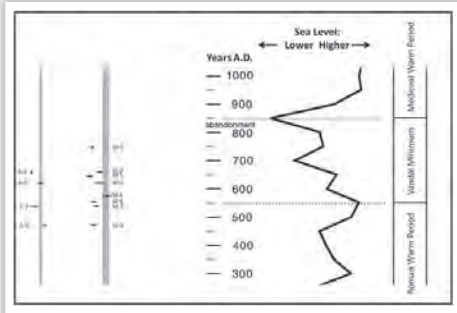
- that are below twentieth-century mean sea levels;
- an overall reduction in diversity of aquatic foods and low numbers of the salt-loving, non-food crested oyster (both indicating sustained lowered salinities suggestive of lowered sea level);
- a reduction in available food oysters, an increase in marine snails (especially crown conch), and a decrease in available fish (all suggesting lowered water levels);
- and perhaps most dramatically, the absence of archaeological deposits dating to A.D. 800-900 (indicating Pineland's temporary abandonment).

While these puzzle pieces have fallen neatly into place, we wanted to test our working hypothesis with an additional, more direct line of evidence for climate change at Pineland. Because there is no existing local paleoclimate record, we decided to develop one based on the geochemistry of archaeological shells of southern quahog clams (*Mercenaria campechiensis*) and otoliths of marine catfish (*Ariopsis felis*), both plentiful at Pineland. Both shells and otoliths record chemical signatures of the water in which the clams and catfish lived. The signatures are preserved in archaeological specimens and they can be "translated" into ancient water temperatures and relative precipitation measures.

With support from the National Science Foundation, we began the project first by studying modern estuarine water conditions along with a modern population of quahog clams and a few catfish specimens (see *Friends of Randell Research Center* newsletters Vol. 1, No. 3 and Vol. 2, No. 3). The results of this work were used by paleoclimate scientist Donna Surge and her graduate students as a comparative baseline. Meanwhile, the Florida Museum's Austin Bell systematically organized and curated the extensive collection of Pineland clam-shell and otolith specimens, and environmental archaeologist Karen Walker researched those collections, selecting specimens to send to Surge's laboratory at the University of North Carolina. There, graduate student Ting Wang prepared the specimens and then extracted carbonate powder from

multiple shell/otolith layers using a computerized micromill. Samples of powder from the first group of specimens, those dating to the A.D. 450–850 period, were then analyzed.

Briefly, here are the results. Specimens M-9 and A-9 (M = *Mercenaria clam*, A = *Ariopsis catfish*) come from Surf Clam Ridge and date to A.D. 450-500; A-9 recorded the warmest temperature of all specimens, correlating well with a time just prior to the first sea-level fall. M-7, A-7, M-6, and



Graph showing relative sea level, time, and samples from Pineland.

M-4 from Old Mound indicate cool and mostly dry conditions correlating with the A.D. 500-550 fall. From Brown's Complex (BC), M-8 and A-8 date to the A.D. 600-650 increment and indicate relatively warm and wet conditions, which supports a temporary recovery of wetlands (indicated by ribbed mussel shell and black mangrove wood counts) and correlates with a rebound in sea-level. M-2, A-2, and M-1, also from BC, date to A.D. 650-700 and indicate the coldest and driest conditions, corresponding to the second fall in sea level. M-5 is from the latest midden of this period in BC and dates to A.D. 700-750. It indicates a continuation of dry conditions.

The geochemical results support the earlier archaeological findings. A picture emerges of a people adjusting to episodic, deleterious changes in their land and estuarine environments. But with the final punctuated drop in water translating into a largely dry Pine Island Sound, Pinelanders left their home site. Ultimately, people dependent on fish



Pine Island Sound during an exceptionally low tide. (Photo by W. Marquardt.)

and shellfish must follow their livelihood. We speculate that they moved to the far western part of Pine Island Sound. One possible relocation site is Useppa Island, where a midden dense with high-salinity molluscan shells dates to the ninth century A.D. Wang will be analyzing a clam shell and a catfish otolith from this context in the coming months. The Pinelanders later returned to their ancestral home, but it was not until about A.D. 900, when sea water once again filled Pine Island Sound, bringing with it teeming populations of fish and shellfish.

Recent History of the Pineland Community

Part 5 in a series

by Bill Marquardt

A recent inquiry to our web site asked for information on the history of the Pineland community. Here is the final of five installments, this one focusing on the past 20 years and the Randell Research Center.

Impressed by the interest and involvement of the community and by the research and educational potential of their Pineland property, in 1994 Patricia and Donald Randell donated about 53 acres to the University of Florida Foundation. In their honor, the property was named the Randell Research Center. It was the understanding and expectation of the Randells that their gift property would be sold to the State of Florida. Proceeds from the sale would be used to endow the Center's research and education programs, to be operated by the Florida Museum of Natural History. The property was eventually sold to the State in 2003, and the Museum was named manager of the site.

In 2000, led by the Stans Foundation, funds were donated toward a teaching pavilion, public restrooms, a parking area, and the first phase of an interpreted walking trail. These funds were matched by the State of Florida, and construction began in 2003 on the first of two building phases. Additional funds were raised from 2003 to 2005, and were again matched by the State of Florida, enabling completion of the classroom and a book and gift shop at the pavilion in 2006.

Grants defrayed much of the RRC's operating expenses from 2001 to 2005, including an especially generous gift from the Maple Hill Foundation. In January 2001, Lee County purchased the 8.5-acre property containing the historic Ruby Gill House, the Pineland Post Office, and archaeologically and environmentally sensitive wetlands. The University of Florida leased the property from the County on behalf of the RRC, and in September 2001 the Gill House



Patricia and Donald Randell (foreground) pose with then-UF president John Lombardi and his wife Cathryn at the conclusion of an appreciation banquet, August 12, 1994. (Photo by Harmon Photographers, Fort Myers.)

at 7450 Pineland Road opened as the RRC's headquarters. In January, 2002, we began a new quarterly newsletter for members of the Friends of the Randell Research Center. The issue that you are reading is the 35th. All back issues are archived at www.flmnh.ufl.edu/rrc/news.htm.



In December, 2004, we opened the "Calusa Heritage Trail," a project funded in part by a grant from the Florida Division of Historical Resources and sponsored by a leadership gift from Dwight and Susan Sippelle. In 2006, the Randell Research Center was designated an official stop along the Great Calusa Blueway, a Lee County-sponsored marked canoe and kayak trail.

Pineland suffered a direct hit from powerful Hurricane Charley on August 13, 2004, causing severe damage to the Ruby Gill House, a significant loss of vegetation at the Pineland site, and a three-month delay in opening the Calusa Heritage Trail. The Pineland Marina's buildings and the Mote Marine field house were completely destroyed and later demolished. The marina was eventually rebuilt, reopening in 2008. The Tarpon Lodge was severely damaged, but was restored, reopening on December 30, 2004. The first dinner guests were former president Jimmy Carter, his wife, and extended family. The Carters also visited the Calusa Heritage Trail.

The Wilson sisters' house and the cottage on Randell Complex Mound 2 were damaged heavily by Hurricane Charley, but were subsequently repaired and are still occupied today as rental property for the Randell estate. Twin boat houses built by Graham and Mary Wilson were dislodged from the Tarpon Lodge dock and hurled into Pine Island Sound by Hurricane Charley. They were salvaged by the Lodge owners, moved to dry land, connected together, and renovated as an additional rental unit now known as "the Boathouse."


Citrus canker invaded the groves of South Florida in the aftermath of

Charley, and traces of the plant disease were found near our citrus trees in November 2004. Unfortunately, this meant the mandatory destruction of the thriving citrus trees on the RRC property as well as those of our neighbors, erasing the last vestiges of the once thriving groves that dominated Pineland in the early twentieth century. We replanted with 40 new citrus trees in December, 2007, but it will be many years before the grove matures.

On December 15, 2005, the Gill House and Pineland Post Office were added to Lee County's List of Designated Historical Resources. A grant from the Florida Division of Forestry helped with reforestation and habitat restoration of the Pineland Site Complex in 2006 and 2007. In 2005, 2006, and 2008, grants were received from the Lee County Historic Preservation Board to first stabilize the Gill House and post office, then to create a master historic-preservation plan for the Gill House and to rehabilitate it. Architect Linda Stevenson created the master plan and Bob Rude provided structural engineering consultation. Funds were also received from the Lee County Tourist Development Council, the Arts and Attractions Fund of the Southwest Florida Community Foundation, and many private citizens, including leadership gifts from Paul and Warren Miller and Dwight and Susan Sippelle. Rehabilitation of the Ruby Gill House was completed by general contractor Dale Schneider in May, 2010 (see *RRC Newsletter*, volume 9, no. 2, June, 2010).

The Pineland Archaeological Site was designated a Lee County Historical

Resource in January, 2008. It was already listed in the National Register of Historic Places. In 2009, we restored the old damaged dock across the street from the Randell Mound, creating an observation pier for the enjoyment of the public. Today the Randell Research Center hosts over 3,500 visitors at the site each year, and provides educational programs for public and private school children.

We value the heritage of the Pineland community as well as that of Greater Pine Island. Pineland has been a recognized community since its first post office was established in 1902. The RRC has been a part of Pineland for 16 years — 15% of Pineland's modern history — but our Calusa Heritage Trail celebrates the 2,000 years of Pineland's human history, from early Native American fisherfolk to the diverse community of today. Presently, all three RRC employees live on Pine Island. Our classroom complex was built by a Pine Island contractor. Another Pine Island contractor rehabilitated the Gill House. Pine Island businesses help maintain our properties and equipment, and Pine Island caterers supply our special events. Pine Island people have been unfailingly supportive, giving freely of their time and donating resources. Voted the #1 tourist attraction on Pine Island for four consecutive years by readers of the *Pine Island Eagle*, the RRC continues to beckon visitors from near and far to experience Pine Island and to appreciate it as we do. We hope to be a part of the Pineland community for many years to come, and we hope that you will come and visit soon. 

New and Renewing Friends of the RRC May 26 through July 31, 2010

(Please let us know of any errors or omissions. Thank you for your support.)

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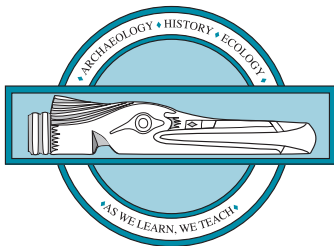
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Cindy Bear Joins RRC Staff

papaya fruit, and a friend delivered a Native American blessing. We stopped short of decorative body paint, however!"

Cindy holds a Master's degree in Science Education, a Bachelor's in Wildlife Ecology, and has often been dubbed the "Owl Lady" due to her 20 years of studies and conservation work with Cape Coral burrowing owls. Always quick with a smile, Cindy says she is most looking forward to "riding my bicycle to work and getting to know the remarkable volunteers and members who have contributed so much to the Center." You can reach Cindy via email at rccindy@rncenter.comcastbiz.net or phone at 239-283-2157. 🐼

We are very pleased to welcome Cindy Bear to the Randell Research Center. She steps in to manage the book store and lab, and coordinate tours and special events as Michael Wylde departs for his graduate studies in Gainesville.

A fifth-generation native Floridian, Cindy's first experience with the RRC was during the 1989 "Year of the Indian" project when she and other teachers in the Lee County School District's Environmental Education Program led students on site tours. For 20 years, Cindy facilitated field trips, classroom presentations, and teacher workshops as a Resource Teacher for the EE Program. Her involvement with RRC continues to the present day, including service on the advisory board, and volunteering for a variety of activities.

In January, she and husband Charles were married atop the Randell Mound. "We did our best to honor the Calusa with our ceremony," Cindy says, "A conch shell horn called us to gather, we shared

The RRC Needs a Used Truck!

Our 1983 Chevy pick-up will not pass UF-required inspection this year without spending several thousand dollars (which we do not have). Basically, the engine is OK (we replaced it a few years back), but internal parts (electrical system, brakes, cooling, etc.) are badly worn-out and the body is very seriously rusted. We expended just about everything we had getting the Gill House finished, so we are out of reserve cash. If you have a used pick-up truck that you would be willing to donate to the RRC, it would really be appreciated. It need not be pretty or powerful, it just needs to run. An older pick-up truck, even a small one would be fine. The fair market value of the donated truck will qualify as a charitable contribution, and will be deductible subject to normal IRS limitations. If anyone is interested in donating a truck, please call 239-283-2062.

RRC News

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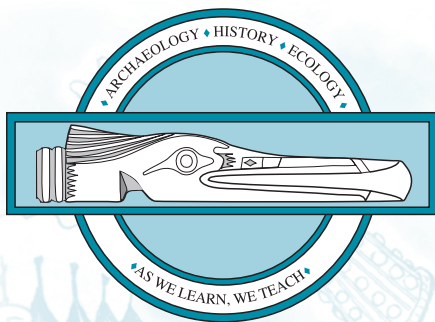


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Friends of the Randell Research Center

Pineland, Florida • September 2010
Phone 239/283-2062
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Dear Friend,

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,

William H. Marquardt
Director
Randell Research Center



Please check the membership level you prefer, and send this form with your check payable to U. F. Foundation, to:

Membership Coordinator • Randell Research Center • PO Box 608 • Pineland, Florida 33945

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| <p><input type="checkbox"/> Individual (\$30) and Student (\$15): quarterly Newsletter and free admission to Calusa Heritage Trail</p> <p><input type="checkbox"/> Family (\$50): The above + advance notice and 10% discount on children's programs</p> <p><input type="checkbox"/> Contributor (\$100-\$499): The above + annual honor roll listing in newsletter + 20% discount on RRC publications and merchandise</p> <p><input type="checkbox"/> Sponsor (\$500-\$999): The above + invitation to annual Director's tour and reception</p> | <p><input type="checkbox"/> Supporter (\$1,000-\$4,999): The above + listing on annual donor plaque at Pineland site</p> <p><input type="checkbox"/> Sustaining Members (\$5,000-\$19,999), Benefactors (\$20,000-\$99,999), and Patrons (\$100,000 and above) receive all of the above + complimentary RRC publications and special briefings from the Director.</p> |
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Photo by A. Bell



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