



FLORIDA PALEONTOLOGICAL SOCIETY

NEWSLETTER

VOLUME 26 NO. 1

SPRING 2009

Florida Paleontological Society, Inc. Fall Meeting – November 7-9, 2008 Gainesville, Florida

The weather was perfect as more than 40 FPS members caravanned out to Thomas Farm on Saturday morning, November 8th. For those who had not visited the site before it was difficult to know what to expect. The farm is located in Gilchrist County about a 45 mile drive northwest of Gainesville. Most people who have

years ago. The site was discovered in the early 1930's and was first excavated by Harvard University. After World War II, the University of Florida took over excavations at Thomas Farm and has been collecting there ever since. The best known and most numerous fossils found here are those of three species of horse all of which had three toes and were browsers rather than grazers. More than 90 other vertebrate species have been found at Thomas Farm ranging from large herbivores to very small reptiles, amphibians and birds.



The Fall FPS field trip to Thomas Farm, an Early Miocene vertebrate site was very well attended. Spoil piles yielded numerous remains of the three-toed horse Parahippus.

read anything about Florida vertebrate paleontology have heard of Thomas Farm; it is one of the most famous vertebrate fossil sites in the United States. Considering the distance and how many vehicles were involved the caravanning went smoothly and before long we were all gathered at the fossil site.

Dr. Dave Steadman gave us a brief and very informative talk about the history and nature of Thomas Farm. The fossil site consists of a sinkhole that was gradually infilled with soil and animal remains in Miocene times, between approximately 16 and 20 million

After the talk we were allowed to collect fossils in the spoil piles that surround the active dig site. These piles proved to contain many well-preserved bones and teeth especially those of *Parahippus leonensis*, the most common horse species at this site. The fact that toe bones of *Parahippus* were so common is not surprising, after all they have 3 times as many toes as modern horses. Hoof cores, foot, and partial leg bones of horse species were found as well as numerous teeth. A rare find, a bone possibly of a species of cat not yet found at Thomas Farm, was

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donated to the museum by its lucky finder. After a couple of hours of this exciting activity we had an excellent lunch and then returned to the piles for a little more collecting. During the course of the day many of us had our finds identified by Dave Steadman and Richard Hulbert, who was also present. All too soon though, we ran out of time and had to head back to Gainesville for the evening's activities.

At 6:00pm we met at the Bivens Condo clubhouse for a barbecue dinner catered by David's of Gainesville. After eating we all walked to a meeting



Carol and Bernie Peterson (center and right) receive the 2008 Howard Converse Award from Roger Portell (left)

room at the nearby Paramount Hotel where Carol and Bernie Peterson were presented with the 2008 Howard Converse Award; given for outstanding contributions to Florida paleontology. Afterwards the evening's program began.

The first speaker was Larisa DeSantis, a recipient of FPS' Morgan Award who gave a presentation on "Paleoecology of highly fossiliferous tapir localities in the southeastern United States". Larisa studied fossil tapir sites at a road construction project near the town of Gray in eastern Tennessee and at Haile Quarry near Gainesville. Among the conclusions she reached was

that the presence of fossil tapirs indicated a fairly wet climate in or near hardwood forests. To learn more about Larisa's research go to: www.discoverbiodiversity.com/LarisaDeSantis.html

Our second speaker was Dana Ehret whose presentation was titled "Fishing for fossil sharks in Peru".

The evening's final speaker was Jon Bryan the author, along with Harley Means and Thomas Scott, of the new book *Roadside Geology of Florida*. This excellent book will be of interest not only to amateur paleontologists, but also anyone who wants to take a drive to enjoy and understand the scenery of our beau-



Ornithologist David Steadman delivers an historical account of the fossil excavations at Thomas Farm and describes his current research at this Early Miocene sink hole site.

Dana's talk was fascinating for all of us. Besides, who doesn't want to know more about fossil sharks? Dana related how he accompanied Bruce MacFadden and Douglas Jones, both of FLMNH and three other colleagues on a quest to locate the collection site of an extraordinary fossil great white shark in the collection of Gordon Hubbell. After some clever detective work, the site was located and the information gathered will help clear up some of the mysteries of shark evolution. To read the entire story of this interesting quest go to: www.research.ufl.edu/publications/explore/past/fall2007/story_1/index.html

tiful state and how it got the way it is. After Jon's talk, many of us bought a copy of the book (at a discount) and had Jon and Harley autograph them.

It was late, and a somewhat sleepy group then made its way back to the Bivens clubhouse for the auction which included some very fine casts of fossils, books, and almost like-new clothing items. All in all it was one of the busiest, most rewarding, and most fun FPS meetings which we have attended.

Carol and Bernie Peterson

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.

SOUTHERN FLORIDA'S FOSSIL SEASHELLS

BY FOSSIL SHELL COLLECTORS

Carol and Bernie Peterson

This new book is geared toward amateur collectors and allows the novice to identify nearly 200 of southern Florida's most common fossil seashells and other invertebrate fossils. More than 280 black and white photos of the back and front of each shell are included along with a brief description of each species. Anyone who enjoys collecting seashells will find this book useful. Collectors of vertebrate fossils will be able to date their finds of bones and teeth, which are often found in association with fossil seashells in Florida, by identifying and dating those shells. The book is 6 inches by 9 inches and 140 pages.

Retail price is \$24.95 plus S&H for mail orders. Dealer inquiries are invited: Contact the authors at bpeterson11@cfl.rr.com for individual copies or bulk orders.

Order by credit card online at www.bluenotebooks.com

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
Sunday, November 9, 2008, 8:00 AM
Gainesville, Florida

The meeting was called to order by out-going President, Melissa Cole. Others in attendance were: Marge Fantozzi (in-coming President), Harley Means (Vice-President), Marcia Wright (Secretary), George Hecht (Treasurer), and Board Members Roger Portell, Greg Herbert, Terry Lott, Sara A. Morey, Jonathan Bloch, and Phyllis Diegel. Joan Herrera (Editor) and Richard Duerr (Member) were also present.

Melissa distributed photocopies of the design drawn by Russell Brown for our society t-shirts. Russell did this work gratis and donated the design to the FPS. Discussion followed and Melissa moved that we accept the design as presented. Marge Fantozzi seconded the motion, which carried. George Hecht will research the t-shirts and get an idea of costs and sizes needed. He will propose three different color schemes for the board members to consider and will e-mail board members for a vote.

The 3-4 sentence bios and head-shot photos of society officers and board members are still not completed. Please make sure that these are sent to Melissa Cole. Melissa will forward them to Joan Herrera for the FPS website.

There had been concern that the society website is not staying current. We need to make sure that meeting/field trip information and dates are sent to Joan in a timely manner so that members can make realistic future plans for their attendance. Discussion followed about the possibility of changing our web server to one that facilitates selling of society merchandise. Roger Portell moved and Harley Means seconded a motion to set up the society with such a server and approved the money to pay for the service. George will be responsible for getting this done and will inform the board of his results.

Typically, the biannual meeting auctions (and the Morgan Endowment investment) provide funding for the yearly Morgan Award. In an effort to increase interest in the Morgan Award for Florida students working on paleontological topics, several ideas were discussed. A motion to increase the amount of the award from \$500 to \$1000 was made by Roger Portell and seconded by Harley Means. The motion passed. Harley also made a motion to broaden the base of requirements for the award. It was seconded by Jonathan Bloch and passed. Jonathan Bloch, Greg Herbert and Roger Portell will look into realistic requirement changes and will present their suggestions for discussion at the next meeting. The increase will take affect for the 2009 applicants.

The Spring 2009 meeting has been scheduled to be in the Tallahassee area with the help of Harley Means and Roger Portell, who graciously agreed to be our hosts. The date has been set for April 24-25. There are some nice field trip possibilities in that area (Jackson Bluff) and the meeting might include a tour of the Florida Geological Survey and the Florida State University Antarctic facility.

Roger Portell announced that he is stepping down as editor of the society's newsletter and that Alex Kittle will take over the newsletter editing duties. Roger will stay involved initially to assist Alex with the transition.

The next museum department that will be contributing an article to the newsletter is paleobotany. Terry Lott will take care of this.

George Hecht presented the treasurer's report which was followed by lengthy discussion of several monetary concerns.

The society needs to purchase (for sale) 16 more copies of Richard Hulbert's The Fossil Vertebrates of Florida. The motion to do so was made by Roger, seconded by Marge Fantozzi, and passed by the board.

The extra copies of Papers in Florida Paleontology will be distributed to members (free-of-charge upon request) at upcoming FPS meetings.

By the end of 2009, the society will need to reprint the M. C. Thomas book, Fossil Vertebrates, Beach and Bank Collecting for Amateurs. It is a very popular publication and requests for purchase are steady. George will investigate the cost to reprint.

Robin C. Brown is in the process of donating the rights to his book, Florida Fossils- Guide to Location, Identification, and Enjoyment, to the FPS. It is published by Pineapple Press. We will probably have to put some money into the process so we will have some books to sell. The board agreed to let Roger take care of the details and use his judgment for the transfer and set up for FPS sales.

The FPS members' display case will soon house a fossil selection from the late Nita Akin. The case is located outside the Florida Fossil Hall at the FLMNH's Exhibits Hall. Members would like the case contents changed about every six months. It was suggested that we make a one-time donation to the graphics department at the museum for \$250 to help defray the costs of setting up the case. Roger Portell so moved and Harley Means seconded. The motion passed.

The board thanked out-going president, Melissa Cole for her two years of leadership, commitment, and a job well done. Melissa turned over her office to our new president, Marge Fantozzi.

The meeting was adjourned about 9:30 AM.

Respectfully submitted,
 Marcia M. Wright
 Secretary

News from the Florida Museum of Natural History's Paleobotany and Palynology Division

The Paleobotany and Palynology team at the FLMNH continues to be active and productive in the study of fossil plants. Since the summer of 2006, 52 papers have been published or accepted for publication, and 20 research scientists from China, Russia, Portugal, The Netherlands, Egypt, Thailand, India and Panama as well as U.S. visitors from the USDA, NASA, Cornell University and Duke University have visited our lab. Since the Fall of 2007 one MS thesis (Fabiany Herrera) and one doctoral dissertation (Shusheng Hu) have been completed. We are happy to report that FLMNH alumnus, Dr. Shusheng Hu, was recently hired as Collections Manager for Paleobotany at the Peabody Museum, Yale University. Currently we have six research scientists and four graduate students exploring the history of various plant groups through time (from Cretaceous to present) and geography (from Florida, the Caribbean, the Western Interior of North America, and China).

Dr. David Dilcher, along with his Chinese colleague Dr. Ge Sun were once again featured in The NOVA television program called "First Flower" which aired in the spring of 2008. The program dealt with paleobotanical research on *Archaeofructus*, an early angiosperm, as well as insights on angiosperm diversification from the perspective of molecular phylogeny by Drs Pam (FLMNH) and Doug Soltis (UF, Botany Dept.). Dilcher and Sun have completed three papers on fossil plants of Northeastern China including a new early angiosperm published in Proceedings of the National Academy of Sciences (PNAS), a review of early angiosperms and their possible origins, and a Late Cretaceous flora along the Heilongjiang River bordering China and Russia. With colleagues from Europe, Dilcher has published on *Cooksonia* and the life cycle of early Eutracheophytes, the influence of CO₂ on a fern genus, Miocene CO₂ fluctuations in relation to the evolution of terrestrial ecosystems, and Cenozoic paleotemperatures based on leaf physiognomy (in collaboration with Elizabeth Kowalski). With colleagues from Brazil, Dilcher has described a

new aquatic angiosperm and a new gymnosperm from the Crato Formation of Brazil, and with Richard Barclay (FLMNH alumnus) he published on the use of the extant Cuticle Database as a tool for the study of fossil cuticle. Dilcher has also co-authored a number of papers dealing with a wide range of subjects. These include the relationships of a large group of plant families, the rosids, using mitochondrial sequencing, the process of how arthropods and microorganisms are trapped in plant resin which reflect what we hypothesize for fossil amber, and with Dr. Manchester, the integration of fossils with modern taxa using molecular and morphological characters to explain the relationships within the walnut family (Juglandaceae). Dilcher also completed a brief autobiography focused upon his professional life, and has a number of manuscripts in press including a paper in a festschrift (tribute) to his Major Professor Ted Delevoryas. David and his research assistant, Terry are involved in several projects such as analyzing 114 million year old angiosperm leaves from Brazil, and continue to build a worldwide database of Early Angiosperm fossil records, including stratigraphy and references, some of which require translation from French, Spanish, and Russian. With Steve Manchester, David and Terry will continue the Alum Bluff Macroflora Project. This site along the Apalachicola River is the only locality in Florida with a wide variety of fossil plants.

Dr. Steven Manchester has received a 3-year National Science Foundation grant to study the fossil history of Vitaceae, with the catchy title, "Evolution, via the grape vine", which has led to field work in India and Panama, as well as his "old stomping grounds" in the Paleocene and Eocene of Wyoming. Steve has published a number of paleobotanical articles on such topics as Nyssaceae fruits from the Paleocene of North America, fruits and seeds from the Eocene of Oregon, fruits of Icacinaceae from the Paleocene of Western North America, and an extinct flower of *Dillhoffia* from the Eocene of British Columbia. Manchester has also published journal articles on the biogeography of Dogwood relatives from the Paleocene and Eocene of Europe and North America, a fossil cashew from the Eocene

of Europe and its biogeographical link between Africa and South America, a fossil history of the Christ-thorn shrub (*Paliurus*), and a seed of nutmeg affinities (Myristicaceae) found in the Early Eocene of Southern England. Other papers include the phytogeography of Late Eocene Florissant Flora of Colorado where the geographical affinities include present day warm temperate and subtropical Mexico, Central and Southern China, and Southeastern United States, and an account

leaves from Minnesota, Early Cretaceous aquatic angiosperms and leaves from Kansas, and *Ginkgo* leaves from the Middle Jurassic of Mongolia and China. They have also submitted three manuscripts, a new fossil sycamore plant from the Cretaceous Dakota Formation of Kansas and adjacent Nebraska, fossil *Ceratophyllum* from Australia and North America, and Late Cretaceous angiosperm leaves from the Courtland Clay pit, Minnesota. Together with David Dilcher, Hong-



**Bottom Row, left to right. Judy Chen, Nakia Wilson, Felipe De La Parra
Top Row, left to right. David Jarzen, Fabiany Herrera, Hongshan Wang, Terry Lott, Steven Manchester, Paula Mejia, David Dilcher**

on wood anatomy of modern Ulmaceae as a context to new reports of Late Eocene elm wood in Oregon.

Dr. Hongshan Wang, in addition to the day-to-day curatorial activities as the Paleobotany and Palynology Collections Manager, continues his research on the angiosperm floras of the Cretaceous Dakota Formation of western United States. Together with David Dilcher, Hongshan has published on Late Cretaceous angiosperm

shan has been working on several projects such as documenting angiosperm fossil leaves from Cretaceous and Eocene localities of Tennessee. Hongshan, along with volunteer Jane Blanchard, is working on a project documenting fossil flowers, fruits, and seeds from an Eocene locality of western Tennessee. Volunteer Jim Beville, Hongshan and David Dilcher are developing an Excel database to aid in the identification of fossil plant leaves. Jim presented the database system

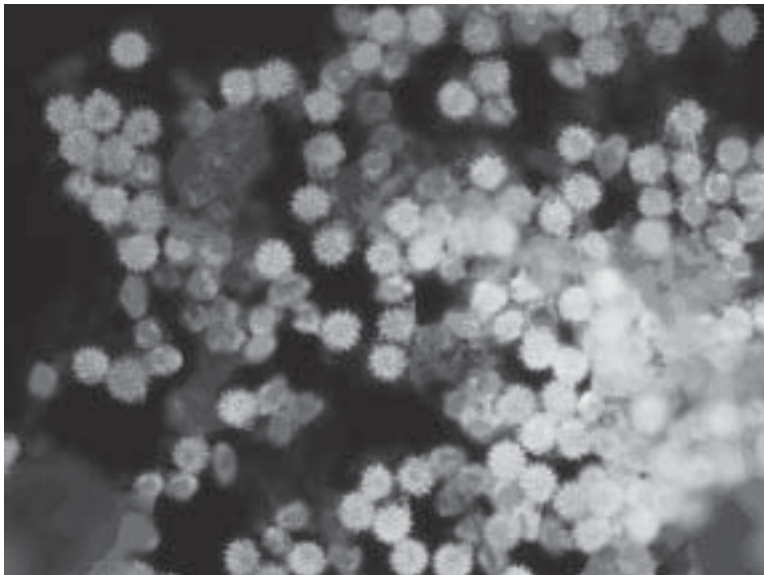
to the 25th Midcontinent Paleobotanical Colloquium (MPC) in Mobile, Alabama on March 14-16, 2008. Under the guidance of Hongshan, volunteer Neil White is working on computerizing a modern pollen reference collection (ca. 3,500 slides) recently donated to the Paleobotany and Palynology Collection. Volunteer Odette Rivera is working on sorting the mesofossils from a Cretaceous locality of Kansas.

Terry Lott, and David Dilcher have recently completed the FLMNH portion of the Cuticle Database Project, an Internet accessible database of cuticle types, prepared from modern leaves stored in the Paleobotany Collection. This is a valuable resource for comparisons and identification of commonly recovered fossil cuticle. This project is in collaboration with The Field Museum, Northwestern University, and Penn State. They also continue to count pollen on a daily basis. These data are recorded in our pollen database, a bi-weekly report is sent to the Gainesville Sun, and we update our weekly pollen chart on the Paleobotany WebSite (<http://www.flmnh.ufl.edu/pollen/>). David and Terry have published two papers dealing with fruits

and leaves of the pea family (Leguminosae) from the Miocene Eastern China. They have also submitted manuscripts dealing with fossils of Podocarpaceae, and a small flora from the Makum Coalfield of India. Under the guidance of Terry, Lenhs Louis and Nakia Wilson scanned in the Modern Leaf Collection for the Cuticle Project, and the 35mm slide collection. Terry was also involved in the identification of fossil sea grass from Iran, and the identification of plant remains from the talus cone in the Bahamas.

Dr. David M. Jarzen continues to publish papers on all aspects of palynology and its applications. Along with Steve Manchester, Greg Retallack and Susan Jarzen, he edited a 258-page volume "Advances in Angiosperm Paleobotany and Paleoclimate Reconstructions-Contributions honouring David L. Dilcher and Jack A. Wolfe." The volume, published in Courier Forschungsinstitut Senckenberg, was published in 2007. With Dilcher and Lott, David contributed to a paper published in PNAS on the palynoflora and macroflora recovered from a late Quaternary sinkhole site on the island of Abaco in the Bahamas. Another contribution to PNAS with Hu and Dilcher involved a study of angiosperm-pollinator coevolution as

determined through a study of pollen clumping as recorded from the Cretaceous in Minnesota. Additionally, as part of the graduate work of Shusheng Hu, Dilcher, Hu, and Jarzen published two reports, one on five new species of angiosperm pollen, and another on eusporangiate ferns, both recovered from the Cretaceous in Minnesota. Other work in press includes a study of angiosperm pollen-bearing viscin threads from the Cretaceous and Paleocene in western Venezuela. This work was completed with Dr.



Pollen of primarily Asteraceae recovered from the drain tube of the Solid Rocket Boosters. Photographed using UV-excitation fluorescence illumination.

David Pocknall, palynologist at BP, Houston, Texas. Closer to home, David just published a study of the pollen adhering to the exoskeleton of stable flies. Stable flies are an important pest of humans and livestock, and despite being blood feeders, they also visit flowers to eat nectar. Working with Jerome Hogsette (U.S. Department of Agriculture), David examined the kinds of pollen attached to the flies collected from the University of Florida Horse Teaching Unit, to better understand the plants visited by the flies. This information

could be used to determine possible control of the movement and abundance of the flies. Working with Bill Elsik (The MycoStrat Connection, Texas), David completed a manuscript which is now in press on new species of a fungal genus from tropical to warm temperate Neogene localities and younger aged sediments around the world and represent an apparently undescribed extant fungus. Jarzen and Dilcher have submitted a manuscript on a palynological assessment of Holocene mangrove vegetation at the American Memorial Park, Saipan, Northern Mariana Islands. This work clearly indicates that the occurrence of Australian pine predates the arrival of humans on the island. The work, commissioned by the US National Park Service, was designed to better understand the nature of the vegetation cover on the island prior to the activities of World War II. Other work submitted includes a preliminary look at the pollen of the three genera and many species of the family Pandanaceae. This work, with Martin Callmänder (Conservatoire et Jardin botaniques de la ville de Genève, Switzerland), continues the work of the late Ben Stone (Philadelphia Academy of Natural Sciences). David, along with Linda Nelson (United Space Alliance) worked with NASA to help solve a mystery concerning a recent Shuttle launch. The Solid Rocket Boosters (SRB's) frustum (the brains of the rockets), were found to contain, after retrieval from the Atlantic, a yellow liquid "gunk," which on closer inspection, proved to be pollen deposited by bees prior to launch. Although not posing a threat to the space shuttle program, NASA needed to fully understand the nature of the pollen and the timing of inclusion in the SRB's in order to continue future launches. Palynological studies demonstrated the timing, source and full nature of the pollen recovered. The results were presented at the McCrone Conference in Chicago in July, and will be published in the McCrone journal *The Microscope*, this year. Finally, David is nearing completion of the major palynological treatment of the flora of the Alum Bluff outcrop. This study continues the work of Sarah Corbett's Master's thesis and compliments Steve Manchester's contributions to the megafloora of the Neogene deposits in the Alum Bluff area.

Hopefully this work will be published in 2009.

Judy Chen, under the sponsorship of Steven Manchester, is now writing her dissertation detailing the morphology of all living genera of the grape family as a basis for analyzing the abundant fossil remains. Judy is investigating features of flower, fruit, stem, pollen, seeds, and development as they are distributed among modern and fossil species of Vitaceae to gain an improved understanding of the phylogeny and classification of this family, which is now widely distributed in both the Northern and Southern Hemisphere. In fresh excavations of the Panama Canal organized through FLMNH alumnus, Carlos Jaramillo, they found a well-preserved grape seed (a first for Central America) as well as many other kinds of fruits and seeds that are giving new insights into the Miocene vegetation of Central America. She has also traveled to Australia, Malaysia, and China, and presented a paper on Vitaceae in Vancouver, Canada. Along with Manchester, Judy has published on a genus in the grape family based on modern and fossil seed morphology, and also a fossil fruit type from the Miocene of Western North America.

Felipe De La Parra, a graduate student from the Geology Department, is interested in the fields of Paleobiology and Paleoecology, with emphasis in Paleobotany. Felipe is also interested in floristic biodiversity, its causes and how it relates to ecological stability, and how plant communities have responded to environmental crisis in the present and geological past. His plans to approach these questions use paleobiological information by applying rigorous mathematical and statistical methods and by constructing theoretical models to understand the dynamics of the plant communities in the geological past. The result of this research can help us understand modern communities and their responses to the present environmental crisis.

Fabiany Herrera has just finished his MS Degree in Geology (advisor David Dilcher) and has entered the PhD program at UF in Botany to work with Steve on Paleocene leaves collected from northern Colombia and fruits and seeds from the Miocene of Panama. His research focuses on paleobotany and paleoclimate. The goal

of this project is to try to understand the evolutionary origin of ancient Neotropical rainforests, and the climatic settings under which those early forests appeared. Fabiany hopes to learn what mechanisms produced the high diversity of modern South American rainforests, its phylogenetic history, and biogeography, and to explore the response of tropical climate to past global warming and its implications for global climate, especially during the early Paleogene (65-45 million years ago) and middle Miocene (~17 mya). Fabiany has published on Menispermaceae from the Middle to Late Paleocene of Colombia, and together with David Dilcher, on fossil Araceae also from Colombia. He, also has been coauthor of a review paper of the paleobotany of the Amazonia. Recent field work trips have been carried out in Colombia on new Paleocene floras, and extensive fossil collecting in Miocene and Eocene sediments of the Canal Zone and the Pacific coasts of Panama.

Paula Mejia finished her Master's thesis on the Biozonation of the Caballos Formation (Early Cretaceous) based on pollen and spores. She continues to work on her PhD dissertation analyzing palynological samples from different fossil sites of the tropics to determine floristic patterns of angiosperm diversity, abundance in the Lower Cretaceous, and predominant paleoclimatic conditions in the tropics during the origin and radiation of flowering plants. She has received the Jerry Britt award, a SEAGEP award, a poster competition award, and a Fellowship in the Schlumberger Foundation. She also recently returned from a field trip collecting Lower Cretaceous palynological samples from the Crato Formation of Brazil.

Elizabeth Kowalski, a research affiliate with the museum, continues to be interested on the relationship between plants and climate. A chapter titled Paleobotany is being published soon in the Encyclopedia of Paleoclimatology and Ancient Environments, and a paper is in the revision process in American Journal of Botany (with David Dilcher, Terry Lott, and others). In addition, Elizabeth has continued to increase the collections of Paleocene fossils from the Crazy Mountains Basin in South-central Montana in order to determine Early Paleocene climate and vegetation in this location.

FPS Product Sales

Prices are for current FPS members only

Shipping and Handling Extra

Vinac 15 (price per pound)	\$7.00
MC Thomas, Beach and Bank Collecting	\$5.00
H Converse, Paleo Preparation Techniques	\$10.00
Hulbert, Fossil Vertebrates of Florida	\$31.00

Florida Fossil Invertebrates

Part 1, Eocene Echinoids	\$5.00
Part 2, Oligocene and Miocene Echinoids	\$5.00
Part 3, Pliocene and Pleistocene Echinoids	\$5.00
Part 4, Pliocene and Pleistocene Decapod Crustaceans	\$5.00
Part 5, Eocene, Oligocene, and Miocene Decapod Crustaceans	\$5.00
Part 6, Larger Foraminifera (Introduction)	\$5.00
Part 7, Larger Foraminifera (Common Taxa)	\$5.00
Part 8, Brachiopods	\$5.00
Part 9, Mollusca (Shoal River Formation)	\$7.00
Part 10, Eocene and Oligocene Corals	TBA

Fossil Species of Florida

Number 1, <i>Mammot americanum</i>	\$4.00
Number 2, <i>Tapirus veroensis</i>	\$4.00

T-shirt (XL only) \$10.00

Coffee Mug \$4.00

Sales Tax (Florida residents) add 6.75%

To purchase the above items, please contact:

fps@flmnh.ufl.edu

or

George Hecht, Treasurer
Florida Museum of Natural History
Box 117800
University of Florida
Gainesville, Florida 32611-7800

The 2008 Gary S. Morgan Student Research Award Winner

Krista Church is a recent graduate from the University of Florida with a Bachelor of Science degree in Geography and a Bachelor of Arts degree in Anthropology. She was presented with the 2008 Gary S. Morgan Award prior to graduation and will use the financial assistance for rare earth element analysis to help elucidate chronological relationships between Pleistocene megafauna and humans at the famous Vero site.

Project title: RARE EARTH ANALYSIS OF PLEISTOCENE REMAINS FROM VERO, FL (81R9)

Project summary: The Vero site (81R9) is a locality on the Atlantic coast of Florida originally excavated by E.H. Sellards, I.M. Weills, and F. Ayers beginning in 1913. The geology of the site was a subject of contention in the early 20th century due to the presence of fossil human remains associated with Pleistocene fauna, such as mammoth, tapir, and giant armadillo. While one pocket of the human remains is well within the confines of the strata bearing these Pleistocene fossils, another is captured at the contact of a more geologically recent stratum. In order to better understand the chronological relationship between the Pleistocene fauna and the human remains, analysis of rare earth element (REE) contents in the bone will be conducted. REEs are absorbed rapidly by bone and are locked into the crystal lattice structure of the bone. The amount of REEs contained in the units is controlled by the pore water chemistry of the depositional environment, meaning material originating from the same layer should carry similar REE signals. The REE signals of samples collected from the pockets of human remains at

this contact point, as well as control samples of modern remains found within these layers, will be compared with samples taken from known extinct taxa from both layers in question.

In the first round of sampling, 27 specimens were prepared, measured, and run through an inductively coupled plasma mass spectrometer (ICPMS) with the assistance of Dr. G. Kamenov in the UF Geosciences Department. This testing determined the concentrations of REEs within the bone samples, utilizing a very small amount of bone material removed from the specimens. The samples were extracted from the same level of osteological tissue using a Dremel rotary tool. An additional 26 samples were prepared, significantly increasing the sample size of the analysis and evening out some gaps in the distribution of the sampling table. In addition to the analysis of these fossil specimens, REE signatures will be calculated for a sample of modern faunal samples from the same area for comparison.

The results of this project may change our understanding of the earliest human occupation of Florida, as well as the movement of the first humans into North America. The remains at Vero may prove to be some of the earliest concrete osteological remains in North America. Although absolute dating tests have been difficult for this collection, the relative measure of age has demonstrated that the extinct faunal remains contain the same REE signatures as the human remains at this site, indicating that they were deposited at the site around the same time. However, further sampling and study of these remains are necessary to make solid claims about the chronology of the site.

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BIOGRAPHICAL FACT SHEET

1. NUMBER OF YEARS OF INTEREST IN PALEONTOLOGY _____
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3. PRIMARY AREAS OF INTEREST:

	VERTEBRATE	INVERTEBRATE	BOTANY	MICRO
PLEISTOCENE	_____	_____	_____	_____
PLIOCENE	_____	_____	_____	_____
MIOCENE	_____	_____	_____	_____
OLIGOCENE	_____	_____	_____	_____
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4. LIST ANY PREFERRED TYPES (Echinoids, Crabs, Horses, Sloths, Plants, etc.).

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

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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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