Fossil Club of Lee County

JULY 2012

Message from the President

Greeting to all members and friends.

Many thanks to everyone who participated in the June meeting. It was a fun event and we all learned a little more about our Florida fossils. During the Show and Tell session, one of our super energetic members told us that he was fortunate enough (after several hours of digging) to find a rare fossil on his last trip out in June. It is a giant sloth claw that is in beautiful shape. He has informed Dr. Richard Hulburt, Collections Manager, Vertebrate Laboratory at the Museum of Natural History of his find and they have made tentative arrangements to meet for further discussion. We have much more details on this find in this newsletter.

Our Club received letters thanking us for our donations to the Calusa Nature Center, the University of South Florida, the University of Florida Invertebrate Laboratory, and the University of Florida (Ken Erickson scholarship). Hats off to all of you who helped to raise the funds for these donations and to all members who support these efforts.

We have some excellent speaker programs lined up for July, August and September. We are in need of speakers for the remaining months so if anyone wants to volunteer or has some suggestions for a speaker please let us know. Also, if anyone would like to contribute an article for the monthly newsletter or identify a source for an article, it would be appreciated.

Our speaker this month is Dr. Rick Batt, one of our new members, who will talk about ammonites A synopsis of his talk is in this newsletter. If you have some ammonites, please bring them in for display or for the Show and Tell segment.

A list of all items in the Club Library will be available at the July meeting so feel free to check out some reading material, especially since the water levels are way too high to go out hunting for fossils. Also, if you wish, bring in something for the raffle table or consider winning something you don't already have.

I look forward to seeing everyone at the July 19th meeting.

Best regards, Bill

Next Meeting

FCOLC next meeting is on Thursday July 19th at the Iona House, Calusa Nature Center. Meeting starts at 7 PM.

WELCOME NEW MEMBERS

David, Darlene and Zack Beyo

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COMMITTEES

Cherie Neat, Newsletter
Curt Klug, Web Master
Bill Shaver, Speakers
Louis Stieffel, Auctioneer
Kathy Pawlowski, Club Merchandise
Pam Plummer, Club Badges
Pam Plummer, Membership
Joshua Frank, Refreshments
Dean Hart, Refreshments co-chairman
Gunther Lobish, Pit Trips
Michael Siciliano, Raffle and Dive Trips
Coby Pawlowski, Youth Activities Director
Hollie Tiner, Club Photographer
Gunther Lobish, Invertebrate Education
Louis Stieffel, Vertebrate Education

MINUTES OF JUNE MEETING THE FOSSIL CLUB OF LEE COUNTY

Date: June 21st, 2012
Place: Iona House, Calusa Nature Center
Attendance: 30
Presided by: Bill Shaver, President

There were no formal minutes for the June meeting.

Bill thanked Mary Rawl, Executive Director, Calusa Nature Center for their support of FCOLC.

Members thanked Joshua Frank and Dean Hart for bringing in refreshments.

Show and Tell participants were
Mark Cantos, Jack Boyce, Bill Howat, Louis Stieffel, Gunther Lobish

VOLUNTEERS FOR REFRESHMENTS

The refreshment committee (Joshua Frank and Dean Hart) is pleased to announce that it has volunteers to bring in refreshments for the remainder of 2012. The schedule is as follows:

July	Louis and Leslie Stieffel
August	Gunther Lobish
September	Anne and Emily Mciltrot
October	Mark Cantos
November	Marcia and Charles Simons
December	Pat and David Rosenquist (beverages only) for Holiday Dinner Meeting

Many thanks to all of you--your support is truly appreciated.

SCHEDULE OF EVENTS AND SPEAKERS

July 19th	FCOLC Monthly Meeting @ Iona House
July 19th	Dr. Rick Batt—Talk about Cretaceous Mollusks
August 16th	FCOLC Monthly Meeting @ Iona House
August 16th	Speaker: Ian Bartoszek, Florida Tortoise/Turtle
September	Speaker Dr. Brian Andres, USF Professor

Websites & Locations of Interest

Fossil Club of Lee County: www.fcolc.com

Museum of Natural History @ Gainesville www.flmnh.ufl.edu/

Florida Vertebrate Fossil Permit http:// flmnh.ufl.edu/natsci/ vertpaleo/vppermit.htm

Southwest Florida Fossil Club www.southwestfloridafossilclub.com

Orlando Fossil Club www.floridafossilhunters.com

PEACE RIVER Water Levels www.canoeoutpost.com

Mark Renz's Fossil Expeditions www.fossilx@earthlink.net

Smithsonian Natural History Museum www.mnh.si.edu

Florida Fossil Clubs www.fossil-treasures-of-florida.com

Cape Coral Friends of Wildlife Burrowing Owls www.ccfriendsofwildlife.org

Calusa Nature Center and Planetarium 3450 Ortiz Av, Fort Myers Tel 239-275-3435 www.calusanature.com

Imaginarium 2000 Cranford Ave, Fort Myers www.i-sci.org

Southwest Florida Museum of History 2031 Jackson St., Fort Myers www.MUSEUMofHISTORY.org

The Bailey-Matthews Shell Museum, 3075 Sanibel-Captiva Rd, Sanibel, FL www.shellmuseum.org

Randell Research Center PO Box 608, Pineland, FL www.flmnh.ufl.edu/RRC/

Cracker Museum at Pioneer Park in Zolfo Springs, FL Tel 863.735.0119

Lost in Time, 4719 69th Street, N. St Petersburg, FL 33709, Tel. 727-541-2567 Owner Brian Evensen

Tampa Bay Fossil Club Www.tampabayfossilclub.com

Picking Up Isolated Native American Artifacts http://dhr.dos.state.fl.us/archaeology/ underwater/ finds

Shell Shape of Cretaceous Ammonites as a Paleoenvironmental Tool

Dr. Rick Batt, Buffalo State College

Ammonites were close relatives of the modern squid that reached their peak diversity and prominence in the latter part of the Mesozoic Era. By the mid 1800's, their distinctive shells were recognized as useful indicators of relative ages of the rocks that contain their fossils, and ammonites still rank as one of the major groups of macrofossils used in biostratigraphic applications. In spite of their abundance and diversity, however, ammonites were considered useless in studies in paleoecology (the use of fossils as clues to conditions in the environments in which they lived). The reason for this stems from an early discovery of empty shells of modern *Nautilus*, the only modern externally-shelled cephalopod, found drifting at the ocean surface great distances from their (at the time) known habitat. By analogy it was assumed that because ammonites had similar shells with internal air-filled chambers, all ammonites must have undergone post-mortem transport, rendering them useless in environmental studies.

Research undertaken in the last few decades has shown that although empty shells of certain deep-water types of ammonites may have been carried by post-mortem drift, most of the ammonites that inhabited shallow seas (the majority of ammonite fossils found) were not carried outside of their habitat areas after death. It has been found that the morphology (details in the shape) of a given ammonite shell provides important clues to life habit (nektobenthonic, nektonic, or planktonic) and conditions of the environment in which the ammonite lived. We'll focus on one study considering ammonite distributions in the Western Interior Seaway that covered central North America during part of the Late Cretaceous Period.

Rick Batt earned his doctorate at the University of Colorado in Boulder, studying ammonite ecology, planktonic foraminifera, and biostratigraphy of the Western Interior Cretaceous. He then earned a second Masters degree in hydrogeology and has been teaching a variety of geology courses at Buffalo State College since 1989. His major paleontological interests have centered on fossil mollusks, eurypterids ("sea scorpions"), the use of dominance trends in Devonian fossil faunas to discern small-scale global sea-level cycles, and dinosaurs. He also collects and studies modern seashells, with interests in diversity and intraspecific variation. Rick and his wife Robin Harris (a science education professor at Buffalo State College) also explore areas of geological interest (including Alaska, the Colorado Rockies, the Galápagos, Hawaiian Islands, and Iceland) and present talks and educator workshops related to these localities. When not teaching in Western New York, they are part-time residents of Florida.

Richard Hulbert, the Florida Museum of Natural History's vertebrate paleontology collections manager, shows some of the fossils recently donated by two alumni.

KRISTEN BARTLETT GRACE (BSJ '03)

Monumental Donations

Bill Harrison and John Waldrop

FLORIDA'S SOIL HAS REVEALED SECRETS FROM its past in the form of thousands of ancient bones and fossils. And now, thanks to Bill Harrison (JD '51) and John Waldrop (BSA '64, MS '71), these earthy gems — including a Columbian mammoth, saber-toothed tigers and giant sharks — are at home in UF's Florida Museum of Natural History.

Harrison, a Sarasota ranch owner, was surprised to find a bone protruding from a creek on his property in summer 2010. He initially thought it was one of many Indian artifacts he'd found as a child. He emailed photographs to Richard Hulbert (PhD '87), the vertebrate paleontology collections manager at the museum, who discovered it was a fragment from one of the last native North American elephants to go extinct.

Harrison says it simply made sense to give the bones to the museum. Likewise, Waldrop, a retired middle school teacher, donated his life's work of more than 50,000 fossil specimens. Though he could have donated the specimens elsewhere, he says he initially learned about fossils when he was a student at UF and enhancing UF's collection will allow other Florida students to learn about them, too.

Fossil donations help the museum realize its mission of understanding the state's natural history, Hulbert says.

"It will be an amazing resource for decades to come," he says.

— Styliana Resvanis (3JM)

To support the Florida Museum of Natural History, contact Josh McCoy at 352-273-2087 or jmccoy@flmnh.ufl.edu.

About Ammonites

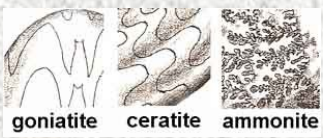
Ammonites have intrigued mankind for thousands of years. This fossil has created enough interest to inspire dozens of stories, legends and myths.

The name comes from its appearance: it resembles a ram's horn. In Egyptian mythology, the God Ammon looked like a man with horns like a ram. The ancient fossil was considered Ammon's stone, thus inheriting the name, ammonite.

Ammonites first appeared in the lower**Devonian Period**. It is thought by some that they evolved from the older nautiloids.

Septa

The septa are the walls that devide the chambers within the shell. Nautiloids had simple**septa** with a single arc. The ammonites developed septa that had intricate folds called**lobes and saddles**. They also developed delicate lacey patterns on the outer shell.



There are three basic patterns for ammonite septa.

- irregular zigzags-this is called **goniatite**
- regular wavy-called **ceratite**
- intricate feathery or fern like patterns-**ammonite**

The pattern of the septa can be reflected on the outside of the shell. These are called **sutures**.

These patterns along with the shape of the shell and the structure of the septa are how this cephalopod is classified.

The goniatites are older ranging from the mid Devonian Period to the end of the Permian Period. They are easily recognized by the zigzag suture patterns. Goniatites are fairly common in Devonian age fossil beds in Morocco. You can see examples of these goniatites here.

Goniatites For Sale

While little is known for sure about the lifestyle of these extinct mollusks, we can make some educated guesses. Since all living cephalopods are predators we can assume that ammonites were as well.

The only living cephalopod with an external shell is the **chambered nautilus**. It can swim and control its depth. It does this by using the**siphuncle**.

The siphuncle is a tube that connects all the chambers in the shell with the living animal. The nautilus can add or subtract gas in these chambers to control buoyancy. It can also jet propel itself by squirting water out of a funnel like organ.

Size

Ammonites have a wide range of size. Specimens have been found ranging from less than a centimeter to 2 meters in diameter. Early ammonites, until the middle Jurassic, were smaller, usually less than 9 inches or 23 centimeters.

During the upper **Jurassic** and lower **Cretaceous** larger varieties can be found. **Titanites** found in the south of England can be over 50 centimeters, 2 feet in diameter. Female shells of ammonites, like their modern counterpart, the nautilus, tends to be larger than the males.

Biostratigraphy

The hard shell of the ammonite was easily fossilized. This, combined with the sheer abundance of the species and its evolutionary duration through several geologic periods, make it a good **index fossil**.

Index fossils

Index fossils help paleontologists and geologists to determine the age of rock layers. This is called **biostratigraphy**. It works like this. If you find an ammonite from a genus known to be from the Triassic Period, then the rock layer it came from must be Triassic.

To be a good index fossil:
1. It must have wide distribution.
2. There must be a lot of them.
3. It must belong to a group that evolves rapidly.
4. They must be easy to recognize.

Extinction

The ammonites as a class survived several mass extinctions during their long tenure among the living. However the end of the Cretaceous Period was also the end for this class of cephalopods.

It is believed that a huge meteor collided with earth about 65 million years ago. This event caused a tremendous amount of dust to be thrown into the atmosphere, blocking out the sun for years. Rapid climatic changes were the result. It has been estimated that 80% of the earth's inhabitants, including all of the dinosaurs, became extinct during this event.

The Giant Sloth Story by Jack Boyce

Saturday, June 23rd turned out to be a very special day for fossil hunting experiences. Tropical Storm Debby was coming from Central America into the Gulf of Mexico and all the weather forecasts were predicting very heavy rains across Southwest Florida. The rains were expected to start late Saturday afternoon and continue both Sunday and Monday. The Saturday forecast was overcast with little rain through the late afternoon. The Peace River was already 2-3 feet higher than in early June so Bill Shaver and Jack Boyce were limited to locations that were recently no deeper than 15 inches. A reasonable expectation is that Debby's rain would swell the Peace River and put an end to the 2012 Spring-Summer fossil hunting trips.

Bill and I returned to a location that had previously produced a couple of small Megs, a few mammal teeth (Bison, Tapir, and Horse) plus a good number of Snaggletooth Shark upper and lower teeth. That location was producing enough fossils to justify a return trip especially when the days left in the season were few. There is lots of gravel both small and larger up to the size of a grapefruit. Down about 3 feet below the river bed is limestone rock and with 2-3 feet of water depth, we can just barely reach the gravel directly laying on the limestone rock. We arrived at the location at 9 am and I had been expanding a hole for a couple of hours, when what looked like a large Mammoth bone came up on my shovel and into the sieve. I added 2 or 3 more shovels of gravel to the sieve and then checked out the bone. The bone turned out to be one of my best finds ever: a claw of a Giant Ground Sloth. WOW!!!! I was excited and so was Bill. It is fantastic to have a fossil buddy around who can appreciate a tremendous find. In hindsight one factor in this successful find was digging directly on the bedrock in a spot that had not been previously hunted.

I noted a number of characteristics about this Sloth claw fossil. It is 9.5 inches around the top curvature. The groves on the outside are channels for blood vessels. The claw has minimal wear and better details than the vast majority of similar claws viewable on the internet.

One responsibility of Florida's fossil hunting permit is to "report any unusual specimen or unusually rich site to the PROGRAM OF VERTEBRATE PALEONTOLOGY as soon as possible." On the kayak trip back down river, Bill and I agreed that I would send an email to Dr. Richard Hulbert, who administers the permit program for the Florida Museum of Natural History at Gainesville. This was a great decision that turned out really well. Richard tentatively identified the ground sloth as Eremotherium and the bone markings as blood vessel channels. Richard is preparing a paper on vertebrae mammal fossils in the Peace River, and asked to borrow the Sloth claw for measurements, analysis, and casting. There is a possibility that it will be used as an example in the paper and also a cast may be displayed in the Florida Museum of Natural History. This Sloth claw may become famous and I am pleased to share it with other fossil hunters.

http://markgelbart.wordpress.com/tag/eremotherium-laurillardi/

The Interglacial Invasion of Warm Climate Species into Southeastern North America

January 21, 2012

Humans have been enjoying a relatively stable warm climate phase for roughly 11,000 years now– a period of time known as the Holocene. We've probably been experiencing an interglacial because it's likely we're between Ice Ages, although with the extraordinary release of CO2 from industrial activities, there's no telling when the next Ice Age will occur. This phase of warm stable climate has allowed agriculture to flourish. If climate had remained unstable and as cool as it did during the last Ice Age, civilization as we know it may never have come into existence.

The most recent interglacial previous to the present one was the Sangamonian Interglacial which lasted from 132,000 BP-118,000 BP. Climate during the Sangamonian was even warmer than that of today. At one point during this interglacial the north polar ice cap completely melted and sea levels were higher than they are now. Cypress swamps grew as far north as Illinois, alligators swam in

rivers flowing through what today is Missouri, and giant tortoises roamed the ridge and valley region of the southern Appalachians. This wasn't the warmest era in geological history–it wasn't even close to as warm as much of the Pliocene, Miocene, Oligocene, etc. ages–but it was unusually warm compared to most of the Pleistocene. This prolonged warm climate phase allowed many frost sensitive species of vertebrates to colonize much of southeastern North America, at least temporarily. But because cold phases of climate during the Pleistocene lasted 10 times longer than warm phases, fossils of these tropical and subtropical species are in some cases extremely rare. There are probably more species than the following pictorial cavalcade illustrates, but these are the ones confirmed by science.

Eremotherium laurillardi, the largest ground sloth to ever live in North America, grew to 18 feet long and weighed up to 3 tons. Fossils of this species are quite common along Georgia's coastal fossil sites which mostly date to the Sangamonian and early Wisconsinian. Cold climate eventually drove them from what is now Georgia, but they persisted in Florida until maybe 30,000 BP when the beginning of the Last Glacial Maximum (LGM) became too cold for them even there. They did continue to live in South America until 10,000 BP when hunting Indians likely drove them to extinction. If it wasn't for man, they may have recolonized the gulf coast of today. 2 species of ground sloths (Jefferson's and Harlan's) were able to survive in North America during the Ice Age, but Eremotherium must have been incapable of tolerating frosts.

http://en.wikipedia.org/wiki/Ground_sloth

Megatheriidae

The megatheriid ground sloths are relatives of the megalonychids; these two families, along with the family Nothrotheriidae, form the infraorder Megatheria. Megatheriids appeared later in the Oligocene, some 30 million years ago, in South America. The group includes the heavily-built *Megatherium* (given its name 'great beast' by Georges Cuvier[13]) and *Eremotherium*. The skeletal structure of these ground sloths indicates that the animals were massive. Their thick bones and even thicker joints (especially those on the hind legs) gave their appendages tremendous power that, combined with their size and fearsome claws, provided a formidable defense against predators. The earliest megatheriid in North America was *Eremotherium eomigrans* which arrived 2.2 million years ago, after crossing the recently formed Panamanian land bridge. With more than five tons in weight, 6 meters in length, and able to reach as high as 17 feet (5.2 m), it was taller than an African Bush Elephant bull. Unlike relatives, this species retained a plesiomorphic extra claw. While other species of *Eremotherium* had four fingers with only two or three claws, *E. eomigrans* had five fingers, four of them with claws up to nearly a foot long.

http://www.fossil-treasures-of-florida.com/eremotherium.html

Eremotherium laurillardi

Eremotherium is the largest of the Giant Ground Sloths in North America, and the largest land animal, to live, in Florida. This late Pleistocene herbivore was 20 ft. (6M) tall and weighed in at 3-5 tons. It used its giant tail to brace it upright, while feeding on large amounts of twigs and leaves. This Prehistoric Megafauna was estimated to have eaten 300-500 pounds of food per day.

It had huge "brick-shaped" teeth consisting of 5 upper teeth and 4 lower teeth. The top of the teeth have a distinctive V-shaped notch that fit together exactly with both upper and lower teeth. These teeth have no enamel on them.

It has large feet with just one claw, on the back foot, and 2 claws, on the front foot, that measures 12 inches long or more.

The most impressive of these Giant Ground Sloths was discovered in October 1975, from South Daytona Beach, Volusia County, Florida. This 60-80 year old individual specimen was dated at 130,000 years ago and measured 12 feet high, 16 feet long and 5 feet wide.

Another species, in Florida, is Eomigrans which is older and dates back to the late Pliocene and early Pleistocene Periods. It is known for having more than two claws on its front foot.