





Message from the President



Our club has had a great year. We have about 200 members and many of them are true supporters and participants in the club activities. This was certainly evidenced by the team work that went into our very successful Annual Fossil Show that was held earlier this month. The club also had a very successful Annual Auction in March. Over 110 items were auctioned and we achieved a record year in terms of money raised, excellent participation, and exceptional donations of specimens for the auction. This allowed the club to make generous donations to the Calusa Nature Center and the University of Florida and University of South Florida for scholarships and laboratory projects. Looking back at the year, we enjoyed some good

field trips, had some excellent speakers, learned a lot about fossils from our enthusiastic "Show and Tell" programs and newsletter articles, and we made a lot of friends.

Looking ahead to 2012, we have some excellent speakers lined up, a great field trip on the 4th of February and we are getting ready for another super auction in March. We are gathering up donations for the auction now. The January and February meetings will be held at the Planetarium and the auction in March will be held at the Zion Lutheran Church. Details will be forthcoming.

Once again, I take this opportunity to thank all of the wonderful people who gave their time and talents throughout the year to make our club a great club! Let's do it again in 2012.

Best Wishes for the Holidays. Bill





OFFICERS

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COMMITTEES

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MINUTES OF NOVEMBER MEETING THE FOSSIL CLUB OF LEE COUNTY

Date: : November 17th, 2011 Place: Iona House, Calusa Nature Center Attendance:64 Presided byBill Shaver, President

The meeting was opened and all members and guests were welcomed. The President and all members present thanked Ray Seguin, Club Treasurer, for bringing in door prizes (many of which he has crafted in his wood-turning shop) for the past several years.

Bill announced that the Annual Fossil Show, scheduled for December 3rd, was in the final phases and asked for volunteers to help show set-up and to work the show. Several members signed up also made I donations for the various show activities.

Refreshments were provided by Josh and Melanie Frank and Bill Shaver provided the beverages.

Kim Westberry, one of the club's new members, was the featured speaker and she displayed and talked about several of the fossil specimens she has found over the years.

Kathy Pawlowski has been appointed to the merchandise committee replacing Kathy, Kevin and Joseph Arnold who tended to that function well for several months.

Bill announced that the next meeting will be the annual Holiday Dinner and it will be held on December 15th at the Zion Lutheran Church at 7401 Winkler Road in Fort Myers.

It was announced that the next planned field trip will be at the Mosaic complex on February 4th, 2012

Show and Tell was done by Gunther Lobish, Coby Pawlowski, Barry Rogers, Melanie Frank, Ron Seavey, and Louis Stieffel.

It was suggested that the club consider joining Face Book. The issue will be brought up at the next board of directors meeting.

Merry Christmas and a Happy New Year!

SCHEDULE OF EVENTS AND SPEAKERS

- Dec. 15th, 2011— Club Holiday Dinner @ Zion Lutheran Church
- Jan. 19th, 2012— Greg Shanos Meteorite Lecture
- Feb. 16th, 2012— Dr. Charles O'Connor Panama Paleontology Project
- Feb. 25th, 2012— Southwest Florida 10th Annual Burrowing Owl Festival at Rotary Park in Cape Coral. Hours are 10am to 4pm. The Fossil Club of Lee County will be an exhibitor. More information available at 239-980-2593

Mar., 2012— Club Annual Auction @ Zion Lutheran Church

HOLIDAY DINNER MEETING

Our next club meeting will be our traditional Holiday Dinner. It will be light on the meeting side and heavy on the dining side. As we have done in past years, the club provides a roast turkey and a baked ham and members bring in hot and cold side dishes and various desserts of their choice. Its always nice to try the side dishes and desserts, especially those from old family recipes. Off -the-shelf dishes and desserts are welcome as well.

The club will provide plates, cups, table ware, paper ware, condiments, coffee, and cold drinks. In short, all you need to bring is something of your choice and a good appetite.

In addition to gift exchanging (see article by Louis Stieffel in this newsletter), we will have some door prizes. Gift exchanging is optional.

The meeting will be held on December 15th, 2011 at the Zion Lutheran Church at 7401 Winkler Road in Fort Myers.

Directions: From I-75, Exit west on Daniels Parkway, cross RT 41, Daniels becomes Cypress Lake Drive, continue west, then turn south onto Winkler Road, go about a mile, the church will be on your left. If you are taking RT 41 to Fort Myers from the north, turn right onto Cypress Lake Drive and follow the above directions. If you are taking RT 41 to Fort Myers from the south, turn left onto Gladiolus, then turn right onto Winkler Road, the church will be on your right just north of the Sweet Bay Market. If your GPS or your co-pilot should fail you, call 239-834-0694 for VIP directions!

CLUB DUES

Please pay your membership dues for year 2012. Several people have already paid, but our Treasurer, Mr. Ray Seguin, states that many have not yet paid. Club policy is that anyone who joined in the last quarter of 2011 is considered paid up for 2012. Our goal is to have everyone paid up not later than March 2012. As always, your support is appreciated.



WEB SITES & 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

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

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

Imaginarium 200 Cranford AvE, Fort Myers www.cityftmyers.com/imaginarium

Southwest Florida Museum of History 2300 Peck St., Fort Myers www.swflmuseumofhistory.com

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

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

ANNUAL FOSSIL SHOW HIGHLIGHTS

The Fossil Club of Lee County held its most successful Fossil Show earlier this month. Show attendance was higher than any previous year and the dealers reported that they would look forward to coming back next year. Our treasurer will provide a break-out of expenses, revenue, and net profit at our next meeting.

This show was a wonderful and wholesome event for our community and everyone is to be commended for their participation and support. We want to thank the Imaginarium for their part in conducting the Kid's Dig as part of their educational out reach program. We also want to thank Mark Renz, local author of several fossil books, for holding a book signing, which is always popular, and for his monetary donation to our club. Others who exhibited and added depth to the show were the SW Gem, Mineral, and Fossil Club and the Bailey-Matthews Shell Museum. And of course, we must thank the Calusa Nature Center for their cooperation and continued support of our club.

It was reported that three children were marveling over the fossils they won and those these received as a club gift. They said "This is the Best Ever" and that pretty much sums it up. We all have a good time and enjoy the many benefits of belonging to our club, but most of all we enjoy helping the next generation to understand and appreciate the wonderful world of fossils. Let's do it again next year!

ANNUAL AUCTION

The Fossil Club of Lee County will hold its annual auction in March 2012 at the Zion Lutheran Church on Winkler Road in Fort Myers. At this time, the club has 20 items that have been donated for the auction. The goal is to have about 120 items for the auction. Members are encouraged to make donations and may bring the items to the December, January, and February meetings. The proceeds from the auction are used for scholarship funding at the University of Florida and University of South Florida; and to provide donations to the Calusa Nature Center and other worthy organizations as determined by the club membership.



Christmas Gift Exchange

We are reviving an old club tradition at this year's annual Christmas fossil club meeting. As you know, it will be a feast to remember, as we all bring a dish to share, and it will be very little actual business meeting. However, we would like to do a gift exchange. The way it works, if you want to participate, is that you bring a gift-you get a gift. Simple. (If you do not bring a gift, then you watch the others exchange, but you get no gift unless you bring one.) Make it fossil or nonfossil, that's up to you, but please have a mark on it so we know what pile to put it in! A further step would be to label your fossil gift as vertebrate or non-vertebrate. This way, you get the same type of gift in exchange for the type you brought! You can wrap and bring as many gifts as you want (within reason!) and should get that many in return. Make sure you can recognize the wrapping paper you use, so you do not pick your own gift! SO, let's try to do this, as many members as possible and it will be a lot of fun!! Louis Stieffel. Christmas Gift Exchange Committee



TOOTH REPLACEMENT

Many members of this great fossil club regularly hunt for fossils and probably most are interested primarily in vertebrate fossils first and invertebrate fossils second. Not everyone, of course, but probably most. So, as the vertebrate education person I try to pass on some information in my newsletter articles to help you learn just a little bit more about those vertebrate fossils.

This month, I want to discuss tooth replacement. In a prior article I had discussed unerupted teeth and since I have had many comments and questions on this, I thought I would approach the topic again, in more depth.

Most animals, with teeth, go through more than one set in their lifetime. We, ourselves, have "baby" teeth and then we replace them with our "adult" teeth. This is done for the main reason to keep the tooth Fairy busy. No, seriously, it is part of the natural progression of tooth replacement that happens to almost all animals. Most animals start out with an starter set of teeth, and upon approaching juvenile status they naturally replace these with more permanent ones. For instance, a common fossil animal we collect is the horse. These horses we find as fossils were all extinct Louis Stieffel, Vertebrate Education in this part of the world, but repopulated by settlers. However the dentary remains the same as present day horses, so we can easily see what happened in the past. Horses have a first set of teeth, which are usually slightly less robust than the more permanent ones of the adult. Many times we find these teeth, very worn down and pushed out by the replacements. (Not to be confused, however is the very worn down molars of an old adult horse, which develops thick roots as it gets ground down to the jaw). Many other mammals have this two teeth set method of replacement. However, other animals do it differently. Alligators have a hollow root, where new teeth develop to replace older teeth, They do this almost continuously throughout their life. Manatees grind down the front molars chewing and these get replaced from the rear as the old tooth gets spit out. The worn down molar caps are frequent finds, in rivers that Manatee fossils are found in. Mammoths, as Mastodons have a limited number of teeth, SIX, that can be replaced. When the last molar is in place, as an old adult, the tooth Is worn down to the point of it being ineffective and the animal weakens form malnutrition and is easy prey for carnivores. I include a picture of a mammoth jaw showing the rear teeth being formed and getting ready to move into place as the others get worn down. The way this worked was the enamel plates form first and then get cemented together by the time

needed for use. Then, the parts of the jawbone holding teeth in place dissolves and the teeth move into position and the bone reforms. This happens, it's been estimated, over a 24-36 hour span. Amazing, right? But it happens, in the Probosidian, and the Manatee and the Alligator and others. In the Alligators jaw, the actual root of the tooth to be replaced dissolves, and once the cap has fallen away and the new replacement tooth pushed into place, the new root forms. We all have heard about the tooth replacement in sharks. I show a small section of shark jaw, showing the many rows of teeth, many ready for replacement as the current one falls out. Sharks lose and replace possibly 30,000 teeth in their lifetime. No wonder they are so common!

So, when you find a fossil tooth, you may check it out thoroughly and see if it has a unerupted), a nice crown and root, (adult), or a worn down crown and deteriorated root, (old, replaced tooth spit tooth). This may help in the animal's Id, as teeth look different with different amounts of wear. And next time you find just an unformed enamel plate from a Mammoth, you will know why!



Mammoth Lower Jaw Showing Teeth Formation



Florida fossil hunters commonly find remains of vertebrates that evolved in South America, such as sloth, tapir, armadillo, capybara, glyptodont, and less frequently, the "terror bird". Conversely, many North American species moved to South and Central America, including saber tooth cat, rabbit, peccary, horse, camel, llama, and proboscidean. This migration is termed the *Great American Biotic Interchange*, and occurred as the North and South American landmasses inexorably fused (ending around 3 million years ago, although undersea volcanoes began island formation 15 million years ago, and some species island hopped).

During multiple visits to Central and South America (most recently volunteering in Panama on the Canal paleontological project – see last 2 newsletters for details) I was thrilled to see tapirs, sloths, capybaras, and llamas, and over the next few months will discuss species that migrated here to Florida. Let's begin with sloths.

Sloths belong to the superorder Xenarthra ("strange joints"), which refers to extra cervical vertebrae and unusual spinal articulations. One of the oldest mammalian orders, they diverged from placental orders 100 mya (million years ago). Their necks' extra vertebrae can allow 270 degrees rotation, and the unusual lumbar joints' articulations and fusions to the pelvis enabled extinct giant ground species (Megatherium and Eremotherium – up to 3-8 tons, 20 feet long) to stand erect and pull down branches. Sloths were previously classified as "Edentates" (without teeth) because of their lack of incisors and true canines. Some sloth species possessed protective bony osteoderms in their skin that fossilize well, similar to alligators.

Interestingly, studies suggest that extinct ground sloths' short bony olecranon (elbow) processes (that anchors the triceps muscle) facilitated very rapid arm movement, typical of a predator. Ground sloths probably scavenged kills, and may have upended VW Beetle sized glyptodonts and used powerful 12 inch claws to puncture the underbodies. Isotopic analysis of teeth enamel support an occasional meat diet scenario (in general, tooth enamel does not remineralize, but is usually original).

Giant ground sloths were some of the first animals to be recognized as extinct, and Thomas Jefferson essentially instigated the study of vertebrate paleontology in N. America after receiving sloth bones from a Kentucky cave (including impressive claw cores, which led him name the species Megalonyx, "great claw"). At least 8 species within 3 families lived in N. America during the Pleistocene, but 90 % of sloth genera became extinct

around 10,000 years ago.

Today Xenarthra is represented only in the Americas and represented by anteaters, tree sloths, and armadillos. However, living tree sloths are not good analogues for studying morphology, physiology, or behavior of extinct ground sloths, because the two groups are quite different.

Modern day sloths have the lowest metabolic rates of any mammal, and the testicles are placed internally. They have about half the muscle tissue of other animals of similar weight, and this necessitates slow movement (normally, 1-2 feet per minute on the ground), though they swim well. They sleep 15-20 hours per day. **ਸ਼**ੵੑਸ਼ੵੵੑਸ਼ੵੵਸ਼ੵੵਸ਼ੵੵਸ਼ੵੵਸ਼ੵੵਸ਼ੵੵਸ਼ੵ

Digestion is also slow, and may take 4 weeks for passage of plant/fruit material, after undergoing bacterial fermentation (similar to manatees, cattle, and howler monkeys). Almost totally arboreal, once a week sloths come to ground to defecate, and 1/3 of the body weight may be shed in the form of feces and urine. The feces are buried, possibly to camouflage their presence to jaguars and other predators. At this time the several species of moths that live in their fur (up to 100 moths) lay eggs in the dung to complete the life cycle. In fact, sloths play host to entire an ecosystem - around 950 species of arthropods have been discovered in sloth fur, and many are depend on the dung for reproduction. It's still a mystery why sloths need to descend and expose themselves to danger - perhaps for the benefit of their tree (fertilizer) or for their symbiotic bug guests?

Speaking of fur....it's very unusual in that the hairs have longitudinal or latitudinal scoring to help green algae growth. The algae (richophilus welckeri) harvest nitrogen from the air, and the sloth assimilates the nitrogen through grooming, or via skin absorption (similar to orchids). Green algae also provide camouflage from harpy eagles and other predators, and provide food for the moths and other arthropods. It is passed directly from mother to offspring and young sloths gain the algae and other parasites by the time they are a few weeks old. Sloths spend so much time upside down that they are the only mammal whose fur is parted running belly to back to allow water to run off quickly during rainstorms. And, for further disguise, a sloth sleeps with its head between curled arms and feet, blending into the tree.

More information at:

http://www.slothrescue.org/gallery/Photos.html

http://library.sandiegozoo.org/factsheets/_extinct/ sloth extinct/extinct sloth.htm

Next month: Terror Birds!

