FLORIDA PALEONTOLOGICAL SOCIETY

NEWSLETTER

VOLUME 28 NO. 2 SUMMER 2011

Florida Paleontological Society, Inc. Spring Meeting - April 8-10, 2011 Bradenton, Florida

Members arrived early Friday afternoon to the Holiday Inn Express in Bradenton. Many began to gather in the lobby around six o'clock to make plans for dinner and to have their field trip waivers notarized before the big event Saturday morning. Several groups dispersed to different restaurants in the area.

Saturday morning the group organized outside the hotel, to begin the caravan over to the SMR Aggregates quarry. This was a rare and unique opportunity afforded to the FPS. The quarry is very restrictive as to who can collect there. We are in great debt to the management of SMR, who kindly allowed this collecting trip.

Field Trip participants in Phase 10 of the SMR Aggregates Quarry. Here the Pinecrest beds of the Tamiami Formation are exposed. ***Photo Credit: Laura Pullam***

The first stop was to Phase 8 of the quarry operations. This is an older pit that exposes the Lower Tamiami Formation. The pit is already being reclaimed, and in the background you could see large equipment moving fill dirt back into the pit. Amazingly, this will soon become the site of a new subdivision with lots of new home construction. At the bottom of the pit is exposed the Lower Tamiami, with abundant shark teeth, remains of marine mammals, and the elusive and highly-coveted gastropod genus, *Ecphora*. Many people scoured the area for these finds. Some found the beautiful large oyster, *Hyotissa*. Kim Westberry, a member from Bradenton, found the tooth of a great white shark. Other members found numerous sand shark teeth and mako teeth. I personally found a segment of a whale jaw buried in the soft sands.

The group then moved to the active Phase 10 where the Pinecrest beds of the Tamiami Formation are exposed. Here, vertebrate remains were scarce but the magnificent shells, that have made this region famous, were abundant. Even though the vertebrates were rare, some members were able to find Proboscidean remains and even the occasional *Equus* tooth. However, this pit was probably most exciting to the shellers in the group. The turret-shell, *Turritella*, was particularly abundant. Also, the Florida hat snail, *Trochita floridana*, could be found everywhere. Some members found lots of the spiny jewel box, *Arcinella cornuta*, which will make excellent display pieces. The extinct cowry genus, *Siphocypraea*, was also among the prized finds.

After the trip, members gathered in the lobby of the hotel to have their finds identified. Some members took this time to have a shower and to take a short nap. Others were even more adventurous and attended the Venice Sharks Tooth Festival.

Saturday evening the festivities continued a short distance from the hotel. Dinner and entertainment were provided by the Toomey Foundation. The dinner was an excellent meal of roasted

pig, chicken, potato salad, coleslaw, baked beans, and lots of excellent drinks. During the meal and afterwards was a silent auction to benefit the Morgan Award for students. There were lots of excellent items such as a bronzini sculpture of the extinct crocodilian *Gavialosuchus*, informative books, and fashionable t-shirts.

I would like to remind people of some important guidelines for fossil collecting. These rules are important for the safety of collectors and depending on where you are collecting the safety of others, i.e. mine employees.

- Please drink plenty of water, keep hydrated while you are collecting. Remember that if you are thirsty and have a dry throat, you are probably already dehydrated. Do not wait for these warning signs. Keep a source of drinkable water with you at all times.
- When collecting in a mine it may seem uncomfortable to wear long pants but it will save your legs from injury.
- When you are on a field trip be sure to follow all directions of the field trip leader. Climbing to the top of spoil piles is very dangerous. Leaving the group is dangerous. Do not attempt to go to areas that are off limits. These rules are in place for your safety. They are not trying to keep you from finding the next great discovery. It is for your safety. Please collect fossils responsibly; no find is worth your own life.

Again, thanks to all for making this a successful and productive field trip.

-Alex Kittle

FPS President Wally Ward wears many hats, including expert fossil collector.

Photo Credit: Laura Pullam

Saturday evening's guest of honor. ***Photo Credit: Laura Pullam***

FLORIDA PALEONTOLOGICAL SOCIETY
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President-Elect:	Harley Means, Florida Geological Survey, Gunter Building MS 72, 903 West Tennessee Street, Tallahassee, FL 32304 Guy.Means@dep.state.fl.us
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INFORMATION, MEMBERSHIP, AND PUBLICATIONS

Address: Secretary, Florida Paleontological Society, Inc.
Florida Museum of Natural History, P.O. Box 117800
University of Florida, Gainesville, FL 32611-7800
email: fps@flmnh.ufl.edu
website: http://www.floridapaleosociety.com

Reed Toomey (1936-2011)

Remembering Reed Toomey

Honorary FPS member Paul Reed Toomey, a longtime resident of Sanibel Island, died peacefully with his family by his side on April 23, 2011. He was 74.

Reed (as he was known) was born in Iowa City, Iowa on July 1, 1936. He attended the University of Miami and went on to earn his Juris Doctor from Harvard Law School in Cambridge, Massachusetts in 1961. During law school, he married Barbara Mather Knight in 1959. After law school, Reed served in the army as a personnel management specialist until 1963. He and Barbara then moved to Miami where Reed began his law career. He later worked with the State of Florida Department of Justice in Tallahassee, as Assistant Attorney General. Beginning in 1969, Reed became corporate counsel for Lockheed Corporation in Burbank, California. From 1976 to 1989, Reed maintained a private law practice on Sanibel Island.

Upon retirement, he and Barbara traveled extensively, pursuing their interests learning about different cultures and environments. Reed visited all 50 states, all 7 continents, and over 90 countries around the world. He was very active in archeology and paleontology volunteering time and resources to the Florida Museum of Natural History, Museum of the Rockies, and the Paleontological Research Institution.

In addition to Barbara, his wife of 52 years, Reed is survived by his mother Helen (107 years old!) of Sun City Center; his three sons: James K. (Lori) of Bradenton, Christopher R. “Kitt” of Miami, and Michael O. (Heidi) of Gainesville; and his granddaughter Kristen Toomey of Bradenton.

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

As stated in the Articles of Incorporation, "The purposes of this Corporation shall be to advance the science of Paleontology, especially in Florida, to disseminate knowledge of this subject and to facilitate cooperations of all persons concerned with the history, stratigraphy, evolution, ecology, anatomy, and taxonomy of Florida's past fauna and flora. The Corporation shall also be concerned with the collection and preservation of Florida fossils." (Article III, Section 1).

CODE OF ETHICS

ARTICLE X

Section 1. Members of the Florida Paleontological Society, Inc., are expected to respect all private and public properties.

Section 2. No member shall collect without appropriate permission on private or public properties.

Section 3. Members should make a sincere effort to keep themselves informed of laws, regulations, and rules on collecting on private or public properties.

Section 4. Members shall not use firearms, blasting equipment or dredging apparatuses without appropriate licenses and permits.

Section 5. Members shall dispose of litter properly.

Section 6. Members shall report to proper state offices any seemingly important paleontological and archaeological sites.

Section 7. Members shall respect and cooperate with field trip leaders or designated authorities in all collecting areas.

Section 8. Members shall appreciate and protect our heritage of natural resources.

Section 9. Members shall conduct themselves in a manner that best represents the Florida Paleontological Society, Inc.

Don & Shirley Bryne on their 50th wedding anniversary

Remembering Don Bryne

By George Hecht

Don Bryne, FPS member, died on January 23, 2011 in Lake City, Florida. He was 75. Don was best known as an international expert on aquatic plants, water lilies in particular. Suwannee Laboratories, his (along with his wife Shirley) business in Lake City has a 20 acre water lily farm and ships 80 tons of bulbs a year. His home is a maze of rooms with indoor and outdoor ponds and a riot of flowers, bird feeders and inside, fossils. Don's second love was fossils focusing on echinoids and ammonoids which he collected, traded and bought from all over the world. Visitors were amazed with the floor to ceiling display cases filled with his collections. I met Don on an FPS field trip when he asked what I did. I began to introduce my passion of ostracodes when he interrupted me and said he hated them because they ate his plants. Thus a friendship was started.

ANNUAL DUES for the FPS are $10.00 for Associate Membership (persons under age 18) and $20.00 for Full Membership (persons over age 18) and Institutional Subscriptions. Couples may join for $25.00, and Family Memberships (3 or more persons) are available for $30.00. Persons interested in FPS membership need only send their names, addresses, and appropriate dues to the Secretary, Florida Paleontological Society, Inc., at the address on page 2. Please make checks payable to the FPS. Members receive the FPS newsletter, Florida Fossil Invertebrates, Fossil Species of Florida, and other random publications entitled to members.

NEWSLETTER POLICY: All worthy news items, art work, and photographs related to paleontology and various clubs in Florida are welcome. The editors reserve the right not to publish submissions and to edit those which are published. Please address submissions to the Editors, Florida Paleontological Society, Inc. Newsletter, at the address inside the front cover.

Florida Paleontological Society, Inc.
Board Meeting Minutes
April 10, 2011
Bradenton, Florida

President Wally Ward called the meeting to order at 7:50 am. Attending were Marge Fantozzi, Kevin Hutchenson, Alex Kittle, Sara Morey, Roger Portell, Terry Raymond, Paul Roth, Craig Samuel, Phil Whisler, and Marcia Wright.

Treasurer Phil Whisler handed out printed financial reports and Secretary Marcia Wright, seconded by Roger Portell, moved that the report be accepted as written. The motion passed.

The FPS t-shirts have been completed and are on hand for sale this weekend. Russell Brown provided the design. He and Bonnie Cronin kindly did the set up and the ordering - many thanks to them for all their work. Roger Portell mentioned that another FPS member has offered to design a t-shirt for the society at a future date.

Officers who haven't submitted a photo and 2-3 sentence short biography for use on the website should please do so within 30 days. Email your submissions to portell@flmnh.ufl.edu.

Anna Janosik has completed the initial design of the new website for FPS. The total cost was $400. Additionally, she sent Roger Portell a contract stating that she will be willing to maintain the website for FPS at a cost of $30/hour and submit a bill quarterly. Phil Whisler moved and Wally Ward seconded the motion that agrees to the contract. Discussion followed about moving FPS to a smaller website and Anna would also be able to do that for us too.

The terms of three board members are up and the Vice President position is now vacant. We need nominations for these seats. Roger Portell nominated Kevin Hutchenson and Paul Roth for two of the board member positions. Craig Samuel seconded the motion. The motion passed. Roger Portell (and hopefully others) will seek members for the two other positions and submit the names to membership chairman, Melissa Cole.

Roger Portell reported that the Vinac glue/hardener that the Society has is defective and unsalvageable. He moved that we allot up to $100 to pay for proper and environmentally safe disposal. Marcia Wright seconded the motion, which passed. FPS will no longer offer any hardeners. There is a company on the internet that will sell hardener in small amounts. It may be possible to contact the company and make some kind of arrangement to direct members who visit our website to the company in exchange for a small percentage of FPS generated sales.

Roger Portell reported that we need to purchase about 30 more hard hats and 30 more reflective vests for the society field trips. Also there is a need for about 6 more traffic cones – the smaller ones. Sara Morey so moved and Wally Ward seconded. The motion passed.

Some of the water pumps (which belong to the FLMNH, but have been sometimes used by FPS) need repairing. Jim Toomey has already paid for the repair of the two small ones. Sara Morey made a motion and Kevin Hutchenson seconded it - to allot up to $300 for the repair of two larger pumps. The motion passed.

The FPS-sponsored Gary Morgan Award has been awarded to Matt Jarrett (University of South Florida). He will give the program for our fall meeting. His work concerns the "Lilliput Effect" which seeks to explain why faunas are smaller following extinction events.

The fall meeting of FPS will possibly be in Gainesville – probably in October or November. Suggestions for a field trip would be appreciated.

Membership Coordinator Alex Kittle displayed the original art work for the Society's logo, the *Hexobelomeryx simpsoni*. It has now been cleaned and framed in order to preserve it.

Roger announced the publication of a new genus and species of Miocene sea star discovered by member Carol Peterson. She had kindly donated it to the FLMNH.

Roger Portell suggested we put the "Florida Fossil Permit FAQ's" article that is in the Florida Fossil Hunters' News, April 2011, into the society's next newsletter. The article has a lot of very helpful information for fossil hunters. Alex Kittle will seek permission to use the article.

Phil Whisler said that he has had a request for a list of Florida clubs and institutions that have actual fossil exhibits. He has volunteered to create a list of such sites.

Kevin Hutchenson suggested that an Upcoming Trips tab be added to our website that would lead to dates, locations, rules, etc.

The meeting was adjourned at 9:15 AM.

Respectfully submitted,
Marcia Wright, Secretary

News from the FLMNH Invertebrate Paleontology Division

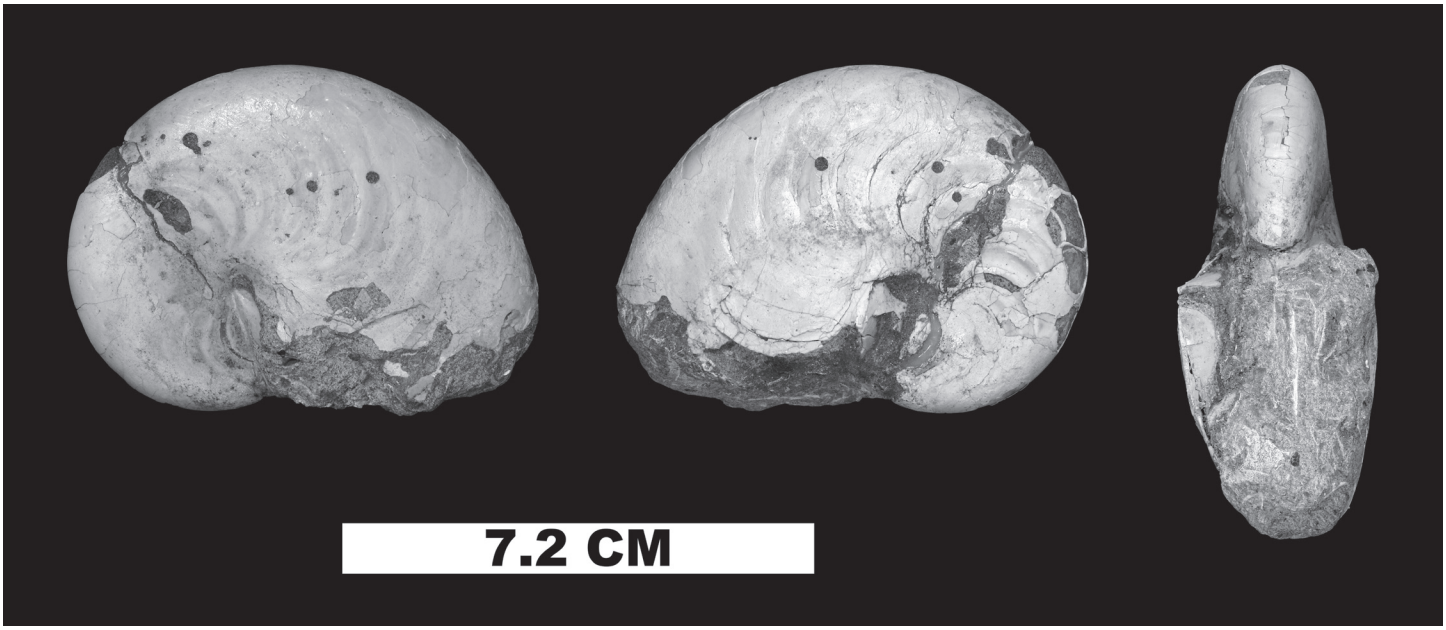
Compiled by Roger Portell

The Invertebrate Paleontology Collection (IP) continues to rapidly grow through curation efforts by staff (Roger Portell, Sean Roberts, Alex Kittle, and George Hecht), student employees (Jeanine Beatty, Danielle Hunter, and Solomiya Virstyuk), and volunteers (Craig and Laurie Samuel, Barbara Toomey and sons Jim and Mike, Paul Roth, Kristina Tucker, Phil Whisler, Mariah Monroe, and newcomer Kassie Hendy). As of the beginning of June, we now have 2,315,705 fully-curated (databased, georeferenced, and on-line) specimens. Another 2,500,000 specimens are in various stages of curation and with a recently awarded (March, 2011), two-year National Science Foundation (NSF) collection improvement grant, we plan to fully-curate 425,000 specimens during that interval.

This most recent grant will focus on two exceptional research collections which provided the basis for over 50 scientific publications. The first, a microfossil collection from the Florida Geological Survey representing over 100 years of collecting and study, was derived mostly from wells and auger sites during the early 20th Century. The other, assembled by the late Dr. Jules DuBar during nearly a half-century of NSF-funded fieldwork, contain some of the best stratigraphically documented collections from the Carolinas and Florida. Together these collections hold over 1,300 type and figured specimens.

Visit our popular website http://www.flmnh.ufl.edu/invertpaleo/search.asp. Almost weekly, new images of type and figured specimens and common Florida taxa are added.

Since IP's last report in the fall 2009 FPS Newsletter, individual fossils, fossil collections, and paleontological literature were generously donated on a regular basis. Most noteworthy were: Dr. Lyle Campbell's (University of South Carolina Upstate) gift of nearly 42,000 fossil invertebrates from the Carolinas, Virginia, Georgia, and Florida. This collection was amassed by Lyle, his family, and colleagues over several decades and the collection comes with high quality locality data and species identifications. Dr. Campbell plans to transfer another large batch of specimens later this year. John Waldrop (Lake Wales, FL) donated 125 flats of exceptionally preserved Eocene and Oligocene invertebrates (many silicified) mostly from Florida quarries no longer accessible. Some of John's collecting sites represent localities lacking in the FLMNH's holding. It is anticipated that many new species are present! We will transport more of John's massive collection (Miocene-Pliocene) to Gainesville in the coming months. Bunny Fulton and her late husband Bill (Chamblee, GA) donated over 20,000 fossil specimens collected from around the SE USA. Theirs is an exceptional collection of high quality display and research specimens. The Department of Geology at the University of Kansas donated an additional 75 boxes of reprints and ten boxes of journals from the library of the late Raymond C. Moore (former



Beautifully preserved nautiloid (*Aturia*) collected and prepared by Roger from the Middle Miocene part of the Gatun Formation during his 2010 trip to Panama. ***Photo Credit: Sean Roberts***

Editor of the Treatise of Invertebrate Paleontology). Dr. Sam Upchurch (Tampa, FL) donated some fine mollusk, coral, and echinoderm specimens from Marion, Hillsborough, and Polk counties. Most exceptional was his collection of Ballast Point silicified mollusks and an unrecorded species of Florida Eocene solitary coral. Robert Wilk (Arcadia, FL) donated over 2,000 specimens of late Cretaceous and Paleogene mollusks from Mississippi and North Carolina. Many of these specimens were expertly prepared by Mr. Wilk. Paul Roth (Waldo, FL) continues to collect, prepare, and donate many exceptional invertebrate fossils mostly from the Oligocene and Miocene units found at the Vulcan Mine. Recently, he was self-diagnosed as a *Rhyncholampas*-oholic since he can't stop picking up the little sea biscuits!

Other notable contributions to the IP collection include exceptionally preserved lower Tamiami Formation echinoids, mollusks, and crabs donated by Gunther Lobisch (Port Charlotte, FL), some rarer mollusks from Levy County Pleistocene deposits contributed by Ed DeRouin (Altamonte Springs, FL) and Kathy Patterson (Tallahassee, FL), several undescribed crab carapaces (family Grapsidae) and mollusks from Orange County gifted by Jeremy Smith and Russell Brown (Orlando, FL), two fine specimens of the echinoid *Moira atropos* discovered at Longan Lakes Quarry and donated by Melinda Abrazado (NJ), Eocene brachiopods from Berkeley County, SC donated by David Grabda (Myrtle Beach, SC), and 29 lots of Bermont Formation and 39 lots of Chipola Formation microfossils collected and identified by John Baker (Sarasota, FL). David Cass (Oviedo, FL) also discovered a Nashua Formation river locality in Volusia County loaded with numerous Pleistocene mollusks including in-place paired valves of the angel wing bivalve *Cyrtopleura costata*. He kindly collected large samples for our collection. Last, but not least, Harley Means (Florida Geological Survey, Tallahassee, FL) continued to collect and donate some interesting fossils found in several northern rivers and an exceptional collection of *Ecphora quadricostata* from Alum Bluff.

Jim Toomey collecting fossil invertebrates from an exposure of the Jaimanitas Formation at Guantanamo Bay Naval Base, Cuba. ***Photo Credit: Roger Portell***

Private financial support during late 2009 through early 2011 for numerous IP curation and research initiatives and IP student support is gratefully acknowledged. Thank you to Lyle and Sarah Campbell, Jackson Lewis, Terry Raymond, Gary and Bernice Schmelz, Barbara and the late Reed Toomey, Jim and Lori Toomey, Mike Toomey, Emily Vokes, Wally Ward, the Florida Paleontological Society, and the South West Florida Fossil Club.

IP staff conducted a considerable amount of research-related fieldwork from late 2009 through early 2011, mostly in the SE USA, Panama, and Cuba. In March 2010, Roger, Doug Jones (FLMNH Director), Bruce MacFadden (FLMNH VP Curator) and students, and Gary Morgan (New Mexico Museum of Natural History Curator) collected numerous fossil sites in Panama with Austin Hendy (Smithsonian Tropical Research Institution). Collected were fossils from the upper Eocene-lower Oligocene Gatuncillo Fm., lower Miocene Culebra Formation, middle Miocene Alhajuela Forma-

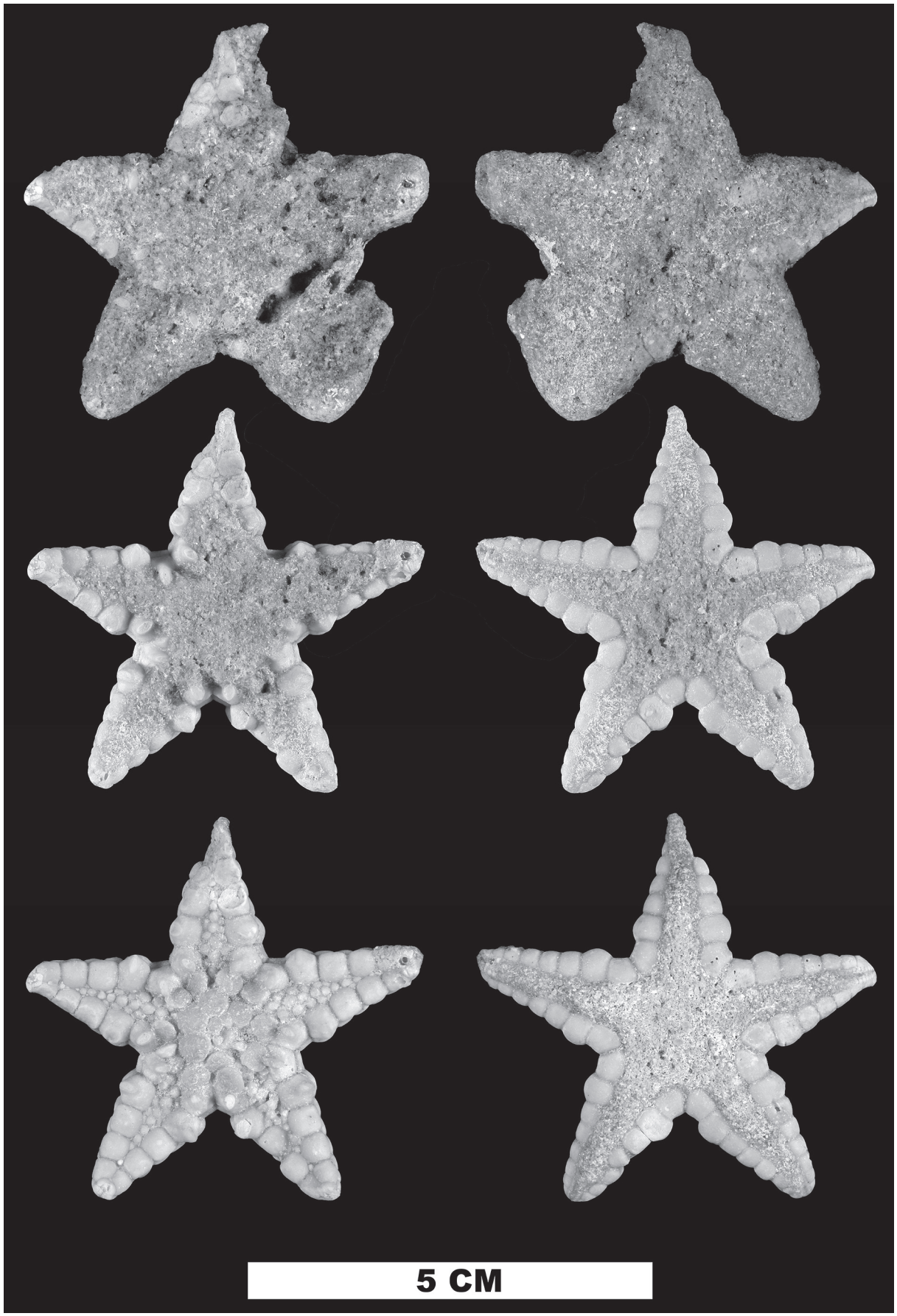
tion (Sandstone Member), middle to upper Miocene Gatun Formation, and an unnamed Holocene unit. In January 2011, Roger and Jim and Mike Toomey returned to Guantanamo Bay, Cuba to collect invertebrates from an unnamed Eocene formation, vertebrates and invertebrates from an Oligocene-Miocene formation, and invertebrates from the upper Pleistocene Jaimanitas Formation. Additionally, surveys of living mammals with David Reed and birds with David Steadman (FLMNH Curators) were conducted.

IP staff also organized/participated in numerous education endeavors, tours, and collecting trips for entities such as: Eckerd College, Florida Association of Professional Geologists, Florida Geological Survey, Florida Institute of Technology, FPS, Gainesville Gem and Mineral Society, Howard University, Naples Nature Conservancy, Sarasota Shell Club, Southeastern Association of Vertebrate Paleontology, Southeastern Geological Society, Suncoast Conchologists, Toomey Foundation, University of Cincinnati, University of Florida, and University of South Florida, among others.

Roger and Alex co-authored FPS's popular series Florida Fossil Invertebrates Part 12 "Mollusca - Fort Thompson Formation (Late Pleistocene)" and Part 13 "Mollusca - Bermont Formation (Middle Pleistocene)". Each part provides high quality images (by Sean) and a comprehensive checklist of mollusks for those units. The next FFI will cover the Nashua Formation, an early Pleistocene deposit that shares faunal elements with the Caloosahatchee Formation of southern Florida. Additionally, Roger co-authored a paper entitled "*Kionaster petersonae*, n. gen. and sp. (Asteroidea, the first fossil occurrence of the Asterodiscididae, from the Miocene of Florida" with Daniel Blake (University of Illinois). The species was named for its discoverer, FPS member Carol Peterson. Roger also co-authored a publication with Richard Hulbert (FLMNH VP Collection Manager) entitled "Haile Quarries Field Guide, Newberry, Florida"; and co-authored another field guide with Alex entitled "Overview of the invertebrate paleontology of the Anastasia Formation" for the Florida Association of Professional Geologists.

Austin Hendy collecting abundant mollusks from the Gatun Formation, Panama. ***Photo Credit: Roger Portell***

Sean continues work on the IP web site photo gallery. As of June 1st, the IP web site has over 1200 specimen photographs online. He has also ramped up completion of entering and ground-truthing every FLMNH Florida invertebrate fossil locality in our GIS database. By the end of June, Sean will have caught up with this task; nearly 2,000 localities in all! Alex has been identifying and organizing collections mainly related to our NSF grant commitments. Additionally, he recently completed a major expansion of the stratigraphic collection, making it easier for staff, scientists, and visitors to locate specimens they need. Alex is also conducting research and field work on Oligocene and early Miocene deposits throughout the state. Recently, he presented talks for the Fossil Club of Lee County, Southwest Florida Fossil Club, and the Florida Fossil Hunters. George continues to curate and organize ostracodes along with Paleozoic invertebrates. He is working to describe Eocene ostracodes from deposits of Seven Rivers, Jamaica.



Kionaster petersonae ***transformed from an unprepared specimen (top) to expertly prepared specimen (bottom).*** ***Photo Credit: Sean Roberts***

Morgan Award Winner - Matt Jarrett

This past years Morgan Award winner is Matt Jarrett, a candidate for a doctoral degree in Paleontology at the University of South Florida under the advisement of Dr. Peter Harries. Matt plans to use the award for field work in Alabama and travel to view museum collections. Following is his award winning proposal.

The Lilliput Effect: Evolution or Ecology? By Matt Jarrett

A commonly observed phenomenon across mass extinction events is the tendency for post-extinction faunas to be substantially smaller than pre-extinction faunas. This phenomenon is called the 'lilliput effect' and forms the basis of my research. The main hypothesis that I am proposing is that the phenomenon represents rapid evolutionary response to altered selection pressures during a mass extinction. However there are two competing hypotheses in the literature that must be evaluated as well. The first is that the lilliput effect is due to stunted growth within post-extinction 'stressed' ecosystems; whereas the second carries the implication that mass extinctions are somewhat size selective in that larger taxa do not do as well as smaller taxa. The K-T boundary is the chosen event for this project because there is a prevalence of documented size decrease including forams and molluscs (see further reading for details).

What makes this research so interesting and important is both the temporal and taxonomic breadth of observed size changes. Body size decreases have been noted in a wide array of groups found at various Phanerozoic mass extinction events from early Silurian corals to early Danian echinoids. On a more specific note, size reduction in molluscs has been documented over a multitude of crises from the Late Paleozoic to the Early Cenozoic and seems especially prevalent following both the End Permian and End Cretaceous extinction events. Given the prevalence, my goal in researching the phenomenon is to weigh the evidence for each proposed mechanism of expression to examine the prevalence of each with the ultimate end in mind to determine to what extent the phenomenon is indeed an evolutionary effect.

This research will entail high-resolution bulk sampling primarily at three US localities located within the Gulf and Atlantic Coastal Plain: Brazos River, Texas; Braggs, Alabama; and the Manasquan River, New Jersey. All selected field sites have documented iridium anomalies which represent a referenceable time-correlative surface linking all sites. At the Brazos preservation is good enough to allow for the potential of using sclerochronology to overcome the problem of size vs age whereas the Braggs sections present an opportunity to examine the K-T faunal transition at a different locality albeit within the same biogeographic province as well as the utilization of measureable specimens housed within the Florida Museum of Natural History from a prior Masters research project. Of particular interest in the New Jersey sequence is the abundantly fossiliferous layer termed: the 'Pinna layer'. This stratum allows the potential of establishing a baseline for Late Maastrichtian body size against which data from other sections can be readily compared.

This project will employ a wide array of statistical and geochemical techniques to help characterize marine paleoecology for both the Late Cretaceous and Early Paleogene time intervals. These analyses along with size measurements will allow for a full examination of the phenomenon across wide spatial scales. This research is already underway and is expected to be fully completed within the next two years. Current progress includes a full bulk-sampling trip to the K-T outcrops at the Brazos River and an exploratory trip to the sections at Braggs, Alabama.

Jack Hutchings, Peter Harries, Subronil Mondal, and Matt Jarrett near the K-T Boundary at Darting Minnow Creek.

Fossil bird study describes ripple effect of extinction in animal kingdom

UF Press Release by Leeann Bright

A University of Florida study demonstrates extinction's ripple effect through the animal kingdom, including how the demise of large mammals 20,000 years ago led to the disappearance of one species of cowbird.

The study shows the trickle-down effect the loss of large mammals has on other species, and researchers say it is a lesson from the past that should be remembered when making conservation, game and land-use decisions today.

"There's nothing worse for a terrestrial ecosystem than the loss of large mammals – and the loss of apex predators like sharks, tuna and other large fish will have the same negative impact on the oceans," said study co-author David Steadman, ornithology curator at the Florida Museum of Natural History on the UF campus. "We're seeing it with the loss of lions and elephants in parts of Africa, as well as in Florida with the decline of panthers. There's no question these losses will have a negative domino effect on our ecosystems."

Jessica Oswald, who is pursuing a doctorate in biology at the University of Florida, examines a bird fossil at the Florida Museum of Natural History.

Photo Credit: Kristen Grace/FLMNH

The fossil study of eight songbird species from northern Mexico by Florida Museum ornithologists is currently available online and appears in the print edition of the journal Palaeogeography, Palaeoclimatology, Palaeocology.

An extinct cowbird, *Pandanaris convexa*, is the most common bird found at the fossil site called Térapa, in Sonora, Mexico, about 150 miles south of Arizona. This is the first time fossils of the large bird, a member of the blackbird family, have been found in Mexico.

Finding the extinct cowbird at the fossil site was unpredictable and unexpected, according to Jim Mead, chair of the department of geosciences at East Tennessee State University, who has collected a variety of fossils at the site, including the birds used in the study. Mead described the findings at Térapa as "bizarre and exciting."

"The tropical environment is unusual because the site is so far from the coast," Mead said. "The fossil record also provides evidence animals migrated from north to south and, unexpectedly, from south to north."

The cowbird has previously only been found at the Rancho La Brea fossil site in California and a site in Reddick, between Gainesville and Ocala in North Central Florida. The study expands the bird's known range and creates new questions about whether it may have lived across the southern U.S.

"The extinct cowbird needed grasslands and these big mammals to survive," said lead author Jessica Oswald, a National Science Foundation predoctoral fellow at the Florida Museum. "Those two things play into each other because mega mammals maintain grasslands. They keep big trees from coming in and colonizing the areas because they graze, stomp and trample little saplings."

Like modern cowbirds, this species probably fed on seeds and insects large mammals exposed, Oswald said. The mammals included extinct species of ground sloth, mammoth, horse, tapir, camel and bison.

About 20,000 years ago, most of these large mammals went extinct, which lead to the extinction of scavengers like condors and vultures, as well as cowbirds, Steadman said. Extinctions, especially mass extinctions, can cause radical species loss and changes in species distribution.

"Big species can't exist in a vacuum, nor can smaller species," Steadman said. "When one piece of the puzzle goes extinct, there is no good way of predicting what sort of trickle-down effect, what kind of cascade effect that will have."

The study also confirms the area was once marshy grassland, possibly surrounded by a savanna near a river. Fossils of plants, reptiles and mammals of all sizes, and 31 species of birds other than songbirds have been recovered from the Térapa site over the past 10 years. Most of these species are found today in grasslands or wetlands, Steadman said.

Steadman and Oswald used the Florida Museum's more than 24,000 skeletal specimens of birds to identify the Mexican fossils.

Songbirds make up more than 50 percent of the world's living bird species, but the fossil record is poorly developed, especially in Central and South America. Oswald said this study helps build the fossil record of songbirds in Mexico.

Finding bird fossils, as well as bones of other small animals, is a time-consuming and labor-intensive process. Sediment is placed in a fine mesh sieve and water is used to remove dirt and debris from the bones.

UF study names new genus of 125-million-year-old eudicot from China

UF Press Release by Danielle Torrent

A University of Florida researcher has helped describe the earliest known fossil remains of a flowering plant from China that has a direct evolutionary relationship with most plants humans depend on today.

The study, appearing as the cover story in the March 31 issue of the journal Nature, describes the basal eudicot species, *Leefructus mirus*, which lived during the early Cretaceous period about 125 million years ago. It is most closely related to living plants in the buttercup family. Eudicots, known as "typical dicots," are one of the largest groups of flowering plants.

"It is one of the oldest, most complete megafossils in the buttercup family," said study co-author Hongshan Wang, paleobotany collections manager at the Florida Museum of Natural History on the UF campus. "Flowering plants are what we live on, the food we eat, the crops we have, even the furniture we sit on can come from the hardwood of flowering plants – but for the early history of flowering plants, we know very little, especially when we get into the Cretaceous."

There are about 250,000 known species of angiosperms, or flowering plants, and this early evidence provides a link to understanding their rapid diversification during the Cretaceous period. Eudicots comprise about 75 percent of all angiosperms today, including peaches, apples, peas, sunflowers and roses.

Leefructus mirus*, 125 million-year-old relative of the Buttercup Family.*

The fossil was recovered from the middle Yixian Formation in Northeast China, which is part of the Jehol Biota, a community that has been extensively studied because of the unique plant and animal fossils found there.

"A lot of fossils have been found from this biota, which includes feathered dinosaurs, early birds, mammals, even a gliding lizard," Wang said. "All sorts of animals have been found in this area, but I always wonder, 'What did these animals eat?' "

When *Leefructus mirus* lived, the angiosperms had just started to diversify, Wang said. Based on genetic research, flowering plants are thought to have originated from one common ancestor, and one of Darwin's "abominable mysteries" was how the many species of flowering plants we know today so quickly diversified from the lower Cretaceous until the middle Cretaceous, about 100 million years ago.

"These discoveries are pushing the age of angiosperms, or at least the age of a rapid diversification in angiosperms back in time," said William Crepet, chairman of the department of plant biology at Cornell University. "This will have significant implications for dating models of all sorts and may shift our investigations of likely fossils to those found in earlier sediments. This is hence an important discovery."

The fossil was the first eudicot found in the Yixian Formation and the fifth angiosperm found in the Jehol biota, Wang said. Crepet said the study analysis of the fossil eudicot matches estimates projected from studies using molecular genetics data.

"The authors are contributing importantly to our understanding of angiosperm history through their studies of fossils from these early Cretaceous sediments," Crepet said. "We are making stepwise but significant progress in addressing our understanding of angiosperm history."

Study co-authors include Ge Sun of Shenyang Normal University and Jilin University in China; David Dilcher of Shenyang Normal University, Jilin University and Indiana University; and Zhiduan Chen of the Chinese Academy of Sciences.

The fossil analyzed in the study is preserved as an impression in yellowish grey siltstone measuring about 16 centimeters from the stem to the tip of the leaves and the fish *Lycoptera davidi* was preserved on the same slab. The impression showed a major stem bearing leaves, fruit and a vegetative shoot.

Leefructus mirus was named "Lee," after the collector, Shiming Li, "fructus," which means fruiting and "mirus," which comes from the Latin word mira, or beautiful. Some of the features distinguishing eudicots from other angiosperms are typically net-like vascular tissue in the leaves, pollen grains with three openings and floral organs usually occurring in multiples of four or five. Previous studies of fossilized pollen show the first eudicots appeared about 127 million years ago, 2 million years before *Leefructus mirus* – the current study describes the first evidence of a fossilized eudicot plant.

"By the mid-Cretaceous, the angiosperms were already dominating almost every terrestrial ecosystem," Wang said. "It's important for us to understand the history and early evolution of flowering plants."

Florida Fossil Permit FAQs
From the Program of Vertebrate Paleontology at FLMNH

Who needs to get a permit? ---Anyone who intends to collect vertebrate fossils on state land where fossil hunting is allowed. Can be a Florida resident or nonresident, for a one-time trip or multiple hunts throughout the year… all need a permit.

Who does not need to get a permit? ---Individuals who collect fossils on private land or land belonging to a county or municipality (check local laws and regulations regarding collecting fossils). Also, individuals collecting the fossils of invertebrate animals (such as clams, snails, sea urchins, etc.), plants, and shark teeth do not need a permit to collect these items on state land.

On what state lands is fossil collecting allowed? ---No collecting of any type is allowed inside the boundaries of state parks. In general, collecting is allowed in the beds of navigable rivers, unless special exemption has been made for environmental reasons (e.g. Myakka River). Some sections of river beds may be under the jurisdiction of one of the state water management districts, in which case fossil collection is not allowed. It is always safest to check with the local branch of the Florida Fish and Wildlife Commission before collecting in a river for the first time. The sea floor from the shoreline to three nautical miles from shore is the property of the state (out to nine nautical miles in the Gulf of Mexico) and a fossil permit is required to collect vertebrate fossils in this region.

Are children required to have a fossil permit? ---Minors (those 16 years and under) who are collecting fossils under the supervision of a parent or guardian who has a valid Florida fossil permit do not need their own permit. In such cases the adult is required to report the specimens found by the child(ren) accompanying them as well as their own fossils. Children of any age can get a permit if they or their parent(s) wish them to have one.

What tools can/can't I use to collect fossils? ---The state statutes that set up the fossil permit system did not specify which types or sizes of tools were allowed so that persons could collect fossils. Different state agencies have differing opinions on what tools should and should not be used, but to our knowledge this has not been settled in a legal court. It is the opinion of the managers of the Florida Program of Vertebrate Paleontology that the following tools should be allowed for the use of fossil collecting to dig into and remove sediment: trowels, screwdrivers, small knives, and small shovels (entrenching type). Screens can be used to sift sediment. The following are not allowed without the permission of the state's Department of Environmental Protection: any devise powered by a motor, mechanical excavating equipment, or large shovels.

When do the fossils become my property? ---After you report your fossils to the Program of Vertebrate Paleontology, if within 60 days the state does not claim the fossils, then they legally become your property. Before that you cannot sell, borrow, trade, deface, or harm the specimens.

How often does the state claim fossils found under the permit system? ---Very, very rarely. We are only interested in retaining extremely rare and scientifically valuable fossils for all of the citizens of Florida. In the 25+ years since the system began, the state has only twice had to demand that a collector turn over a fossil that they had found. In less than 10 other cases collectors have voluntarily donated rare fossils to the state under the assumption that we would ask for them.

How can I report a fossil if I cannot identify it? ---Specimens that are complete enough to be identified but which are not one of the common types of fossils recovered in Florida's rivers are potentially important discoveries. The Florida Museum of Natural History has a free fossil identification service, see http://www.flmnh.ufl.edu/vertpaleo/fos_id_svc.htm.

Is it legal to buy fossils from Florida's rivers? ---You can find fossils for sale that are purported to be from Florida Rivers at many places including on-line, at flea markets, and at fossil fairs. If the specimens were collected by someone with a valid fossil permit and were reported to the state's Program of Vertebrate Paleontology, then it is legal to buy them. However, if the dealer or owner cannot produce a valid permit or if they will not certify that the specimens were collected legally, then the chances are very good that the fossil were obtained illegally. Purchasing such items is the same as knowingly buying stolen property.

Do I have to report fossils that I purchase? ---No.

Can I employ persons to hunt for fossils under the jurisdiction of my permit? ---No.

On a regular basis, my organization takes people to a river to hunt fossils. Do all of them need to get permits? ---A person who regularly leads groups on fossil hunting trips on state land can obtain a multiple-use permit. This is for cases when the individuals in the group do no fossil hunting on their own. They do not need to have their own permits. The holder of a multiple use permit is responsible for reporting all of the fossils found by the members of this group (and in rare case when the state claims a fossil, they are responsible for turning it over). In the case of trips by a fossil club, all individuals should have a permit.

How long does it take to process a permit application? ---Under normal circumstances, we process permit applications one day each week (currently, Fridays). But you should allow at least three weeks time between when mailing an application and when you plan your first fossil hunting trip.

I need my permit in less time than three weeks. Is there any faster way to get one? ---You can get a permit processed in person at Dickinson Hall on the University of Florida Campus in Gainesville FL, between 9 am and 5pm on weekdays. If Gainesville is too far, for an extra $5 we will scan your permit and send you a digital copy by email to use until the real one arrives. Make arrangements in advance by e-mail or phone (352-273-1821) for either of these methods.

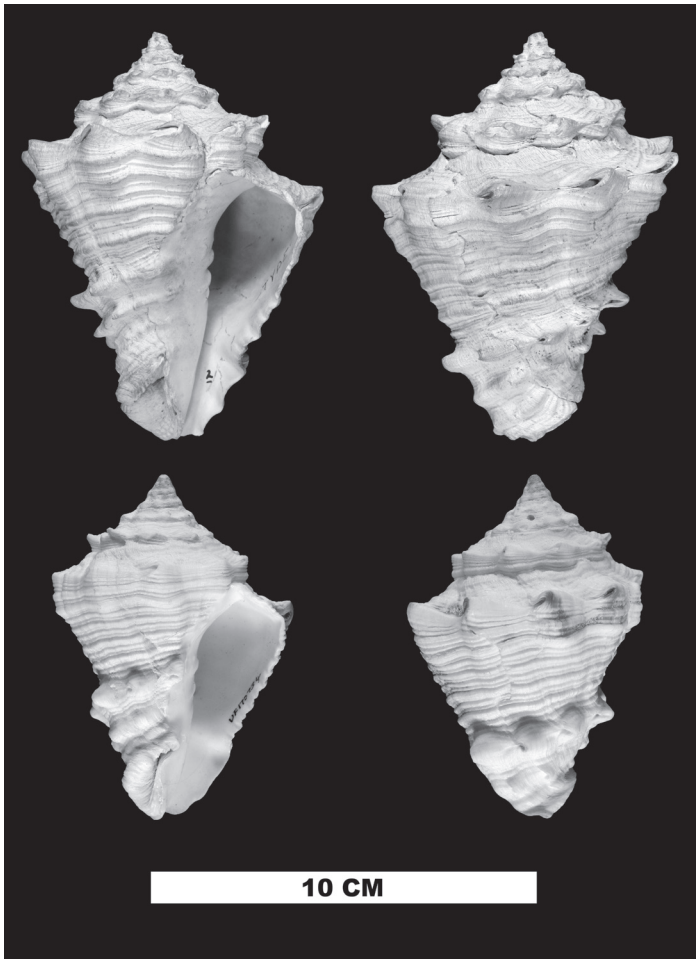
How does the state spend my $5? ---The costs needed to process the application and mail the permit, including salary, supplies, and postage, total about $3. The remaining $2 is used to help support vertebrate paleontology digs in Florida and to educate Florida's citizens about fossils.

What are the common mistakes people make when applying for a permit? ---1) Forgetting to enclose a copy of their ID. 2) Applying for a new permit instead of renewing their old on. 3) Not signing the application form and/or check. All these will result in a delay in receiving your permit.

For further information and for applications for new and renewal permits visit:
http://www.flmnh.ufl.edu/vertpaleo/vppermit.htm
or contact:
Dr. Richard Hulbert
Program of Vertebrate Paleontology
Florida Museum of Natural History
PO Box 117800
Gainesville, Florida 32611-7800
Phone: (352) 273-1821
Email: rhulbert@flmnh.ufl.edu

An addition to Florida Fossil Invertebrates Part 13: Mollusca Bermont Formation (Middle Pleistocene) by Roger W. Portell and B. Alex Kittle

After the publication of our last FFI, one of our members expressed her disappointment that we did not figure the Florida Vase, *Vasum floridanum* McGinty, T.L., 1940. We would like to correct our oversight and figure here McGinty's holotype for the species along with an example of the recent Caribbean Vase, *Vasum muricatum* (Born, 1778). *Vasum floridanum* is a relatively rare species known only from localities where the Bermont Formation is exposed. There are only 27 records of this taxon in the collections at the FLMNH. Most were collected in the DeSoto Shell Pits near Arcadia, FL.



UF 28984 (Shell at top of photograph with apertural and abapertural views), UF 170734 from the Invertebrate Zoology collection (Shell at bottom of photograph with apertural and abapertural views). Photo credit: Sean Roberts

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Fossil collector donates life's work to Florida Museum of Natural History

UF Press Release by Danielle Torrent

The vertebrate paleontology division at the Florida Museum of Natural History on the University of Florida campus recently received its largest private donation, an estimated 40,000 to 50,000 identifiable specimens.

The specimens formerly comprised the world's second-largest collection of Florida vertebrate fossils. The museum honored Lake Wales resident John Waldrop for the donation of his collection during the fourth annual meeting of the Southeastern Association of Vertebrate Paleontology.

"Over the decades, Waldrop has had a longstanding influence and impact on what we've been able to do, and it's always been through his collections," said Florida Museum vertebrate paleontology curator Bruce MacFadden. "He's always been extremely generous and encouraged us to use his collection, but now it will be in the public domain forever, which sustains its value."

A tusk and jaw of a 4.5-million-year-old relative of the rhinoceros. The specimen was collected from a phosphate mine in Polk County by John Waldrop. Photo Credit: Kristen Grace/FLMNH

Vertebrate paleontology collections manager Richard Hulbert said the specimens span the entire range of Florida's fossil record, from about 10,000 to 40 million years old. The donation increases the museum's collection by about 10 percent, and the fossils are especially valuable because Waldrop had been collecting since the 1960s and maintained detailed records about locality and age, Hulbert said.

Waldrop, a retired middle school science and community college teacher, said many of the fossils were collected in areas now covered by subdivisions.

"The collection could never be duplicated," Waldrop said. "I felt it was a really important collection and I fully intended it to go to science. Richard Hulbert asked me one day if I would consider donating it and he caught me at the right time."

For about 10 years, Waldrop focused his fieldwork first on phosphate mines in South Florida, then rivers, shell pits and quarries, some of which no longer exist, he said. One of his most productive sites was the Peace River, which Hulbert said has become a hotspot for hobbyists in the last 20 years.

"We don't have many fossils from Peace River, but Waldrop very early on realized it was a problem, and he and his team got in there in the '70s before everyone," Hulbert said

In addition to the vertebrate fossils, the donation includes about seven times as many invertebrate specimens.

"The real value of his collection isn't yet known, but what we've picked up so far indicates there are many surprises," said Florida Museum invertebrate paleontology collections manager Roger Portell. "I pulled out one box just to see what was inside, and with a brief look could tell there were dozens of species absent from our collections."

When possible, Waldrop also collected materials stratigraphically, meaning he recorded the specific rock layers in which they were found, a method seldom used 20 years ago, Portell said. While he did not know the exact number of specimens in Waldrop's invertebrate collection, Portell said there were up to 3,000 boxes, each containing a large number of fossils.

"We're very happy to accept his collection because it will expand our holdings and give greater breadth to the number of taxa we have in our collections," Portell said. "Most of his collection sites are no longer accessible, so it greatly enhances certain aspects of our collection, and what we have leftover will go to education. It's all going to be useful."

Although Waldrop's collection was private, he said he was always willing to lend specimens to researchers from the 40-by-40-foot air-conditioned warehouse he dubbed the "Timberlane Research Organization" after the road on which it was located. He collected most of the specimens himself, with occasional assistance from his students at McLaughlin Middle School in Lake Wales and Polk Community College in Winter Haven.

Waldrop said his interest in paleontology began with a science assignment as a student at Gainesville High School. His project on shark teeth found in the creek near the school later led to his master's in geology at UF and life's ambition to understand the geology of Florida. As a teacher, he also helped influence some of his students to pursue paleontology.

"I wanted to know more about the geology of Florida than anybody else, and in some ways I think I achieved that," Waldrop said.

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2. WHICH BEST DESCRIBES YOUR STATUS: COLLECTOR ___ OCCASIONAL DEALER ___ FULL TIME DEALER ___ PROFESSIONAL POSITION ___ JUST STARTING ___

3. PRIMARY AREAS OF INTEREST:

	VERTEBRATE	INVERTEBRATE	BOTANY	MICRO
PLEISTOCENE	____	____	____	____
PLIOCENE	____	____	____	____
MIOCENE	____	____	____	____
OLIGOCENE	____	____	____	____
EARLIER	____	____	____	____

4. LIST ANY PREFERRED TYPES (Echinoids, Crabs, Horses, Sloths, Plants, etc.).

5. LIST ANY PUBLISHED WORKS ON PALEONTOLOGICAL SUBJECTS.

6. DO YOU BUY _____ TRADE _____ FIND _____ FOSSILS?

7. LIST ANY SKILLS OR ABILITIES THAT MAY BE OF USE TO THE SOCIETY'S PROJECTS (RESTORATION, PERPARATION, COMPUTER USE, GRAPHICS SKILLS, SPEAKING, PHOTOGRAPHY, PUBLIC RELATIONS, WRITING, FUND RAISING, ETC.).

8. LIST ANY UNUSUAL SPECIMENS FOUND, CIRCUMSTANCES UNDER WHICH THEY WERE LOCATED AND THEIR DISPOSITION.

PLEASE USE AN ADDITIONAL SHEET IF REQUIRED. THANK YOU!

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