

## Friends of the Randell Research Center

March 2015 • Vol. 14, No. 1

# Archaeological Investigations at Mound Key, 2013 and 2014

*RRC archaeologists and colleagues work at the Calusa capital of Calos*

*by William Marquardt and Victor Thompson*

**In May and June of 2013 and 2014,** with funds from the National Geographic Society and the University of Georgia's Office of Sponsored Programs, as well as logistical assistance from the Randell Research Center/Florida Museum of Natural History and the collaboration of Karen Walker, Amanda Roberts Thompson, Lee Newsom, Elizabeth Reitz, and Michael Savarese, we conducted research at Mound Key, an island in Estero Bay near Fort Myers Beach. The 2014 field season was enhanced by the assistance of archaeological field school students from Florida Gulf Coast University (FGCU), under the direction of Alison Elgart and Mike McDonald.

When the Spaniards first sailed into Southwest Florida waters in the 1500s, Mound Key was the capital of a vast Calusa domain that stretched throughout South Florida. Then known as Calos, the site is today a complex of mounded middens (ancient refuse deposits), one of which rises over nine meters high and is adjacent to a canal that bisects the island. Much of what we know about this Calusa town comes from documents, including the account of Hernando de Escalante Fontaneda, who spent 17 years among the Calusa before being returned to Spain by Pedro Menéndez de Avilés. In 1566, Menéndez established Fort San Antonio at Calos and within a year the first Jesuit missionaries in North America arrived there. A later attempt to convert the Calusa took place in the late 1600s, this time by Franciscans, but both missions were failures. Documents concerning the Spaniards' time on Mound Key describe both the fort and the Calusa king's house, which was said to be large enough to hold 2,000 people. We reasoned that the two largest mounds at the site are the likely locations for these structures, so we applied both new and old technologies to find and investigate them.

### Remote Sensing

To help plan the excavations, we created a detailed topographic map of the site using LiDAR (Light Detection and Ranging) data available through the state of Florida. Then we conducted a shallow geophysical survey on both of the large mounds—the possible locations of the fort and the king's house. The best results were from the ground penetrating radar (GPR).

We reasoned that if the king's house was located on Mound 1 and was even close to the size reported by the Spaniards, then it likely encompassed the entire summit. Therefore the walls of such a structure



Victor Thompson operates the GPR on Mound 1.

would be located near the edge of the mound summit. Indeed, the GPR results indicated a curvilinear pattern along the edge of the mound.

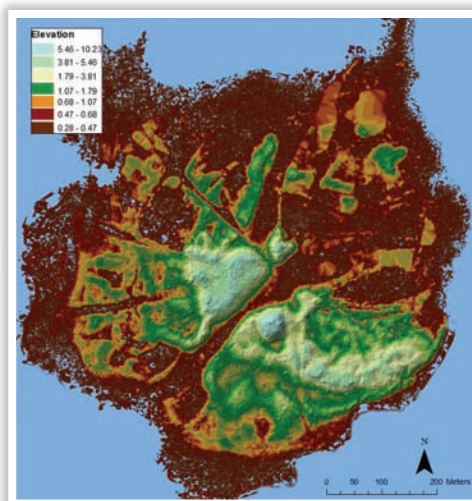
On Mound 2, we ran GPR over a 20-x-20-meter area where we predicted the fort would be located, based on Spanish descriptions, previously recorded Spanish artifacts in the area, and prior research done by Bill Marquardt, Corbett Torrence, and Sam Chapman in 1994. Here the GPR results showed linear patterns that appeared to represent a structure or walls.

### Excavations

Based on the GPR results, we excavated in the vicinity of the patterns we had detected on both Mounds 1 and 2. We excavated using hand tools in 10-cm (4-inch) arbitrary levels, with careful attention to changes in soil color and compaction. All materials were sieved through 1/8-inch-mesh screens.

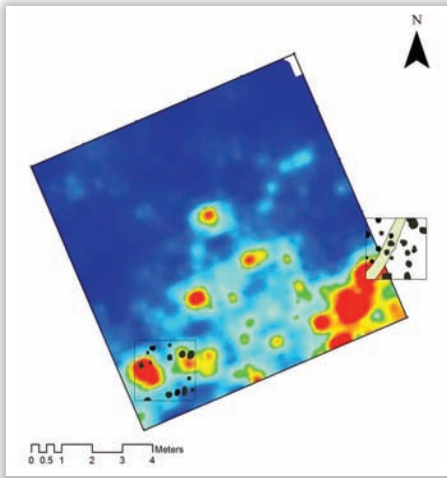
In both units evidence of structural remains is abundant. On Mound 1, the excavation revealed that instead of a wall, the signals were detecting what could be termed a "builder's trench." On either side of this "trench" there is a line of post molds. While the post molds vary in size, many are large (about 25 cm, or 10 inches, in diameter), suggesting substantial support posts of a large structure.

The excavation on Mound 2 was placed in the vicinity of the rectangular pattern



LiDAR topographic map of Mound Key.

*continued on page 2*



GPR-derived patterns, with archaeological excavations superimposed. Excavations are 2-x-2-meter squares.

of high-amplitude reflections revealed by GPR. Similar to Mound 1, there were numerous posts identified in the excavation, but these contained many more Spanish-period artifacts, including majolica sherds, olive jar fragments, and other historic artifacts. Radiocarbon dates on two of the posts (see below) suggest that some of these may be related to structural remains associated with San Antonio de Carlos.

### Radiocarbon Dates

To date a total of seven radiocarbon dates have been run on Mound Key materials. The earliest dates on these materials come from the general midden deposits in both of these units, but the posts are much younger than the surrounding midden, in some cases by several hundred years. There are two possible explanations. First, areas of Mound Key may have been abandoned or unoccupied for some time before posts were placed into the older midden. Second, and more likely, the Calusa were



Very large post mold revealed by archaeological excavation on Mound 1. Post molds are the result of organic materials falling into a space left by a rotted post. Note the dense concentrations of midden shells on either side of the dark stain.

mining and recycling older midden as part of their construction technique to build houses. Currently, we are in the process of running an additional 30 radiocarbon dates from the various excavations at the site. These new dates will aid in our understanding of how long the site was occupied and how quickly the various shell accumulated over time.

### Zooarchaeology

Under the supervision of Elizabeth Reitz, Shelby Jarrett conducted limited analysis of a sample of the animal bones at the University of Georgia Zooarchaeological Laboratory. Although we recovered animal bones from both Mounds 1 and 2, our analysis focused on samples from Mound 2. Unfortunately, because we believe that much of what we excavated represents repurposed midden (see above), we cannot be sure to what degree these samples are the remains of food eaten by Calusa



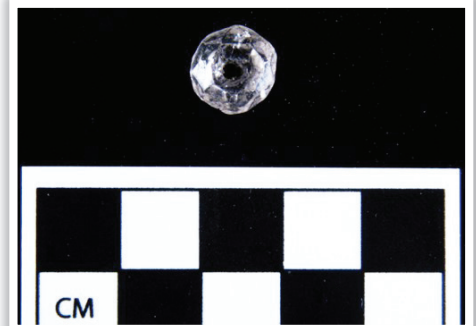
Karen Walker (left) draws profile of an excavation in the area of the Spanish occupation, Mound 2, while Bill Marquardt (right) works on another drawing. (Photo by Victor Thompson.)

people at these specific areas of the site. That is, these remains may be brought in for construction from other areas of the site. Again, we are working on testing this hypothesis. Nonetheless, at least some of the uppermost levels in the unit may represent animal remains associated with the Spanish fort occupation. At least one bone identified as representing sheep/goat shows butchering marks from a metal tool. Neither sheep nor goats nor metal tools would have been available to the Calusa before Spanish contact.

### Oyster Shell Analysis

Mike Savarese and his Conservation Paleobiology students at FGCU did a pilot study of oyster (*Crassostrea virginica*)

shells from Mound Key. In collaboration with Karen Walker, samples from several time periods were selected for study. For comparison, a much earlier sample from Useppa Island and a modern one from Estero Bay were included. The oysters were sorted into categories based on the



A Florida cut crystal bead round at Mound Key. These beads date to about 1550 to 1600, the time of the first Spanish occupation at the site.

amount of biocorrosion and encrustation within the interior surfaces of the oyster shells. Length and widths of the shells were also measured.

They found that each of the archaeological samples was near pristine (that is, no biocorrosion/encrustation) whereas the modern sample was significantly more fouled. In other words, the archaeological sample represents oysters that were collected alive (unopened shells would not have accumulated barnacles and other animals on their interiors). This means that the archaeological oysters were *initially* collected for consumption rather than merely for mound-building material.

The measurements show that the older oysters from Useppa were the largest, and that the oysters at Mound



Lead shot was made in molds like this one, found at the Mound 2 excavations at Mound Key. Found nearby, a lead ball 11 mm in diameter fits into the mold, though it is impossible to be certain that the ball was made in this particular mold.





Key became smaller through time. This shows that the Calusa people had an impact on the local oyster population. The largest oysters are the modern ones from Estero Bay, much larger than the ones from Mound Key, and also even larger than the much older Useppa ones. This is not surprising because no commercial harvesting has occurred in Estero bay since the mid-1950s.

### Paleoethnobotany

A sample of the carbonized botanical remains was sent to Lee Newsom of the Department of Anthropology at Pennsylvania State University for analysis.



A higa (also spelled figa) made of jet, a black fossil resin. This amulet, in the shape of a small, clenched fist, was found at Mound 2 on Mound Key. A common artifact in Spanish colonial sites, the higa was often worn by young children for protection against the "evil eye." Higas date back to Roman times in Europe. According to Kathleen Deagan, jet was "believed to have the ability to make demons flee."

Pine was the most common species identified and most likely represents the type of tree chosen for posts. Other types of wood were likely brought to the site along with the post material. It also appears that pine was cut down away from the site and brought in to construct the posts.

### Conclusion

We believe we have good evidence of two or more structures at Mound Key that are related to the pre- and post-European-contact occupations. There is tentative evidence that we have identified either the king's house described in the sixteenth-century documents or perhaps an earlier version of that structure. Further excavation will be needed to confirm either interpretation. In addition, we also have evidence of possible structures associated with the fort on Mound 2. Although the posthole patterns in these excavations are less clear, the associations between these posts, Spanish-period artifacts, and radiocarbon dates place these features within the sixteenth-century occupation of the site and possibly the fort itself. In addition to locating these structures, our excavations indicate possible construction techniques that involved the recycling of midden in the construction of large buildings. More dates will be needed to confirm these interpretations.



Fragments of olive jars are frequently found in the Mound 2 area of Mound Key. The jars, an unglazed coarse earthenware, were used to transport and store a variety of foods and liquids.

Mound Key is a significant site, but has not received the attention it deserves from archaeologists. Up to this point, the identification of Mound Key as the capital has been based on historical documents. Our research has, for the first time, provided some architectural evidence to bolster the claims that this site was indeed the capital of the Calusa at European contact. Further, our work is shedding light on Calusa house constructions. This is a topic about which we know very little, but is an emerging area of study (see *RRC Friends Newsletter* for June, 2014). Further research will add to our knowledge of the nature of Calusa life and their interactions with Europeans during the sixteenth and seventeenth centuries. 🏰

## New and Renewing Friends of the RRC

November 16, 2014 to February 15, 2015

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

### Patrons

(\$100,000 and above)

Tim & Judith Sear

### Benefactors

(\$20,000-\$99,999)

Calusa Land Trust  
Paul & Warren Miller

### Supporting Members

(\$1,000-\$4,999)

Paul G. Benedum, Jr.  
Robin C. Brown  
John & Gretchen Coyle  
Debbie Randell  
Frank Greer & Stephanie Solien  
Bill & Norma Pretsch  
Deborah Russell & Elmer Wheeler

### Sponsoring Members

(\$500-\$999)

Bob & Mary Rude

Karl & Kathryn Schroeder  
Patricia Yourdon

### Contributing Members (\$100-\$499)

Marion Almy  
Austin Bell  
Joseph P. Brinton III  
Phyllis Ryan Brown  
Fred Browne  
Howard & Nancy DeVane  
John & Donna DiVito  
Robin & Lin Fox  
Barbara & Carl Harcourt  
Barbara M. Keiper  
Mary M. & Ronald M. Koontz  
Mary Blue Magruder  
Alan & Ruth Marcus  
John & Sue Miller  
Margi Nanney  
William & Mary Reasoner  
Beverly & Roger Stone  
Daniel Van Riper

Dave & Vicky Werner  
Jim & Anne Whitmore  
Norris & Nancy Williams  
William & Victoria Winterer

### Family Members

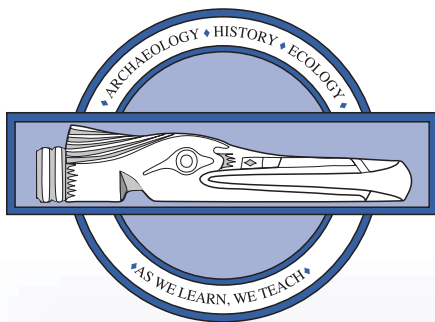
Paul Allen  
Leigh & Genie Andrews  
Donald E. Bailey  
Abbie Banks  
Carolyn & Tom Crosby  
Jim & Kathy Friedlander  
Willard Frische  
Alison & Jim Giesen  
William T. Godek  
R. Harris  
Jack & Rosalie Hewins  
Dennis & Susan Isernhagen  
Marge & Coty Keller  
Frederick & Denise Mann  
Robert Mast  
Jacob & Arlene Miller  
Stephen & Faith Osborn

Karl & Cecy Rice  
Nancy Starner

### Individual Members

David T. Colby  
Judith D'Agostino  
Florida Society for Ethical Ecotourism  
GAEA Guides  
Buff Gordon  
Randall B. Johnson  
David R. Karrer  
Keith Keefer  
Will O'Hara  
Pauline Schroeder  
Carole Scott  
Ken Sterling  
Molly Whitney  
Catherine Williams  
Thomas Winter





## Friends of the Randell Research Center

Pineland, Florida • March 2015  
Phone 239/283-2062  
Email: randellcenter2@rancenter.comcastbiz.net

*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**

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

**Permanent Address**

Name \_\_\_\_\_

Address \_\_\_\_\_

City / State / Zipcode \_\_\_\_\_

Email address \_\_\_\_\_

**Seasonal Address** (so we can send you your newsletter while you are away)

Name \_\_\_\_\_

Address \_\_\_\_\_

City / State / Zipcode \_\_\_\_\_

Use my seasonal address from \_\_\_\_\_ to \_\_\_\_\_  
(date) (date)



Photo by A. Bell





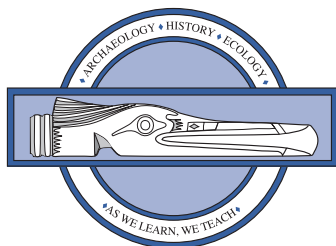
Randell Research Center  
PO Box 608  
Pineland, FL 33945.  
Questions? 239-283-2157  
E-mail: [randellcenter2@rancenter.comcastbiz.net](mailto:randellcenter2@rancenter.comcastbiz.net)

**Name** (please print): \_\_\_\_\_

**Mailing address** (please print): \_\_\_\_\_

\_\_\_\_\_

**Zip code** (please print): \_\_\_\_\_



## Randell Research Center

PO Box 608  
Pineland, FL 33945-0608

Forwarding Service Requested

Non-profit  
Organization  
U.S. Postage  
PAID  
Pineland, FL  
33945  
Permit No. 26

## Annual Honor Roll, 2014

Each year the Randell Research Center recognizes all those who have donated \$100 or more during the previous calendar year by listing them in the Annual Honor Roll. We extend our heartfelt appreciation for the support that these and all our gifts represent (\* = in-kind services).

### PATRON

(\$100,000 and  
above)

Tim & Judith Sear

### BENEFACTOR

(\$20,000  
– \$99,999)

Paul and Warren Miller  
Calusa Land Trust

### SUSTAINING MEMBERS

(\$5,000 – \$19,999)

Chris & Gayle Bundschu

### SUPPORTING MEMBERS

(\$1,000 – \$4,999)

Virginia Amsler  
Lawrence E.  
& Carol F. Aten  
Paul G. Benedum, Jr.  
John & Gretchen Coyle  
Charles Crist  
Frank Greer  
& Stephanie Solien  
William Marquardt  
Lawrencine Mazzoli  
Virginia O'Neill  
Nick & Linda Penniman  
Bill & Norma Pretsch  
Crandon Randell  
& Gayle Allegro  
Pete Rials\*  
Deborah Russell  
& Elmer Wheeler  
Karl & Kathryn Schroeder  
Beverly & Jon Sensbach  
Patricia  
& Alan Symonds  
Jay & Ginny Taylor  
Robert & Phyllis Wells

### SPONSORING MEMBERS

(\$500 – \$999)

Lammot duPont  
Stanley & Dee Ink  
Lee Newsom  
Denege Patterson  
Anne Reynolds  
Pat Yourdon

### CONTRIBUTING MEMBERS

(\$100 – \$499)

Sharon Albright  
Brenda Anderson  
Valerie Ballou  
Mary & Steve Banks  
Austin Bell  
Peter & Gudrun Bennett  
Jenny & Mike Berg  
Joseph P. Brinton III  
Robin & Jan Brown  
Phyllis Ryan Brown  
Fred Browne  
Bob & Liz Bulkley  
Joe & Rose Connor  
Ann S. Cordell  
Robert D. Crum  
Edith Marquardt Cuda  
Don Cyzewski  
Bill & Mary Cyzewski  
Cyndi Deragon & Jeff  
Mudgett  
Howard & Nancy DeVane  
John & Donna DiVito  
Charles & Sass Edwards  
Tucki & Chip Folkers  
Gary Foster  
College of Life  
Foundation, Inc.  
Robin & Lin Fox  
Willis & Bonita Fry  
Nancy Glickman  
Barbara & Carl Harcourt  
Dee Hohimer  
Mimi Hollway

Cathy House & Bob  
House  
E. L. Roy Hunt  
Peter & Colette Johnson  
John & Martha Kendall  
Stephen W. & Sara Kent  
Ronald & Mary Koontz  
Robin C. Krivanek  
Philp Largay  
Janet Levy  
Henry & Carolyn  
Littleton  
Darcie MacMahon  
Diane Maher  
Alan & Ruth Marcus  
Marshall Family Dentistry  
Janet & Lamar Matthews  
Sara & Kevin McAuley  
Ted & Diane McGee  
Joan McMahan  
Robert N. McQueen  
Jerald T. Milanich  
John & Sue Miller  
Carolyn M. Murphey  
Betsy & Jim Murphy  
Abraham & Cynthia Ofer  
Cynthia Parsons  
Frank & Linda Potter  
Robert Repenning &  
Jennet Buri

Kim & Kris Sears  
Gayle Sheets  
Manatee/Sarasota Sierra  
Club  
John C. & Glenda L.  
Sirmans  
Larry Slick  
Karen & George Smith  
James Snyder  
Doug Stafford  
Tropic Star of Pine Island  
c/o Vince Tapager  
Beverly & Roger Stone  
Debbie Randell  
Dan & Kay Van Riper  
John & Lori Volk  
Karen Walker  
Randal L. Walker  
Chris Walser  
Gregory Wampole  
Patty Jo Watson  
Dave & Vicky Werner  
Patty & Jack Wettstein  
Jim & Anne Whitmore  
Norris & Nancy Williams  
William & Victoria  
Winterer  
Ann & Bill Wollschlager  
Dick Workman  
Patricia & Tom Yurch

Sherri & Ira Zucker  
Frank & Linda Potter  
Debbie Randell  
William & Mary Reasoner  
MJ & Bill Roache  
Kim & Kris Sears  
Manatee/Sarasota Sierra  
Club  
John C. & Glenda L.  
Sirmans  
Larry Slick  
James & Carol Snyder  
Beverly & Roger Stone  
Sondra & Richard Talley  
Tropic Star of Pine Island  
c/o Vince Tapager  
Dan & Kay Van Riper  
Kathy Vande Ree  
Randal L. Walker  
Patty & Jack Wettstein  
Mr. & Mrs. William  
Winterer  
Craig & Bonnie  
Woodward  
Dick Workman  
Patricia & Tom Yurch  
Sherri & Ira Zucker

## RRC News

Editor: William Marquardt

### Writers:

William Marquardt  
Victor Thompson

Production: GBS Productions



UF | UNIVERSITY of  
FLORIDA

Gift Shop & Tour Information:  
(239) 283-2157

Send questions or comments to:

Randell Research Center  
PO Box 608  
Pineland, FL 33945-0608  
Telephone: (239) 283-2062  
Fax: (239) 283-2080  
Email: randellcenter2@rancer.  
comcastbiz.net  
Website: www.flmnh.ufl.edu/RRC/

