



WMS/LSS ARCHAEOLOGICAL SOCIETY NEWSLETTER

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A 501(c)3 Corporation and Chapter of the Florida Anthropological Society

The Warm Mineral Springs/Little Salt Spring Archaeological Society meets the second Tuesday of the month at 7:00 PM (except June, July and August). The May 10 meeting will be a hybrid live/Zoom. **While the speaker cannot make it, we will still meet at the Church at 3450 S. Biscayne Blvd and project his Zoom presentation on the screen, or go to the Zoom link:**

<https://us02web.zoom.us/j/81194594386?pwd=bUJyZ2dCLzJT0FOaGNVROZ3TzRaUT09> (map)

Or Google Meet link: meet.google.com/vmr-oyse-yva

**UNIVERSITY OF FLORIDA DISTINGUISHED PROFESSOR
DR. BRUCE MCFADDEN TO SPEAK AT MAY 10 ZOOM
MEETING ON FLORIDA ICE AGE (PLEISTOCENE)
MAMMALS**

Michelle Calhoun

The sedimentary sequence in Florida began in the Eocene during the Cenozoic period, which is Earth's current geological era. The Pleistocene era, also known as "The Ice Age," began approx.. 2.6 million years ago (mya) and lasted until approx. 12,000 years ago, with megafauna, described as those species over 100 lbs., existing across the peninsula. Prior to the Pleistocene, volcanic activity created a series of islands between North and South America, which eventually began to form the Isthmus of Panama, enabling travel between the continents during what has been termed the Great American Biotic Interchange (GABI). Fossils of South American species, such as giant ground sloth, glyptodonts, and giant armadillos can be found across much of Florida, even within our own local springs and rivers.



March 10 speaker, Dr. Bruce McFadden

Native megafauna such as horses, camels, llamas, zebras, saber-tooth cats, dire wolves, and mastodons roamed the plains of Florida at the beginning of the Pleistocene. In the areas where one can find fossils of tapirs and deer, the local environment is interpreted to have been heavily forested. Swampy areas contained alligators, as is the case in the present-day. However, as the Pleistocene progressed, the types of megafauna began to diversify as new immigrants to North America, such as the Columbian mammoth arrived from Asia and Africa via the Bering land bridge, which allowed access to new territory approximately 1.8 mya.

There are three theories of megafaunal extinction: climate cycles and failed adaptation, resource competition and selection, and the overkill hypothesis. Changing climate cycles could have resulted in the loss of vegetation upon which massive herbivores depended. Pressures on herbivores would, in turn, affect the viability of the carnivore population. Mastodons and mammoths successfully coexisted across Florida, as their teeth were different, allowing the mammoths to graze on more grassy vegetation and the mastodons to browse on more shrubby vegetation. Once bison arrived approximately 500,000 years ago, and spread out across much of North America, stable isotope studies indicate that several types of grazers at that time, mammoths, horses, zebras, and bison, competed for the same resources--grass. A bison skull from the Wacissa River, with a projectile point embedded in its forehead, dated to approximately 13000 years ago, demonstrates direct interaction between megafauna and humans in Florida. A cast of this skull is on display at the Florida Museum. These topics and much more will be discussed and we hope you'll join us either in person or by Zoom.

Dr. MacFadden is a distinguished professor at the Florida Museum, is director of the University of Florida Thompson Earth Systems Institute, and is a leading researcher in the fields of vertebrate paleontology and evolution. He received his Bachelor's degree from Cornell University and his Ph.D. in geology from Columbia University, with a specialization in paleontology.

His book, *Fossil Horses: Systematics, Paleobiology, and the Evolution of the Family of Equidae*, was published in 1992, and is an excellent resource for research into the evolution of horses. Dr. MacFadden has authored over 200 peer-reviewed scientific articles, and has received many millions of dollars in grants to pursue his research in locations across the United States and beyond, including research in Panama which has shed new light on ancient biodiversity and biogeographical patterns.

His research has led to the discovery of numerous new fossils of vertebrates, invertebrates, and plants that he and his colleagues have been working to describe, which illustrate the ancient Panamanian landscape and its inhabitants. Other recent work has included broadening the field of STEM learning in K-12 schools, using 3-D casts of specimens to teach about fossils and evolution. He has also worked as the Senior editor of the international journal *Paleobiology* and is a member of numerous professional societies.

Dr. MacFadden indicated he would have preferred to join us live, but on May 10, had meetings that extended into the late afternoon, which unfortunately precluded him from traveling.

EMERGENCE OF THE CALUSA KINGDOM TOPIC OF APRIL 12 MEETING BY REKNOWNED FLORIDA ARCHAEOLOGIST

By Steve Koski

Our first in-person meeting since March 2020 was held on April 12, 2022, at the North Port Community United Church, where Dr. William Marquardt, Curator Emeritus, Florida Museum of Natural History, Gainesville, gave an exceptional presentation on the Calusa of Southwest Florida.

He stayed at the nationally-recognized Warm Mineral Springs Motel, listed on the National Register of Historic Places, and several members treated him to dinner at the Tarpon Point Grill and Marina on the Myakka River.

While he provided an excellent overview of the multi-decade archaeological research in SW Florida which he led with the University of Florida, the Florida Museum of Natural History, his students, and other collaborators, the main emphasis was on the more recent efforts, which were initiated in 2013 at Mound Key in Estero Bay by the UF, FMNH, University of Georgia, and Florida Gulf Coast University, with a multitude of supporting entities and sponsors.

Mound Key was believed to be the capital of the Calusa, centered around the rich estuaries of Charlotte Harbor, Pine Island Sound, and Estero Bay. With its abundance of fish and shell fish, those coastal resources were able to sustain a localized population of more than (an estimated) 20,000 inhabitants, ruled by a paramount chief, Carlos, with influence over 50 villages, and alliances from the Florida Keys to Cape Canaveral.

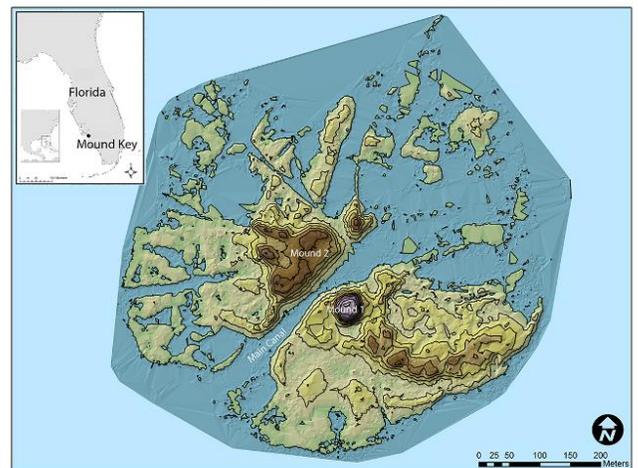


William Marquardt, Ph.D., accepts our world famous WMS/LSSAS tee-shirt from WMS/LSSAS president Kathy Gerace.

Historical writings indicate the first encounter of the Calusa with Europeans was during the arrival of Ponce de Leon in 1513. However, accounts of the journey note that some of the Calusa already spoke Spanish, having learned from earlier Spanish explorers to Cuba and Florida. On his return in 1521, de Leon was mortally wounded during battle with the Calusa, and died in Cuba a short time later.

Mound Key was also believed to be the location of Fort San Antón de Carlos, established by Pedro Menéndez de Avilés, who established a number of forts in Florida, c. 1566, to secure Spanish control and Christianize Florida's native inhabitants. The fort was first maintained and ministered by Jesuit priests, and later in the 1600s by Franciscans, occupations which were short-lived and abysmal failures.

Despite considerable historic documentation, most notably by accounts of Hernando de Escalante Fontañeda, who spent 17 years among the Calusa before returned to Spain by Pedro Menéndez, little archaeological evidence of the fort had been found.



Mound Key in Estero Bay, illustrating the two mounds bifurcated by a central canal fronted and backed by water courts. More info found at: <https://www.floridamuseum.ufl.edu/science/spanish-fort-on-mound-key/>

Mound Key research primarily focused on an attempt to locate the Fort San Antón and the “great house” of Carlos, which based on historic accounts was said to be able to accommodate 2000 people. They also worked to determine the function of the “watercourts” and the associated shell ridges which were described by Cushing in the late 1800’s, to determine the mound’s morphology and formation, as well as other pursuits.

Utilizing ground penetrating radar, coring techniques, archaeological excavation, radiocarbon dates, artifact analysis, and stratigraphic sequencing, archaeologists could help address those research questions and gain a better understanding of the site in relation to historic accounts, mound development, and social complexity.

Based on their research, evidence of the walls of the fort were uncovered, with associated plaster-like tabby, indicative of a Spanish presence. Further excavation revealed Spanish artifacts relating to the mid-1600s that confirmed activity on-site at the time of Ft. San Antón. Post-molds extended over a large area, revealing that a large structure was once present. Archaeological evidence from the water courts and ridges demonstrated fish and shell fish were in abundance, and they were able to determine where processing and cooking activities took place.

The Mound Key research confirmed that Mound Key was the capital of the Calusa (Carlos) described by historic documentation. Mound 1 was the location of the “great house” of King Carlos. Mound 2 was the location of Fort San Antón de Carlos and the missions. The water courts appear to be fish traps and storage for live fish and shell fish, which likely represents an early type of aquaculture. That information addressed the question of how the Calusa were able to accumulate, store and distribute food on a massive scale which facilitated social political complexity and a consolidation of power, existing over a long period of time, without agriculture, from about AD 500 to 1500.

So much more was covered during the presentation, and multiple technical and popular articles have been written, with many more to come!

For more information, go to the link under the Mound Key map on the previous page and check out the newsletters from the Friends of Randell Research Center (of which the WMS/LSSAS is a supporting member), with links to other publications, at: www.floridamuseum.ufl.edu/rrc/newsletter/

Many thanks to Dr. Marquardt for spending time with us and we hope to get back the Randell Research Center soon!

SHARKS’ TEETH FROM OHIO ARCHAEOLOGICAL SITES TOPIC OF MARCH 8 ZOOM MEETING

Judi and John Crescenzo

On March 8, 2022, George H. Colvin, geologist and founder of the engineering company, Cox-Colvin Associates, Inc., gave a fascinating Zoom presentation, entitled, “Shark Teeth from Ohio Archaeological Sites and Surface Collections—More than Just Hopewell.” Colvin earned his Bachelor’s degree in geology from Ohio University and a Master’s degree in geology from Vanderbilt University. He has also served in various roles for the

Archaeological Society of Ohio and is an avocational archaeologist.

Colvin has spent 15 years researching shark teeth in Ohio. There has been a debate about the Hopewell Culture and how shark teeth came to be mortuary items there. Colvin believes the teeth came mostly from Southwest Florida and were used in Ohio before and after the Hopewell Culture. Rocks in Ohio do not contain shark teeth, but do have inclusions of invertebrate fossils which were formed before the modern shark existed. Most shark teeth in Ohio are associated with Hopewell, but some are not.

In 1848, George Squier and Edwin Davis first discussed shark teeth in the Mississippi Valley in their book *Ancient Monuments of the Mississippi Valley*, which was the first scientific publication about prehistoric earthworks in the U.S. It is a work-in-progress that was never completed, so newer data is not included. Earthwork sites in Ohio are shown on a map in the area of the Scioto River, which joins the Ohio River, and is most known for the Hopewell. The Scioto River Valley has hundreds of documented mounds and earthworks.

Items for the 1893 World’s Expo in Chicago were collected from Paint Creek, a Scioto River tributary in central Ohio, on a farm owned by Mordecai Hopewell. This was the largest Hopewell enclosure, with about 110 acres containing items of impressive quality and quantity. The time period for the Hopewell culture was 0 A.D.–500 A.D., which was followed by the Mississippian Culture. Artifacts found in the Ohio River Valley were made from exotic resources such as obsidian (possibly from WY), Knife River flint (from ND & Canada), novaculite (only found in AK), copper (from MI & Canada), quartz, galena, garnet, mica, chlorite (all possibly from Appalachians), and marine shell, shark, and barracuda teeth (likely from the Gulf Coast), which shows extensive trade links to far-away locales.

Several species of shark teeth were used in Ohio. It was once thought that their source was a location closest to Ohio, because Flint Ridge flint was found with shark teeth in the Hopewell sphere. But waterways were used for transportation, and it was later realized that a more distant source was most likely because people were interacting with those areas at that time.

Shark teeth are easy to find and were collected long before the Hopewell used them. Today they are found in rivers and on popular beaches like Venice, FL. The reason that there are so many teeth is that sharks constantly shed them to maintain sharpness. New teeth appear in the front and last only ten days. A shark has 100 biting teeth and sheds 3,600 teeth per year, which fossilize easily.

Modern shark teeth are not fossils. They are rare and less than 2% can be found in Ohio archaeological sites. They were originally recovered by a culture that hunted or fished, which may give a clue as to their source. Most archaeological reports, however, do not make a distinction between modern and fossilized shark teeth making such research difficult. Modern shark teeth are very sharp and make better tools, because they are harder and less brittle.

Colvin's study goals were to locate and document all fossil teeth in Ohio, to determine the use of teeth by early Ohioans, and to determine the provenience of the teeth. In 1931, Henry Shetrone and Emerson Greenman published a table of artifacts from various Ohio sites which included shark teeth. Although the tables do not match with current data, they do show where to start the search.

Hopewell artifacts are housed in various locations around the world. These include the Hopewell Culture National Historical Park Mound City Group in Ohio, the Ohio Historical Commission Museum in Columbus, the Field Museum of Natural History in Chicago, Harvard's Peabody Museum, the British Museum, the Milwaukee Public Museum, and the Kent State University Museum, as well as innumerable private collectors. The Ohio data set includes 185 teeth located in 154 museums and 31 private collections.

Hopewell teeth were traded, and the people knew the difference between modern and fossilized. They would have seen teeth in their prey and known that white teeth were from modern animals. Modern teeth could have been obtained without trade. Seventy-four percent of Hopewell teeth are from Great White sharks. Weathering and colors on the tooth indicate the origins. Based on the coloring and weathering, it was determined that a tooth found at the Pape Farm in Reno was not from Florida. A FL example shown was the Megalodon teeth found next to textiles which were dated to 395-210 B.C. in Pickaway County, OH. A Megalodon half-tooth drilled to look like a bird was found in Nelsonville, OH, and a Hopewell point was found with shark teeth in Armstrong Mills, OH. The Feurt Site revealed a different type of drilling with two holes. Non-Hopewell used different types of teeth from different sources.

For a free pdf copy of 'Sharks Teeth from Ohio Archeological Sites,' go to the following link:

www.academia.edu/11497086/Shark_Teeth_from_Ohio_Archaeological_Sites_An_Update_Based_on_Newly_Discovered_Teeth

For more information, contact GeoColvin@aol.com.

FAS ANNUAL CONFERENCE TO BE HELD MAY 6-8, 2022 LIVE IN MIAMI!

The Florida Anthropological Society Annual Conference is being held May 6-8, 2022! Several members and friends are attending, and an overview will be published in the September/October WMS/LSSAS Newsletter. See the article in the March/April NL, or go to www.fasweb.org and click on annual conference.

2022 LITTLE SALT SPRING ORCHID DOCUMENTATION COMPLETED

Steve Koski

The *Sacoila lanceolata* var. *paludicola* have finished their growth-cycle at Little Salt Spring for the year and they are in



Sacoila lanceolata var. *paludicola* at LSS (photo S. Koski)

the process of releasing thousands of their seeds. Fifty-eight flower spikes bloomed this year, of the hundreds of leaf clusters scattered throughout the hammock last summer. That is up from the previous year's count. Selby Botanical Gardens joined UM in a collaborative study, first under Dr. Antonio Toscano, and now under the direction of orchid research botanist Dr. Tatiana Arias. This important study on these orchids, including DNA studies, could help determine if the variety, *paludicola*, could in fact be its own species as some have suggested. This study is worthy of an extended article, to be provided in an upcoming newsletter.

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