

Florida Paleontological Society, Inc.
Newsletter



Volume 11 Number 1 Winter Quarter 1994

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

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Steve Manchester, Gainesville, 1995	Robyn Miller, Jacksonville, 1995
Rudi Johnson, Tampa, 1994	Bruce MacFadden, Gainesville, 1996
Roger Portell, Gainesville, 1994	Terry Sellari, Tampa, 1996
Barbara Toomey, Sanibel, 1996	

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Announcing the
Florida Paleontological Society
SPRING MEETING

May 14 and 15, 1994

Tampa, Florida

Hosted by the Tampa Bay Fossil Club

Featuring

Collecting Trip to Ballast Point
Saturday Evening Banquet with guest speaker
Possible optional trip Sunday

SEE PAGES 10-11 INSIDE FOR DETAILS



F.P.S. Happenings



From the Secretary...

by Eric Taylor

Notes from the Secretary on our membership and related material.

I am pleased to congratulate most of you on the rapid rate at which your renewal payments have been made! Only about 150 more need to get your '94 dues in and we'll be up to date!

Note that FPS dues are due on or before January 1 each year. If your label doesn't show a "94" under the "Dues Paid For:" column, you need to send your check ASAP. Membership forms in tear-out format are in every newsletter.

This quarter only resulted in 11 new members in FPS, but the distribution of the membership covers a significant portion of the world, ranging from right here in Florida to Seattle Washington, Canada and Germany! In addition, several members who had forgotten to pay their dues in 1993, got caught up and were reinstated to the rolls. They have not been listed, but we always welcome old friends along with new.

The Society only received a couple of applications for our annual scholarship grant. I guess things are different for students now than they used to be in the Dark Ages when I was a starving member of that under class?? At the Spring Meeting in Tampa, we are going to be asking for input from the membership on ways to broaden the impact of this award, so think about it!

As promised, our membership profiles are back, and this quarter, I thought it would be appropriate to provide thumbnail sketches of some of the members of the Board of Directors of your society.

Current President and newsletter editor **Frank Rupert** is on the staff of the Florida Geological Survey in Tallahassee and is interested in micro fossils, particularly foraminifera.

Vice President **Dr. Gordon Hubbell** lives in Key Biscayne, spent many years as the large animal vet at the Metro Zoo in Miami and is one of the best known experts in fossil sharks from the amateur ranks. He also makes sharks' jaws for sale and is the President of the Miami Fossil Society.

Past President **Jim Pendergraft** and his wife **Susan** (who is President-Elect) are from Largo. They display at Gem, Mineral and Fossil shows and fairs and are well known to collectors around the state from this activity. Their preferred type is Mastodons.

Treasurer **Phil Whisler** got his start in the Venice area and now lives in Gainesville. His time recently has been largely tied up in a career change, but is an avid diver and collector with extensive experience in preparation and preservation. He is a past winner of the Converse Award for amateur contribution to Florida Paleontology.

Board members include:

Tom Ahern from Tampa who got involved in the field because of his son, Brian, and who now is as much as a "fossil nut" as Brian is!

Marilyn Whetzel (who may be living in Tampa by the time this appears) has been living in the Boca Raton area in the recent past. She is a trilobite collector who has had to adjust her aim a bit in Florida!

Robyn Miller lives in Jacksonville Beach and got started collecting fossils when she started finding them in the surf following the dredging that cleared the channel into the Trident submarine base in south Georgia.

Barbara Toomey lives in Sanibel. She and her husband have traveled extensively and assisted at digs around the world, including Mongolia! She has worked extensively with the Florida Museum of Natural History's staff at sites here in Florida and helped collect and preserve an outstanding specimen of the giant ground sloth *Eremotherium* from the DeSoto shell pit.

Helen Cozzini is from Tampa. She can be found on any field trip that is organized and is intensely enthusiastic and hard working.

Don Crissinger is from the mining community of Nichols and (when last seen by the writer) was the geologist for the Mobile Chemical Company's phosphate mine there. He has an extensive collection of Bone Valley material and is very knowledgeable about the extinct fauna from that famous locality.

Tony Estevz is from Tampa and was elected to the Board with Terry Sellari last year. Tony does some of the most spectacular reconstructions of fossil skulls I have ever seen and could make a 20 inch shark tooth believable! He is a well known sight at shows and fairs around the state. Terry's profile was in a previous newsletter.

Rudi Johnson is also from Tampa and has been associated with the Society for many years. She has been an active and useful part of the direction of the Society and is an excellent source of knowledge on such locations as the Leisey Shell pit and other Bay area collecting localities.

Steve Manchester, Roger Portell, and Bruce MacFadden are all professional paleontologists on staff at the Florida Museum of Natural History. Steve is a paleo-botanist, Roger is the head of the invertebrate paleontology department, and Bruce is an expert on fossil horses and the paleontology of the Bolivian Andes.

A Special Note:

The word has probably spread like wildfire among the ranks of amateur vertebrate paleontologists throughout Florida, but in case you have been living in la-la land, there is some sad news for all of us in the Society.

Gary Morgan, collection manager of the vertebrate paleontology department, Florida Museum of Natural History, fossil identifier nonpareil, friend and helper to all us tyros in the field, and the only man I ever met who got more excited over a rodent leg than an elephant tooth, is leaving Florida!

That's right! Late last year Gary went to New Mexico and got married and his wife insisted that he live with her instead of keeping his sinecure here in Florida! As a result, he is to leave for the wilds of the desert sometime in late March.

Gary's loss is especially keenly felt because of his expertise and experience is not going to be easy to replace. he could not only give an identification from the smallest fragment of water-worn bone;

spend an hour talking fossils to a farmer who came in with a sea cow rib fragment he found in a sink hole; write papers on subjects as widely varied as the fossil bats of the Grand Caymans and Leisey Shell Pit; he could put his hand on almost any item in the huge and ever growing Vertebrate Paleontology collection at the museum immediately.

In particular, Gary was keenly aware of the value to the science of paleontology of a large, active and informed community of amateurs and did everything in his power to insure that community prospered.

The science, the State of Florida and the Florida Paleontological Society are going to be greatly reduced by his absence and will all miss him greatly. New Mexico will profit immensely by his presence.

(Several of us are researching the price of airline tickets to New Mexico. How else are we going to find out what we find is?)

Book Bits

NEW! *Fossil Record 2*, by M.J. Benton, successor to the *Fossil Record*, originally published in 1967, is a compilation of the taxonomic revisions, new finds, and stratigraphic reassignments that have occurred in the last 27 years. This rather costly volume covers all families of fossil plants and animals, and provides up-to-date range charts for each. 960 pages, 45 range charts, cloth bound, \$149.95. Chapman and Hall, One Penn Place, 41st Floor, New York, NY, 10019.

Fossil Fishes, The First 500 Million Years, 3rd Edition, by J. Long. This volume documents the radiation of the first fishes, from the primitive jawless craniates, 450 million years old, to the piscine ancestors of the first land animals. Covers the morphological features of each group, the origins of vertebrates, and discusses the anatomy of the primitive jawless and early jawed fishes. Suitable for the serious student of zoology and vertebrate evolution. 304 pages, 200 illustrations, cloth bound, \$80.00. Chapman and Hall, address above.

News Notes...

by Frank Rupert

At the suggestion of Terry Sellari and Tony Estevez, the FPS Spring Meeting is being hosted this year by the Tampa Bay Fossil Club in Tampa. Collecting trips to the Cargill Mine and a shell pit are the featured events (see ad this issue). We appreciate the efforts the Tampa Bay folks are making to set this up for us. Please plan on attending!

Ms. Sue Stephens, co-editor of the *Junonia*, the newsletter of the Captive-Sanibel Shell Club, wrote me a nice letter correcting some of the information presented about her club in last-issue's shell and fossil club listing. A corrected version of their ad is provided in this issue. Many thanks to Sue for taking the time to write. She is the only person who bothered to respond, and I must assume that all the information about the other clubs listed is correct.

The Aurora, North Carolina, Fossil Museum and Chamber of Commerce are sponsoring their first annual **Fossil Festival** on the weekend of May 27-29, 1994. Booths, fossil displays, and a parade are featured attractions. Anyone interested in exhibiting or entering a float in the parade should contact Mary Weeks at (919) 322-4238, or the Fossil Festival Committee, c/o Aurora Fossil Museum, P.O. Box 352, Aurora, NC 27806-0352. Registration forms and fees are due by May 10.

The **Pony Express** is having a "**Spring Collection Adventure '94**" at the Thomas Farm Site, this coming April 22-24. The festivities will include a wine and cheese social, meals and refreshments, rustic camping, education on the geology and paleontology of this famous site, and of course, digging... 1.5 days of it!

Cost is \$95 for PE members, \$115 non-members, payable to the "Fossil Horse Fund", at the FlaMNH address. Openings are on a first come basis.

Foreign Trade Opportunity: I recently had the pleasure to meet to meet an interesting visitor to

our country who was passing through Tallahassee in search of fossil mollusk sites. He is interested primarily in collecting and studying evolutionary forms of gastropods. As an avid collector, he has a large collection back in Germany, as well as access to many of the classic European fossil sites. He offered to trade with any interested FPS members. If interested, you may write him at: Elmar Mai, Durbusch 23, 51503 Rostrath, GERMANY.



Sanibel-Captiva Shell Club Sanibel Island, FL

Club Interests: Recent and fossil mollusks. The objectives of the club are to provide a forum for the exchange of information in the fields of conchology and malacology, to foster public education and intelligent conservation of these and related ecological resources, and to encourage and financially support studies and research in those fields through grants to various educational institutions, museums and individuals at the graduate level and above from the club's educational fund.

Meetings: Held the last Tuesday of each month, October through May, at 8:00 PM at the Sanibel Island Community Center on Periwinkle Way.

Club Activities: Collecting trips and production of an annual 4-day shell show, held the first full weekend every March, and which is now in its 57th continuous year.

Newsletter: *The Junonia*, distributed to current members 5 times a year (February, April, July, October, and December).

Membership Dues: \$10 single, \$15 couples, \$2.50 Juniors (under 12) and \$125 individual life membership, \$175 couples.

For membership information contact:

Margaret A. Thorsen
1440 Middle Gulf Dr., #3-B
Sanibel, FL 33957

News

from the



GARY MORGAN DEPARTS

The Vertebrate Paleontology Division at the Florida Museum of Natural History is losing one of its most valued staff members this spring. Mr. Gary Morgan, who has been the collection manager in VP for the past 12.5 years, has announced that he will be departing the museum, and Florida, in March. Gary will join his new wife in Albuquerque, New Mexico where he plans to stay active in paleontology and hopes to get a chance to "write up" much of the research which he undertook while in Gainesville. Needless to say, both the museum and the FPS will miss Gary greatly and want to thank him for his many years of dedicated service. It will be very difficult to find a replacement who is as knowledgeable and likable as Gary. The FPS and the museum both wish him well in New Mexico and hope that he'll come back often to visit.

NEWS FROM INVERTEBRATE PALEONTOLOGY

Dr. Jones received some good news recently from the National Science Foundation which decided to fund his research grant proposal on evolutionary patterns of size change in Jurassic gryphaeid oysters. Several thousand specimens were collected for the study when Dr. Jones was in England on sabbatical last year. These fossil oysters must now be measured, sectioned, and analyzed by a variety of lab techniques to understand their growth histories and how these have changed through time.

Roger Portell visited Jamaica for three weeks of field work during February. Along with Drs. Daryl Domning (Howard University) and Steve Donovan (University of the West Indies), Roger has been searching Eocene Limestones for fossil sea cows and associated invertebrates. The latter will be housed in the FlaMNH. Roger also reports that the Florida Geological Survey Invertebrate

Fossil Collection, which was transferred to the museum for care and curation, has been completely reorganized and standardized. Now it awaits funding of an NSF collection support grant which will provide personnel and materials necessary to catalogue and computerize the collection so that it may be incorporated into the museum's overall fossil collections.

Finally, some good news is on the horizon for those interested in learning more about Florida's unique geological history. Dr. Jones and Dr. Tony Randazzo (from the UF Geology Department) are editing a book called "The Geology of Florida." Many experts have contributed chapters to this book which is designed to provide an up-to-date overview of most aspects of Florida geology. Of special interest to FPS members will be chapters by Douglas Jones and Bruce MacFadden on Florida's fossil invertebrates and mammals, respectively. Other chapters discuss coastal regions, land forms, stratigraphy, economic geology, the Florida Keys, hydrogeology, environmental geology, and the structure and origin of Florida, as well as other topics. As of this newsletter, all chapters have been received and are undergoing final revisions by the editors and authors, who are hoping for publication in late 1994 or early 1995.

--Doug Jones

NEWS FROM THE PALEOBOTANY LAB

A variety of projects are currently underway in the Paleobotany Laboratory. Vic Call and David Dilcher are conducting a study of the *Eucommia* tree and its geologic history. Although the tree is native only in China today, fossil leaves and fruits indicate the tree was widespread in North America during the Eocene. A distinctive feature of *Eucommia* is the presence of latex-producing cells. In the fossil *Eucommia* specimens from Mississippi, Vic and David discovered that the latex is still present and remains elastic after 45 million years!

News from the FlaMNH, continued:

Professor Sun Ge from the Nanjing Institute of Geology and Paleontology is visiting the Museum for the month of February to undertake cooperative work with David Dilcher, examining some of the earliest records of flowering plants ever collected in China. They are studying the leaves and flowers in comparison with lower Cretaceous plants from North America.

In December, Mike Muller successfully completed his written and oral exams for formal admission to the PhD program in Botany at UF. He is continuing his research with David Dilcher on a variety of plant reproductive structures from the mid-Cretaceous of Kansas and Nebraska.

Steve Manchester has received a three-year grant from the National Science Foundation to explore the use of fossil woods for interpreting paleoclimate. Part of this work will involve new techniques to deduce wood density from cross sections of fossils, because wood density differs in different forest types today and appears to reflect different climatic conditions. Other anatomical features like vessel length, ray width and strength of the growth rings will also be used to compare fossil wood assemblages with woods from known modern climatic regimes. Steve's work on fossil bananas from the Eocene of Oregon was published in the November issue of American Journal of Botany.

We appreciate the support we have received from the amateur community. Several FPS members have kindly shared specimens and locality data on fossil woods and leaves from Florida and other parts of the country.

--Steve Manchester

News from the



A RARE DISCOVERY IN WINTER GARDEN

By Dean Sligh

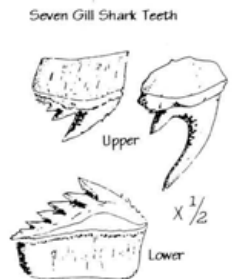
Somehow the name "Cow Shark" just doesn't convey the right image. Cows amble around the pasture in a rather stiff-legged fashion, tearing loose

a mouthful of grass here and there and, on occasion, raising their head skyward to emit their trademark mmooo. Sharks, on the other hand, glide swiftly and quietly through their watery environment grabbing unsuspecting prey with a powerful lunge and a wide open mouth full of razor-sharp teeth.

Nevertheless, the Seven Gill Shark is commonly referred to as a member of the cow shark family. Its descriptive characteristics are: seven gill slits; one dorsal fin; dissimilar teeth in the upper jaws; color sandy gray to blackish, spotted sparsely with black; length reputed to reach 15 feet. It is normally considered to be a cold water shark.

But its most important characteristic, from the perspective of Florida fossil hunters, is that it is extremely rare in Florida sites. When a Seven Gill Shark cropped up in a drainage ditch in Winter Garden two years ago it created a little stir of excitement. Two more were found within the next several months. Then, nearly a year later, a small group of Florida Fossil Hunter members found four in one day, giving Winter Garden the distinction of being the Seven Gill Shark Tooth Capital of Florida!

To date the ditch has produced 15 of these unusual shaped rarities, and more finds are expected in the future. The site has been dated by Gary Morgan as probably mid to early Pliocene based on whale bone fragments and other shark teeth found there.

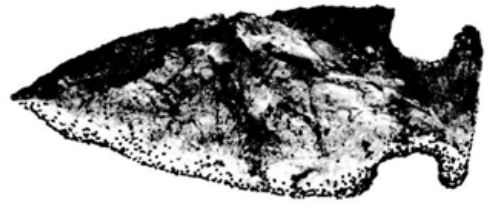


About seven miles to the east, in an old clay pit on the outskirts of Orlando, the author found a tiny fragment of tooth last year which is unmistakably Seven Gill. Within the past two months that site has produced a fine, complete specimen. In this site the teeth, along with numerous other marine fossils, are being removed from matrix of Hawthorn Group sediments, making them at least early Pliocene and probably on back into the Miocene.

Florida Fossil Hunters is in the process of establishing a Fossil Location Data Base and would appreciate any information you might have concerning Seven Gill material from other locations around the state. Please send your information to: Florida Fossil Hunters, 639 Woodley Road, Maitland, Florida, 32751-3240. Your input will be acknowledged and you will be sent a copy of the Seven Gill sites.

Archaeology: *What's the Law?*

by Michael Wisenbaker



Recently, some confusion has arisen about the legality of collecting fossils and artifacts in Florida. Much of this problem stems from people's uncertainty of what separates paleontology from archaeology. For example, while working as an archaeologist on the Natchez Trace Parkway in Mississippi, a man called and wanted me to look at what he thought was a dinosaur bone in a streambed. Although intrigued by his find, my better judgement prevailed. I suggested that he contact the geology department at a nearby university.

My interest in fossils grew from taking biology, geology and physical anthropology courses in college. I also took a class at Florida State University in zooarchaeology from Stanley J. Olsen. He formerly had worked as a vertebrate paleontologist for the Florida Geological Survey. In our class, professor Olsen taught us how to identify animal bones and teeth found in archaeological sites. I became especially fascinated with the animals that died out near the end of the Ice Age. These huge creatures greeted Florida's first humans, known as Paleo-Indians, who appeared about 12,000 years ago. A few archaeologists even speculated that these "big game hunters" dealt the final blow to many Ice Age beasts. The coexistence of Pleistocene megafauna and humans, however, happened over a span of a couple of thousand years--a mere nanosecond in geological time.

At any rate, I will attempt to clarify to fellow members of the Florida Paleontological Society the laws dealing with artifacts in our state. Please remember, I'm not a legal expert. Also, only more pertinent laws and regulations will be addressed.

Before proceeding, a few definitions are in order. Archaeology is the study of material remains of past human societies. Archaeologists strive to reconstruct former human cultures and environments. Artifacts refer to any objects made or used by humans. Fossil bones, teeth or antlers

used as tools or ornaments by early people fall within this category. Clusters of artifacts comprise sites. Sites include trash heaps, villages, old home places, graves, cemeteries, mounds, fish weirs, hunting camps, quarries and scatters. Think of archaeological sites as secret codes. We attempt to break the codes by carefully surveying and excavating sites.

Criminal charges may result from taking artifacts or disturbing sites on public lands. Laws protect both land and underwater sites. Some allow for penalties up to \$100,000 or five years imprisonment. These laws resulted from significant historic sites being destroyed by development and looting. In Florida, laws aimed at individuals include Chapters 872 and 267, Florida Statutes. On federal properties, Public Law 96-95; 93 Stat. 712, 16 U.S.C. 470, better known as ARPA or Archaeological Resources Protection Act, comes into play. Public Law 101-601; 25 U.S.C. 3001-3013 or the Native American Graves Protection and Repatriation Act (NAGPRA) covers all land.

Chapter 872, Florida Statutes, deals with "Offenses Concerning Dead Bodies and Graves." Its basic premise states that all human remains, no matter their racial, ethnic or religious affiliations, deserve equal treatment and respect. Like NAGPRA, Chapter 872 applies to both government and private properties as well as submerged lands. More specifically, this law mandates that such things as Indian mounds, historic and prehistoric cemeteries and any other unmarked burials should be treated with dignity. Unmarked burials apply to any human skeletal remains and related grave goods. The latter refers to objects deliberately interred with human remains. In other words, any memorials, markers or monuments devoted to the dead. Anyone who uncovers human remains must stop and notify local law enforcement agencies. The police then make a report to a medical examiner. He, in turn,

establishes if the remains are recent (i.e., less than 75 years of internment) and of possible criminal involvement. If bodies were buried more than 75 years ago, they fall under the jurisdiction of the State Archaeologist, an office in the Florida Department of State, Division of Historical Resources. NAGPRA, the federal equivalent of this act, is even more stringent and comprehensive.

Chapter 267, Florida Statutes, known as the Historical Resources Act, covers state-owned property and submerged lands. This act rests authority over archaeological sites, shipwrecks and other historic resources with the Florida Division of Historical Resources. Professional archaeologists must get a research permit to survey and excavate on state lands. In doing so, they acknowledge any artifacts collected will remain in public ownership. The researchers also must follow certain standards regarding analysis, curation and reporting of finds. Besides these rules, they must agree to work within the bounds of state land managers. Sometimes investigators may need to get permits to meet various environmental regulations before performing any tests or excavations.

On federal and Indian lands, taking artifacts and excavating sites requires an ARPA permit from the agency that manages the property. Artifacts, here, are material remains 100 or more years old of archaeological interest. Data compiled by researchers about the nature and locations of historic resources on these lands must remain confidential. ARPA violations call for stiff criminal and civil penalties including the confiscation of vehicles and equipment. Please note that things taken before this law went into effect will not result in arrest. Still, collectors should share information about their finds with appropriate professional archaeologists.

At this point, you may be wondering why such laws were enacted. In short, looting of artifacts and trashing sites robs us all of our cultural heritage. One basic tenet of archaeology demands that objects and features be recorded in their original locations. Researchers must record things on a grid relative to other objects and to the soils that hold them. Bones, seeds, pottery, tools and stains in the soil can tell us about diet, utensils, technology and so on. While "arrowheads" may be interesting in and of themselves, without cataloging

and logging other relevant data about them, they have little or no scientific value.

Amateur archaeologists can best add to our understanding of prehistory by collecting on private lands where site destruction is imminent. Even so, you'll still need to get owner permission or you may be arrested for trespassing. After gaining legal access, only surface artifacts should be picked up. Things such as date, locality, name of collector(s), scaled drawings and photographs of finds and the conditions and description of the site need recording. A sketch map of the site should show landmarks, vegetation, topography, soil types, outcrops and water sources. Also try to get the property owners' names, addresses and telephone numbers. Artifacts ought to be put in bags and labeled. Later they can be individually marked, using indelible ink, with site and artifact numbers.

This information should be copied and sent to the Florida Site File--the state's database of archaeological and historic sites. Site forms and instructions are available from the Coordinator of the Florida Site File. Complete survey reports need to include: title, author's name, introduction, review of archaeological reports in the area, environmental setting, field methods, analysis, conclusions and a bibliography. While this may appear to be a lot of work, it is the greatest contribution a serious amateur can make to the field of archaeology.

Although not required by law, the best way to protect and preserve archaeological sites is to discuss your finds with professionals. Even if they can't answer your questions, they most likely will direct you to people who can.

Beyond laws, ethics should influence one's attitudes about accumulating artifacts. Try to think of your children and your children's children. Thomas Barbour, a Harvard University paleontologist raised on the banks of the Indian River, in his book Vanishing Eden stated that Florida "must cease to be purely a region to be exploited and flung aside, having been sucked dry, or a recreation area visited by people who care only for a good time, who have no sense responsibility, and have no desire to aid and improve the land of their temporary enjoyment...."

With these thoughts in mind, please dig artifacts only under the direction of a professional archaeologist. If you are going to surface collect

Archaeology, continued

on private lands, report your findings so that everyone can benefit from them. Hoarding artifacts in private collections and withholding information about sites serves no one. If we all work together, one day we may get a much more accurate picture of where, when and how Florida's Indians lived.

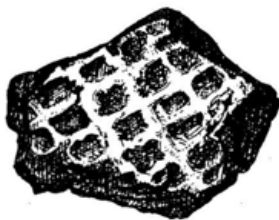
For more information about site forms, laws and surveys, and the archaeological compliment of FPS contact:

Coordinator of the Florida Site File
Florida Department of State
Division of Historical Resources
Bureau of Archaeological Research
500 South Bronough Street
Tallahassee, FL 32399-0250
(904) 487-2299

State Archaeologist
Florida Department of State
Division of Historical Resources
Bureau of Archaeological Research
500 South Bronough Street
Tallahassee, FL 32399-0250
(904) 487-2299

Compliance Review Section
Florida Department of State
Division of Historical Resources
Bureau of Historic Preservation
500 South Bronough Street
Tallahassee, FL 32399-0250
(904) 487-2333

Florida Anthropological Society Membership
c/o Terry Simpson
5822 Dory Way
Tampa, FL 33615-3632



Roxanne and Steve Wilson, winners of the 1993 Howard Converse Award. Although the Wilsons were not able to attend the last FPS Fall Meeting to receive their award in person, Tom Harrigan provided us with a later picture of the recipients with their award plaque. Thanks Tom, and congratulations again to the Wilsons!

****Reminder!*** Next issue we will run our annual FPS membership list. Please pay your 1994 dues by the Spring Meeting so you will be included!

1994 FPS Spring Meeting Schedule

The 1994 Spring Meeting is being hosted this year by the Tampa Bay Fossil Club. Activities will take place in and around Tampa the weekend of May 14 and 15, 1994. The following summarizes the general schedule of events, which is reasonably firm, but not completely finalized.

Saturday:

8:00 AM Collecting trip to Ballast Point, Tampa, for Miocene agatized coral. Meet at Ballast Point Park (see map at right).

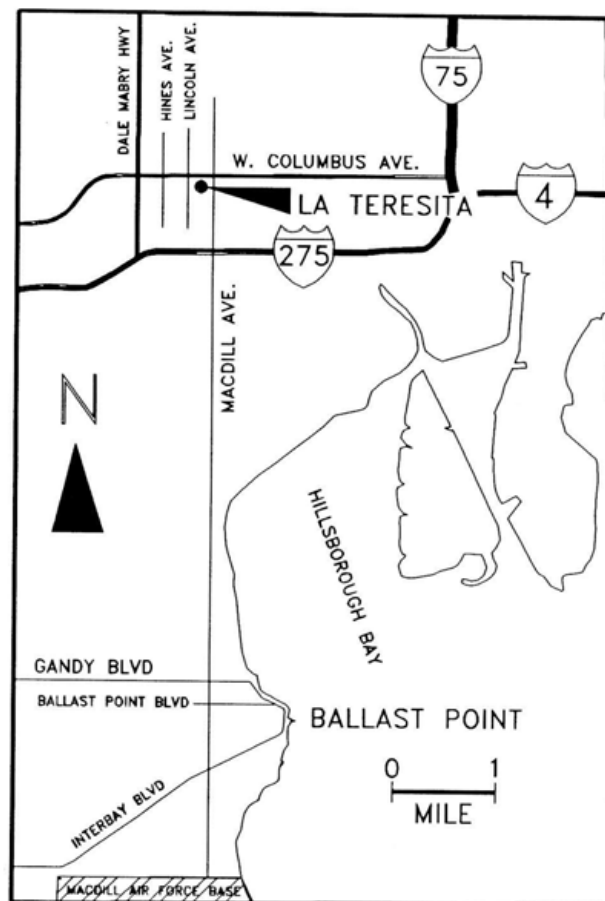
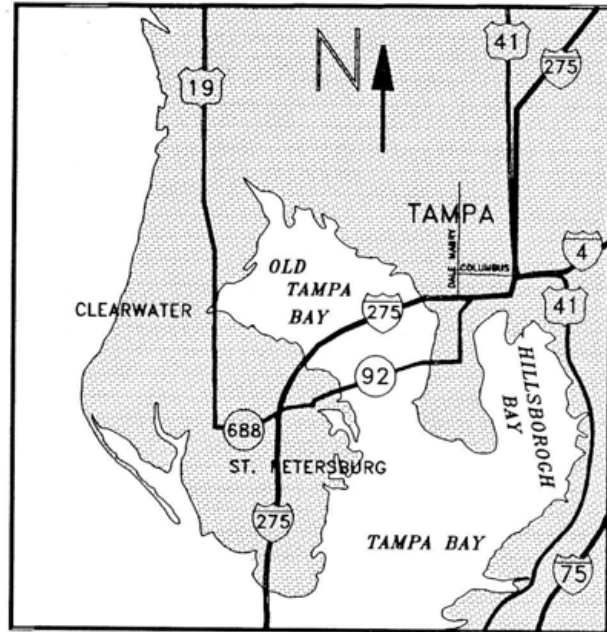
6:00 PM Spanish dinner and talk (or fossil auction), Capdevilas, at La Teresita restaurant, 3248 West Columbus Drive in Tampa (see map). Dinner will include your choice of spanish pork chops or baked chicken, spanish bean soup and salad, ice tea and coffee, and your choice of flauta or Tapioca dessert. Tax and gratuities are included in the meal price. Following the meal, we will have either a guest speaker or a fossil auction, pending finalization of plans.

Sunday:

Possible optional collecting trip to a local site in Tampa. Final details will be announced at the meeting.

If you plan on attending any of the events, please complete the form on the following page and return it, with appropriate payment, by May 2nd. Please make checks payable to the Florida Paleontological Society.

There are numerous accomodations in the area. The Days Inn motel on Dale Mabry is offering a special rate to meeting attendees.



To reach La Teresita restaurant, take the Dale Mabry exit north off I-275. Turn right (east) on West Columbus Avenue. The restaurant is on the right in the block after the second light (Lincoln), at 3248 W. Columbus.

Ballast Point is reached off MacDill Avenue. Head south on MacDill from I-275, and cut over to the bay at either Gandy Blvd or Ballast Point Blvd. The park is situated adjacent to the point. We will surface collect on the park beach. No digging is allowed.

Spring Meeting Registration Form

Florida Paleontological Society Spring Meeting
May 14 & 15, 1994, Tampa, FL

Name _____

Address _____

City/State/Zip _____

Phone: Home _____ Work _____

PLEASE INDICATE THE FOLLOWING:

(FOR OUR PLANNING PURPOSES)

Number of persons in your party attending Ballast Point trip Saturday _____

Number of persons attending dinner and talk Saturday evening _____

Are you interested in another possible trip Sunday? (Y or N) _____

Meals:

Number of adults attending dinner: _____ X \$16.00 = _____

Number of children (<12 yrs.) attending dinner: _____ X \$14.00 = _____

TOTAL to enclose: _____

***Please complete form and send with check for
appropriate amount, by May 2nd, to:***

(Make checks payable to Florida Paleontological Society)

**Phil Whisler, Treasurer
Florida Paleontological Society
Florida Museum of Natural History
Gainesville, FL 32611**

Fossils are where you find them

In this issue, we feature an interesting fossil hunting story from a member in Royal Palm Beach, as well as an article reprinted with permission from Janus, the newsletter of the North Carolina Fossil Club. We are still patiently waiting for more stories from our own membership. Share some of your interesting fossil adventures with us! Send your submissions to Eric Taylor, FPS, Florida Museum of Natural History, Gainesville, 32611.

FPS member Robert Peterson, in a letter to Eric Taylor excerpted here, relates an interesting tale of Pleistocene fossil hunting in the Port St. Lucie area. Mr. Peterson writes: "At that time (1983-1984) I was living in Port St. Lucie and had joined the FPS. I had been systematically searching the newly excavated canals (small drainage canals) in the developing portion of that city, west of the Florida Turnpike. Speed was needed as the spoil banks from these canals would be hauled away for fill almost as fast as the canals were dug. I must have walked miles and miles of canal without spotting even a fragment of bone.

However, one day I was examining a large spoil bank in the area of Ackard Avenue and Savona, when I began to notice traces of turtle shell, gar scales and other freshwater critters. I walked down to the bank of the canal, which had banks that sloped gradually, and noticed an elderly gentleman fishing with a cane pole. The man's bait was in a cup which was resting upon a large rock next to where he was seated. That seemed a bit odd as there were no rocks in the sandy/clay soil of the spoil. I looked around and immediately found several bone fragments, including a large, broken elephant vertebra. After the fisherman left, I discovered that the "rock" his bait had been perched upon was a very well preserved mammoth tooth!

Unfortunately, when I returned a few days later, the spoil pile had been completely hauled off. The vertebrate fossil bearing area along the canal extended for only about 30 yards along the bank, a pocket of sorts. I found material along the bank over the next year and located some material actually in situ in a layer of sandy bluish-gray clay. Much of the material was cracked or broken, requiring repair.

Vegetation quickly sprang up on the gently sloping bank and homes sprang up in the surrounding neighborhood. In 1985 I was living in

West Palm Beach and returned to the bank, finding only a few giant armadillo plates through the undergrowth. Last month (May, 1993) I returned to the canal. Port St. Lucie does not maintain its drainage canals to any degree. The canal is almost indistinguishable (and it had been nearly 40 feet wide), completely covered by a very dense growth of 15-20 foot high willows, Brazilian Pepper and other plants whose roots must be playing havoc with any remaining fossil material.

I had searched the literature available to me and had not found any reference to St. Lucie County, but with Pleistocene sites in nearby Indian River (I've been to the old Vero site) and Martin Counties I figured I had just overlooked a reference to St. Lucie.

I am currently roaming the canal banks of Royal Palm Beach, about 10-15 miles west of West Palm Beach and just last week found some ivory fragments and a fragmented mastodon tooth along the bank of a small canal. My wife and I are both police officers, the result of my running out of money before finishing my college work in Geology at Florida Atlantic University in 1978! However, my occupation does sometimes allow me access to developing areas and sometime in the next few years I may be able to get access to a project (involving many canals and excavations) going through an area bordering the Loxahatchee Slough, near my home.

This area, and the area where I now live, is very close to where I believe the West Palm Beach mastodon life assemblage, found and excavated by the South Florida Science Museum (Dreher Park) back in the 1970s (?), was located. This mastodon succumbed to the Dinosaur craze a few years back and is (last time I was there) no longer displayed.

I would be very interested in learning the exact location of that find and if any literature is available on the find. I am not trying to visit the old site, which was worked out, but I believe that if I can get information on that locality and the geologic/stratigraphic conditions of the site, I might be able to apply the knowledge to my search for a new site in the surrounding area, where I now live. Any information/assistance would be appreciated."

Bob Peterson
4362-126th Drive North
Royal Palm Beach, FL 33411



Some of Bill Peterson's canal bank fossils. He has donated his finds to the Florida Museum of Natural History.

The following is reprinted with permission from *Janus*, 1994, number 1:

Cretaceous Park Keith Sturgeon

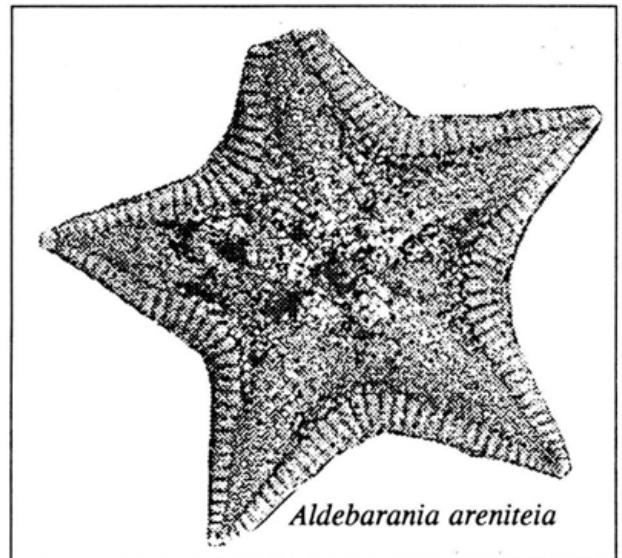
Ask just about anyone in our club the following question: "What is your favorite fossil site that the club visits?" Chances are, the answer will be Texasgulf. Ask me that question though, and you're bound to be shocked by the answer. I guess I'm just like the other 300 or so members of our group in that few things make me happier, (fossil-wise) than to find one of those monster shark teeth found at Aurora (a feat that I have yet to accomplish). But the simple fact is that my favorite site of them all is good ole Rocky Point. As soon as you catch your breath, I'll tell you why. Last year, while scouring that now giant pile of Cretaceous sandy material (known as the Rocky Point Member of the Peedee Formation) for Cretaceous echinoids, I tripped over a small agglomeration of *Ostrea subspatulata*. While lying on my back, wondering if it was worth getting up at all, I looked over to my side and saw a little starfish! Excited, I jumped up and slid down almost into the water (this was in December so I doubt that it would have been a

particularly pleasant experience). After fighting my way back up the hill, I managed to immediately locate the little asteroid that had caused my plight. Renewed, I once again scoured the hill for more. Although I found about 45 more *H. mortonis*, (bringing the total to more than 200) no more stars showed up. Several weeks later I returned to find that the pile had increased in size to its present state of immensity. I figured that since fossil asteroids are generally not that common (with a few notable European exceptions), my chance of actually finding another were at this point (no pun intended) astronomical. Well, to make a potentially long story short, I managed to find 4 more that day!!! A few months later I had scheduled a trip to the Smithsonian to bring Clayton Ray a partial walrus skull that had been dredged from the Oregon Inlet. On a whim I brought the stars with me - just to see if anyone had any idea what they might be. The echinoid people were quite impressed and equally stumped! They gave me the name of a fossil asteroid specialist at the University of Illinois, Dr. Daniel Blake. The subsequent reply from Dan was that yes, indeed, these were an undescribed genus and species. Subsequently, Dan and I have put together a publication describing and designating the new genus *Aldebarania* (named for the star Aldebaran that would have shown over the Cretaceous sea) and species *areniteia* (for the arenitic, *i.e.*, sandy, facies of the Rocky Point member of the Peedee formation) bound for the *Journal of Paleontology*. As a direct result of the work involved in puzzling out the exact geological setting for this site during the Cretaceous, I started to do work in another eastern North Carolina site that exposed quite a bit of Cretaceous material. Unfortunately, I have found no asteroids here (yet), but I have managed to find several very beautifully articulated Cretaceous crabs of the genus *Avitelmessus* and species(?) *grapsoideus* (Rathbun) - (9 so far, including a large male found by Richard Chandler which he graciously donated to the collection). These, along with several Eocene carapaces (also potentially new species- the jury is still out) from the same site, have attracted the attention of Dr. Rodney Feldman (the jury) who will be visiting in March to see this site, and we will hopefully soon begin work on a few manuscripts describing these crabs as well. This site has, in addition to the crabs, produced an abundance of

mosasaur, ichthyosaur, and plesiosaur teeth and bone, as well a third *Hardouinia* (*Hardouinia aequoria* as identified by Dr. Richard Mooi of the California Academy of Sciences). It is very interesting that these, like the crabs, have only been previously reported from Mississippi and Alabama. Two other types of echinoids await identification (so far, Dr. Mooi is stumped). Other fossils: many specimens of the ammonite *Sphenodiscus lobatus*, rare Cretaceous nautiloids, beautiful Cretaceous sawfish teeth that occasionally, at least in my opinion, rival the quality of the shark teeth in Aurora (a few of you saw the tooth I brought to the September meeting that is now in the hands of Richard Chandler - a trade for an equally beautiful Eocene crab carapace), a wide variety of very nice Cretaceous shark teeth, and a huge assortment of Cretaceous bivalve mollusks. Through these two sites, and many other smaller and less accessible sites throughout eastern North and South Carolina, I am currently attempting to compile as complete a collection as possible of Cretaceous flora and fauna from the Carolinas (with special emphasis on the Peedee and Black Creek Formations). My obsession with the Cretaceous of our Coastal Plain has pretty much taken over my home and has threatened to move me out of my office at work. Hopefully by

next year I will finally have a presentation worthy of the fossil fair - we'll see....

P.S. If anyone happens to turn up a Cretaceous starfish from Rocky Point in any state of preservation or completion PLEASE contact me at work at the Duke University Marine Laboratory (919) 728-2111 or call me collect at my home (919) 728-6717. With your permission, Dan Blake and I would love to get a look at any further specimens that turn up or at least be notified of their existence! THANKS!



Those of you who attended the FPS Fall Meeting in Lake City got to see the outstanding display of fossils from the so-called "Mammoth Savings and Loan", a site on the Santa Fe River in Gilchrist County, discovered by members **Eric Taylor** and **Eric Prokopi**. Pictured are some more Mammoth teeth from this site.



A Fossil Hunter's Guide to the Geology of Panhandle Florida

Frank R. Rupert, P.G.
Florida Geological Survey

In a previous issue, we went on a whirlwind tour of the general geology of Florida. As part of our continuing educational series on the unique geology of our state, we will divide Florida into three parts, the panhandle, the northern peninsula, and southern Florida, and we will explore the stratigraphy and paleontology of each in separate issues of the newsletter. We will start with the panhandle, which extends from the western-most county of Escambia eastward to Jefferson County, located just east of Tallahassee. In keeping with the interests of our readers, the shallow, fossil-bearing Cenozoic units will be emphasized.

The Florida panhandle is perhaps the most geomorphically and stratigraphically unique portion of Florida. Figure 1 illustrates the more extensive geomorphic zones comprising the panhandle. A series of topographic highlands extend across the northern edge of the panhandle, and are comprised of two geomorphic provinces named the Northern Highlands and the Western Highlands. These highlands are composed largely of clayey sands and sandy clays of the Hawthorn Group and the Miccosukee and Citronelle Formations. In the panhandle, the Northern Highlands are locally called the Tallahassee Hills. The Western Highlands contain the highest land surface elevations in the state, topping out at 345 feet above mean sealevel on a hilltop in northern Walton County. The Tallahassee Hills and Western Highlands are separated by an elevationally-lower region named the Marianna Lowlands, an area underlain by shallow, solution-hole-pocked limestones. Bordering the southern edge of the Marianna Lowlands are two topographically higher sand ridges named the New Hope Ridge and Grand Ridge. These ridges include a number of remnant hills, which may approximate the original elevation of the Marianna Lowlands.

The highlands of the northern panhandle are bounded on the south by the Gulf Coastal Lowlands, a flat, seaward-sloping plain associated with marine erosion by high-standing Pleistocene seas. In the eastern panhandle, a distinct marine escarpment named the Cody Scarp marks the dividing line between the zones. Several sandy, ramp-like topographic slopes lie along the northern edge of the Gulf Coastal Lowlands. These include the Beacon Slope, the Fountain Slope, and the Greenhead Slope.

Within the Gulf Coastal Lowlands many of the geologic units comprising the highlands to the north have been removed by erosion, leaving only a relatively thin veneer of undifferentiated sands resting on the bedrock. The age and makeup of this shallow bedrock underlying the Gulf Coastal Lowlands varies considerably from east to west, but nearly all is carbonate rock.

In the deeper subsurface, the panhandle retains the thick Eocene and Oligocene carbonate substructure common to much of the peninsula, but is characterized by a complex series of younger geologic units, many with lithologic components derived from the continental mainland. Figure 2 illustrates a geologic map and a shallow west-to-east geologic cross section through the panhandle. The geologic map is constructed to show the extent of the formations as they occur within 20 feet of land surface. Each formation may be much more extensive in the subsurface, but because each eventually dips below the arbitrary 20 foot depth or pinches out, their entire extent is hidden by shallower units shown on the map. Areas underlain by more than 20 feet of undifferentiated Pleistocene and Holocene sands are shown as white areas on the map. These illustrations should give even the casual reader a visual perspective on just how complex and varied the geology of northern Florida actually is. The cross section trends along the approximate dividing line between the highlands zones on the north and the Gulf Coastal Lowlands on the south. Bear in mind that the local stratigraphy can and does vary somewhat both north and south of this section.

In general, the stratigraphic units dip gently to the west-southwest, into the broad Gulf of Mexico Sedimentary Basin. This is especially apparent at the western end of the cross section in Figure 2. At the eastern edge of the panhandle, the Cenozoic units lap onto the flank of the Ocala Platform, a structurally positive feature centered under Levy County in the Big Bend Area. As these units lap onto this platform, they rise to the surface in broad, erosionally-planed regions, especially obvious in the Gulf Coastal Lowlands. Both the Suwannee Limestone and the younger St. Marks Formation are brought to the surface in the southern Wakulla-Jefferson County area as they lap up onto the

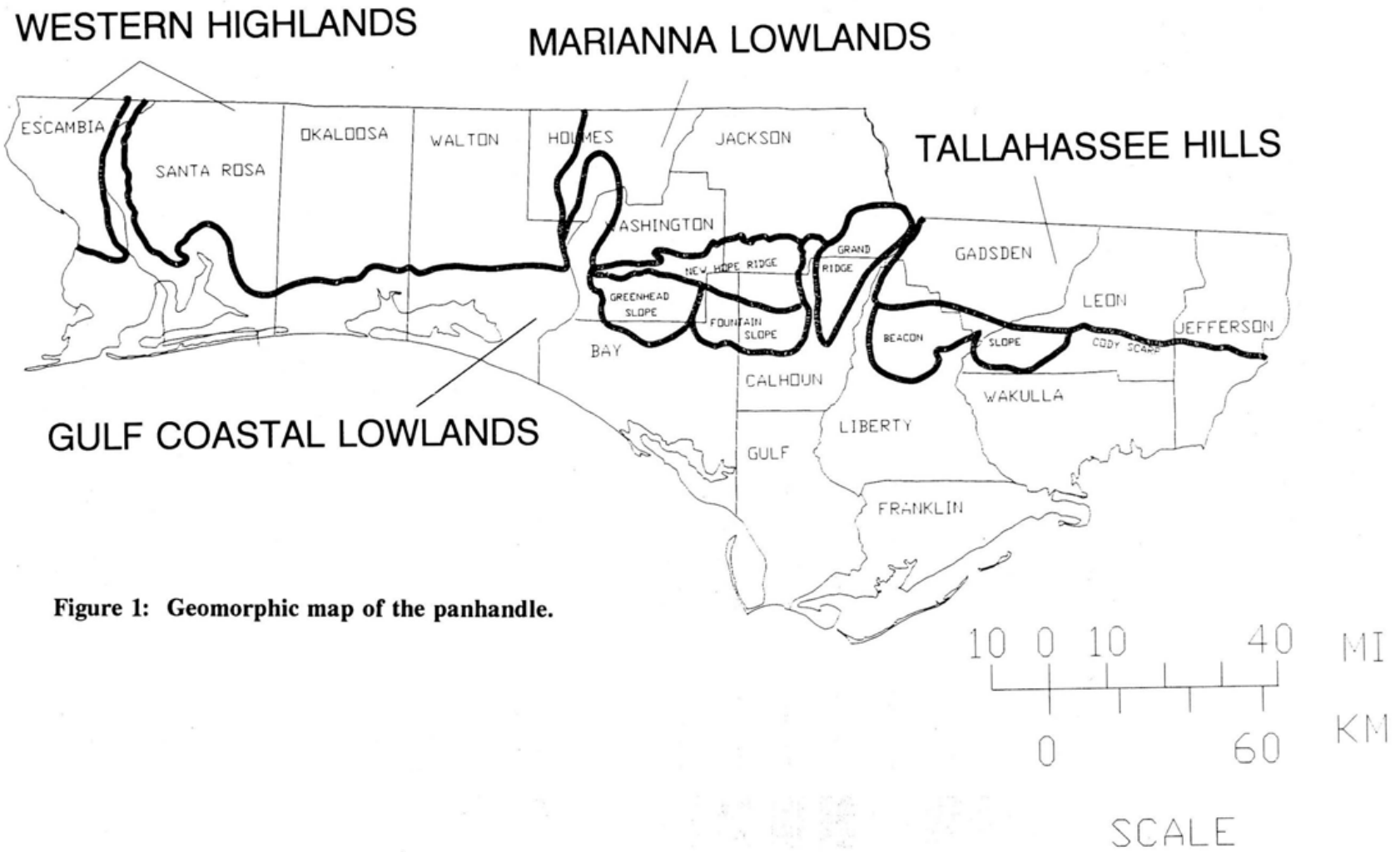
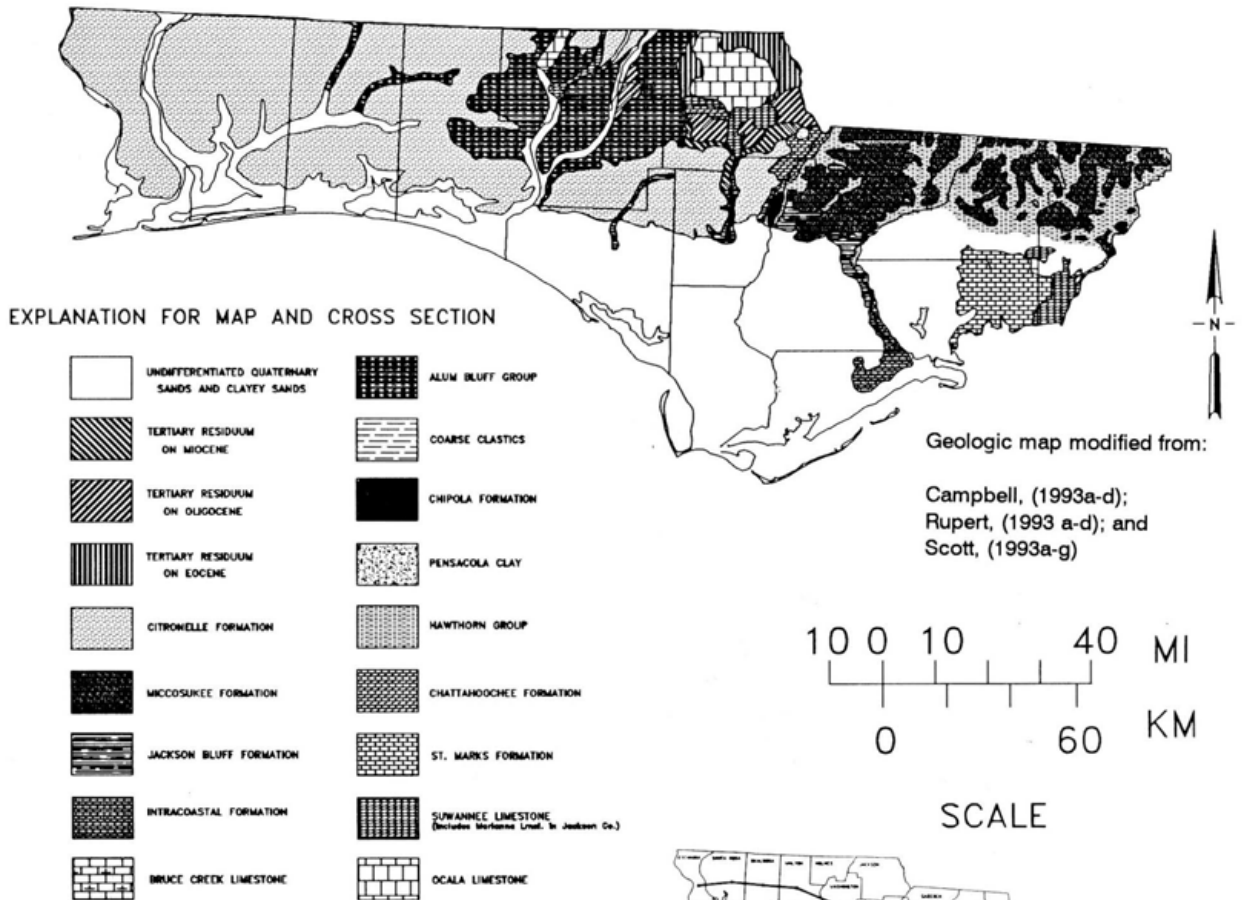


Figure 1: Geomorphologic map of the panhandle.



Vertical exaggeration is approximately 800 times true scale.

CROSS SECTION LOCATION

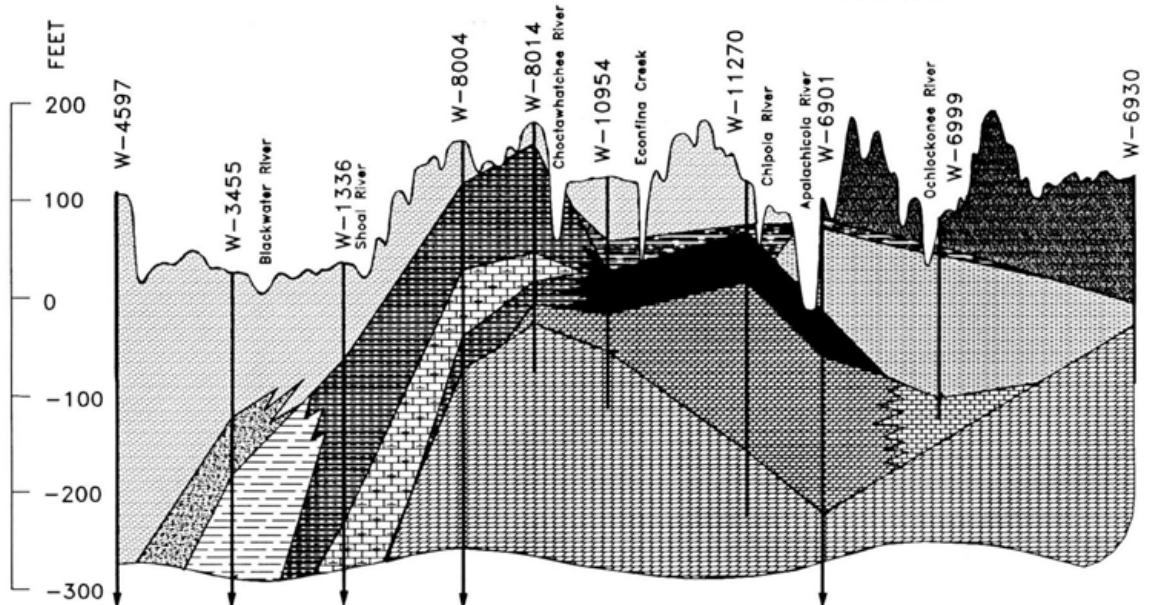


Figure 2: Geologic map and west-east cross section for the panhandle.

platform. Further west, limestone of the Intracoastal Formation rises to the surface along the eastern edge of Franklin County. Because of the extent of marine erosion that occurred in the Gulf Coastal Lowlands, many of the Middle Miocene and Pliocene units that would normally overlie these carbonate units are largely missing in the eastern panhandle. In the highlands extending across the northern edge of the panhandle, portions of these units remain, forming the hills characteristic of this region.

The stratigraphy of the panhandle is further complicated by a series of subsurface structural features (Figure 3). As they dip off the flank of the

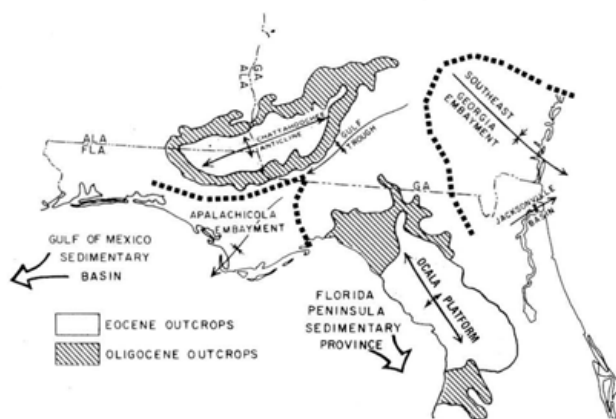


Figure 3. Geologic structures (from Schmidt, 1984)

Ocala Platform, the geologic units of the eastern panhandle locally dip generally west-south-westward into a structural basin named the Apalachicola Embayment, situated approximately under the Calhoun-Liberty County area. This basin-like depression accumulated thousands of feet of Mesozoic and Cenozoic sediments. The Oligocene and older units typically show a trough-like depression in their structure tops, corresponding to the axis of this basin. Just north-northwest of the embayment, in southern Alabama, is a structurally positive feature called the Chattahoochee Anticline. Like the Ocala Platform to the east, this dome-like feature brings Eocene and Oligocene carbonates close to the surface in Jackson and portions of Washington and Holmes Counties. It also tends to cause all the Eocene and younger sediments to shoal as they lap over the southern flank of this feature. West of the Chattahoochee Anticline, the sediments assume a west-southwestward dip into the Gulf of Mexico Sedimentary Basin.

The sediments composing the shallow formations in the Florida panhandle were deposited largely in shallow marine or marginal marine paleoenvironments. Although many, such as the Chipola Formation, are limestones, they generally contain significant percentages of quartz sand and clays, derived from the continental mainland to the north. Most fossil collecting sites are located in areas where local rivers or streams have cut down into fossiliferous strata. The most abundantly fossiliferous units are situated in the central panhandle. These include the Miocene and Pliocene sandy, clayey shell beds and limestones of the Chipola Formation, Alum Bluff Group, and Jackson Bluff Formation. Several of the major panhandle streams may be seen cutting through shallow portions of these formations in the cross section in Figure 2.

A Grand Tour of Panhandle Paleontology

In order to better examine the geology in this interesting region, let's proceed on a car trip, heading westward through the panhandle and discussing some of the fossilizing opportunities along the way. Figure 4 summarizes one possible route. The trip will commence at the Aucilla River, on U.S. Highway 98, in southern Jefferson County. Although fossils have been found in northern portions of Jefferson and Leon Counties, they are rare, and from an amateurs perspective, a southern route offers more opportunities.

The primary source of fossils in the eastern panhandle are the placer deposits of Pleistocene bone fragments trapped in pockets in the limestone streambeds. These are typically only accessible through diving. The Aucilla River, which forms the Jefferson-Taylor County boundary, is a dark-water stream flowing in a channel incised in 33 million year old Suwannee Limestone. Holes in the bottom and bars along its course have yielded numerous Pleistocene vertebrate fossils over the years. It alternately flows underground and reemerges several times along a line of sinks several miles north of Highway 98. Locals have worked the stream for years, so many of the easy finds are gone. However, careful searching with snorkeling or SCUBA gear should yield more. Much of the land along the river is private, and access points are limited. A canoe is a necessity for transiting this and most other northern Florida rivers. The best put-in points are at the bridges over the Aucilla, particularly at U.S Highway 27 near Lamont, and at the S.R. 257/14 bridge, 10 miles north of U.S. 98 on SR 14.

Panhandle Florida, continued

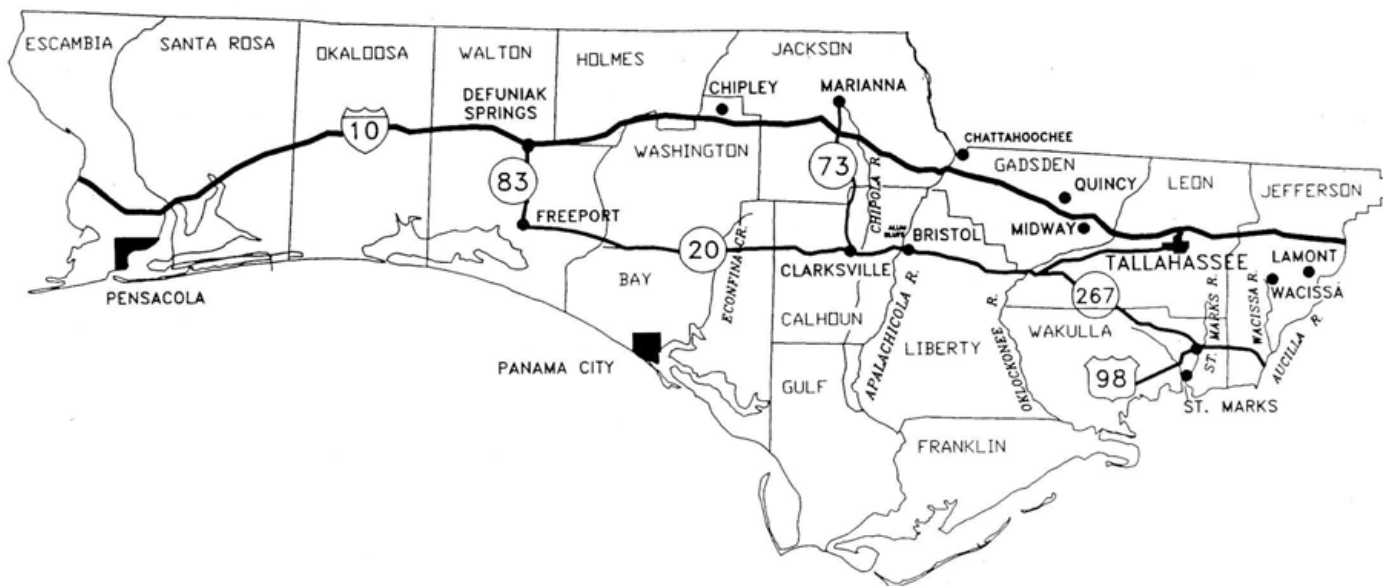


Figure 4: General panhandle fossil collecting route map.

A short distance further west, the spring-fed Wacissa River also flows over a sand and Suwannee Limestone bottom, ultimately joining the Aucilla just north of U.S. 98. Entry is at a small park in Wacissa, near the spring-fed headwaters (Take S.R. 59 north from U.S. 98 to Wacissa, then south to the small park and boat ramp). According to Brown (1988), the best collecting on the Wacissa is about three miles downstream, past the old logging dam. Here, Pleistocene vertebrates may be found in pockets in the river bottom.

West from the Aucilla River bridge, U.S. 98 traverses the broad, flat Gulf Coastal Lowlands, locally characterized by shallow limestone bedrock brought close to the surface over the western flank of the Ocala Platform. Boulders of this limestone are observable in places along the side of the highway. Oligocene mollusk and echinoid fossils are present in the limestone, but are hard to locate and remove, being locked up in the rock matrix.

Near the Jefferson-Wakulla County line, we cross the contact between the Suwannee Limestone and the overlying Miocene St. Marks Formation, stepping forward some 8 million years in geologic time. Like the Suwannee Limestone, the St. Marks is brought to the surface in a broad, flat, limestone plain. You would never notice the change from the highway. The seemingly endless pine flatwoods and swampy bays continue into Wakulla County, all part of the extensive karst area called the Woodville Karst Plain. The St. Marks Formation contains fossil mollusk molds, rare corals, and foraminifera, but few

extractable fossils. Therefore, as is true to the east, Pleistocene stream deposits are the main fossils in this region.

Five miles into Wakulla County, we reach the St. Marks River. Like the Aucilla, the St. Marks flows in a limerock channel containing holes and pockets that trap Pleistocene vertebrate fossils. These are the characteristically black bone fragments of animals such as turtles, glyptodonts, and horses. Just before the U.S. 98 bridge over the St. Marks, a turnoff on the north side of the road leads into a small Forest Service campground and boat ramp. This is a good place to put in a canoe and head upstream. The St. Marks has also been well worked over by divers, and one Tallahassee dive shop regularly takes their SCUBA classes there. It is best to travel a couple of miles upstream to look for fossils. During low water conditions, the water is very clear, and it's possible to snorkel for fossils. Watch out for motor boats however. Also, avoid the Indian artifacts, and do have your vertebrate permit with you...the river is patrolled by both Marine Patrol and Fish and Game officers. Even if you don't find anything fantastic, it is a very beautiful river, flanked by dense forest, teeming with turtles, birds, otters, and yes, alligators.

From the St. Marks River, we head west again on U.S. 98, passing the two small restaurants, Forest Service vehicle yard, and the few houses comprising the once-bustling town of Newport. At the western edge of Newport, turn right (north) on S.R. 267, and head northwest to the small hamlet of Wakulla.

Mansfield (1937) reported finding numerous Miocene mollusk species in the St. Marks Formation in the vicinity of Wakulla. Limestone is not visible at the surface here today, and Mansfield may have sampled "float" boulders or rock brought up by excavation work. Any mollusks will most likely be molds in the rock and probably not worth the effort to look for unless you plan to make latex casts of them.

If your schedule permits on our geologic tour, two interesting side-trips are possible from Wakulla. At Natural Bridge, the St. Marks River siphons underground and emerges again 6-tenths of a mile to the south. The emergence and the area immediately downstream have been an excellent place to dive for Pleistocene vertebrates, but the surrounding land is private property. If you would like to see some fossiliferous St. Marks Formation close-up, and also see some more local history, head south from Wakulla on S.R. 365 to Ft. San Marcos de Apalachee, in the town of St. Marks. This historic fort, or what's left of it, is situated at the confluence of the Wakulla and St. Marks Rivers. The remaining walls of the structure are constructed of blocks of St. Marks limestone.

Traveling northeast from Wakulla on S.R. 267, we pass Wakulla Springs on the left. This is an interesting stop if time permits. Now a state park, the springs offer a 1930's vintage lodge and restaurant, swimming area, and glass-bottom boat tours over the huge Wakulla Spring, headwaters for the Wakulla River. Numerous Pleistocene vertebrates have been found in the spring pool, including the famous mastodon "Herman", on display at the Museum of Florida History in Tallahassee. The park is protected, and you can't collect fossils here now.

Highway 267 continues northwestward, past Camp Indian Springs, a large spring-fed sinkhole. This portion of the Woodville Karst Plain is peppered with sinkholes and water-filled caverns, some penetrating through the St. Marks into the deeper Suwannee Limestone. Further up the road, we begin to pass through low sand hills and the terrain becomes more rolling. These gentle sand hills are ancient dunes and bars, formed by the high-standing Pleistocene seas which covered this area.

As we pass the flashing light at U.S. 319 and continue northwestward on 267, we leave the karst plain and enter a topographically higher zone of sandy flatlands called the Apalachicola Coastal Lowlands. The surface change is not dramatic, but in the subsurface, the first vintages of the fossiliferous

units of the central panhandle appear. Below the sandy surface sediments lie the Miocene Hawthorn Group and Pliocene Jackson Bluff Formation. The Hawthorn Group sediments, which underlie much of the Northern Highlands area, extends westward to the Apalachicola River and southward into this part of Wakulla County. The Jackson Bluff Formation, a generally sandy, shelly unit, dips and thickens to the west-southwest from west-central Wakulla County; it occurs in stream cuts through portions of the central panhandle, and as we will see, offers some good invertebrate fossil collecting.

S.R. 267 joins S.R. 20 in western Leon County, near the southern shore of Lake Talquin. Two Pliocene fossil hunting opportunities lie near this juncture. Four miles east of the intersection, Harvey Creek passes under S.R. 20 as it meanders southeastward out of the National Forest. In places, the creek cuts down into the Jackson Bluff Formation, exposing some mollusk-rich sediments. About a mile and a half west of the S.R. 267/S.R. 20 intersection is the only entrance to Jackson Bluff, the type location for the formation of the same name. Jackson Bluff is situated on the east bank of the Ochlockonee River, just below the hydroelectric dam which forms Lake Talquin. The bluff is on the electric plant property, currently owned by the City of Tallahassee. You must turn into the main plant gate off S.R. 20 just before the bridge over the river. Entry is kind of a hit or miss proposition...if the gate is closed you're out of luck. If it's open, you can follow the road around to the plant building, and ask permission to continue on to the bluff from someone in the electric plant office. The paved road ends at the dam, and continues on to the bluff as a dirt road. An old borrow pit, which you must look closely for, extends to the edge of the bluff and exposes Pliocene shelly, clayey sands.

From the Ochlockonee River, our geological journey takes us westward on S.R. 20, along the southern edge of a region offering some of the best Miocene and Pliocene invertebrate fossil collecting in Florida. The gently-rolling hills north of the highway are dissected by numerous deeply-incised creek and stream valleys, which in some areas expose fossiliferous Miocene and Pliocene units. Gardner (1926-1950), in her classic work on Alum Bluff Group mollusks, lists over 50 collecting localities between Leon and Okaloosa Counties (Figure 5). Most of these are stream and creek bank sites, and not all are still accessible to individuals. As with the rest of Florida, the land is largely private property,

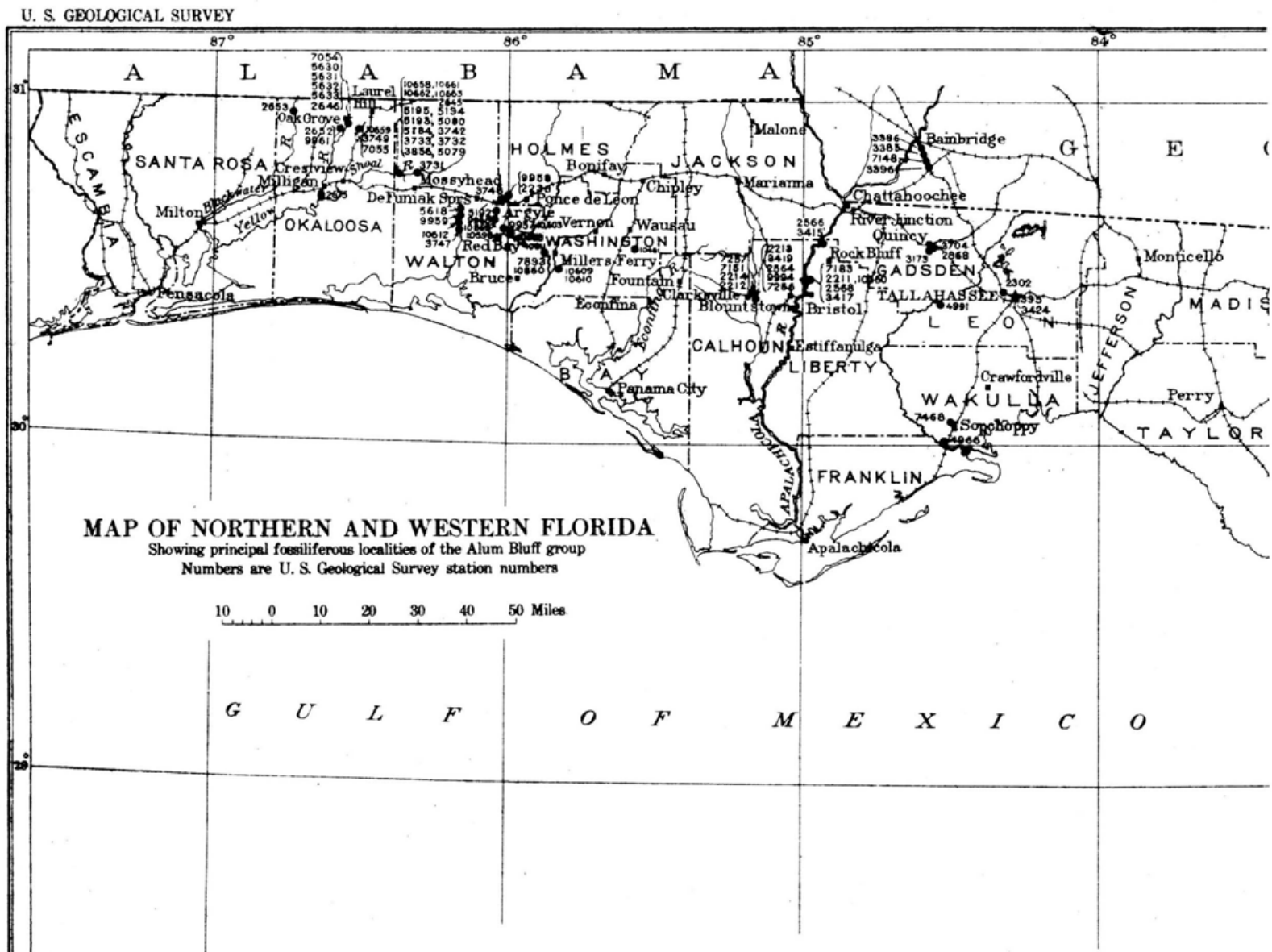


Figure 5: Collecting stations of Gardner (1926-1950).

and a boat or canoe is required to access many of the sites. There are a few, however, accessible by foot from a roadway; we will discuss these as we go.

As we cross Liberty County, the land surface itself belies the increasingly complex geology of the subsurface. Surface sediments are predominantly Pleistocene and Recent sands and clayey sands. These are in turn underlain by Pliocene Jackson Bluff Formation and by older, deeper Miocene Hawthorn Group and Chipola Formation sediments. Miocene fossils have been found in Telogia Creek, at the northern edge of the county, but for the most part the center of the county offers little to the collector. The western edge of the county is quite a different story. Here the eastward-migrating Apalachicola River has carved a series of steep bluffs, some attaining relief of 150 feet. These bluffs also mark the western edge of the Tallahassee Hills.

Florida's most spectacular geologic exposure occurs along a portion of these bluffs situated about two miles north of Bristol, at Alum Bluff (Schmidt, 1985). Here, approximately 120 vertical feet of strata are exposed, representing some 20 million years of geologic time. It gives the onlooker a visual sampling of many of the normally subsurface stratigraphic units underlying the panhandle. The basal unit in the exposed bluff is mollusk-rich Miocene Chipola Formation, which at low to medium water levels forms a small bench below the bluff. Fossil mollusks, along with occasional corals, and even rarer vertebrate fossils may be found while by walking this bench. The Chipola is overlain in turn by younger Miocene Alum Bluff Group/Hawthorn Group sands and clayey sands. Miocene palm leaf fossils of the species *Sabellites apalachicolensis* are found in this unit. Overlying the Miocene units are Pliocene Jackson Bluff Formation and Citronelle Formation sediments. Alum Bluff is owned by the Nature Conservancy. The land access, from State Road 12 out of Bristol, is gated and locked. Entry is by permission only. In the past, the Conservancy caretaker has allowed individuals in to hunt fossils. However, they are now leery of strangers with any kind of digging equipment, ever since they caught a woman digging up rare and endangered *Torreya* tree seedlings several years ago. It's possible to launch a boat at Bristol and approach the bluff from the river. While it is technically State property up to the mean high water line, keep in mind that the bluff itself is private property. Also, watch out for barges rounding the bend in the river..they have been known to hit the east bank of the river.

Heading west on S.R. 20 from Bristol, we cross the high bridge over the Apalachicola River. Much of the west end of the bridge passes over swampy floodplain. The west bank of the river is noticeably low and devoid of bluffs, and represents the ancient, flat-lying floodplain deposits left behind as the river cut eastward.

An excellent fossil collecting opportunity lies 5 miles north of the town of Clarksville in Calhoun County. Turn north off S.R. 20 onto S.R. 73 at Clarksville and proceed north to the bridge over Ten Mile Creek. Cross the bridge and turn off the road to the right. Ten Mile Creek contains exposures of mollusk-fossiliferous Jackson Bluff and Chipola Formation sediments, best observed by walking the streambed. Like most north Florida fossil collecting, screenwashing the sediments is a must. Ten Mile Creek joins the Chipola River about 2 miles east of S.R. 73. The area around the intersection of these streams is the type area for the Chipola Formation, and this unit is exposed along the Chipola River at low water stage. Some fine specimens of Miocene mollusks and corals are found on the west bank of the Chipola River, just north of Ten Mile Creek. Those of you who attended our Fall Meeting in Tallahassee a couple years ago remember that we went to Farley Creek, a tributary to the Chipola on the east side of the river. This region has been collected extensively by Emily and Harold Vokes of Tulane University, and the Chipola sediments have yielded hundreds of mollusk species. If you wish to try and launch a canoe on the Chipola River, there is a dirt road on the east side of S.R. 73 a short distance north of Ten Mile Creek that winds down to the river. There is also a ramp downstream at the S.R. 20 bridge. Further north in Jackson County, Pleistocene vertebrate fossils may be found in the limestone bottom of the Chipola River. This site involves a trip of some 25 miles north from S.R. 20, and so is discussed below in the return trip section.

The panhandle area west of the Chipola River contains many classic invertebrate sites originally studied by a secession of authors, including Mansfield, (1930, 1932, and 1935) and Gardner (1926-1950). These fossiliferous stream and springhead sites include the Gilbert Farm, south of Chipley in Washington County, Red Bay, Cosson Farm, and the Shoal River in Walton County, and the Yellow River in Okaloosa County. Some of these sites were the type localities for older formations that are now generally lumped into the Alum Bluff Group. These formations were originally

erected based on the unique molluskan faunal assemblage present at each locality. I don't emphasize these sites because they are on private property, and the current status of accessibility is uncertain. However, if you are in the area anyway, it might be worth visiting and asking permission to collect from the current owners. Figure 6 provides directions and notes these and other classic panhandle sites.

Brown (1988) discusses some other, more publicly-accessible sites in this area. Both Chipola Formation shells and vertebrates may be found in Econfinia Creek, which flows under S.R. 20 in Bay County, about 20 miles west of Clarksville. He recommends putting a canoe in at S.R. 20 and floating south to where S.R. 388 crosses the river, about 4 miles south. The stream is best explored with mask and fins.

Several of the classic collecting sites occur in Walton County (see Figure 6), and Brown (1988) describes one site north of DeFuniak, which I mention below. By the time you reach Okaloosa County, fossil collecting sites are dwindling rapidly westward. The Oak Grove locality, situated on the Yellow River north of Crestview (see Figure 6), is the western-most of the fossiliferous, Alum Bluff Group exposures. A quick glance at the cross section in Figure 2 tells why. The fossiliferous Alum Bluff Group sediments are dipping rapidly southwestward at this point, leaving only a thick series of sands and clayey sands at the surface over the western-most panhandle. Some of these surface sand units are comprised of the reddish-colored Citronelle Formation, which caps much of the Western Highlands. Rare petrified wood is occasionally found in the Citronelle, but not with enough frequency to be of interest to the amateur collector. As such, our westward journey is complete, and it's time to consider the return trip. One option is to return the way you came, perhaps revisiting some of the same sites. Or you cut north to Interstate 10 on S.R. 83 from S.R. 20, in Walton County. S.R. 83 meets I-10 at DeFuniak Springs.

Brown (1988) describes a good Miocene vertebrate fossil site in this area at Camp Creek, north of DeFuniak Springs. Take S.R. 83 north for 8 miles to County Road 183A on the right. Take 183A 4.5 miles to the bridge over Camp Creek. Park and wade the streambed for fossils. You can then retrace the route back to DeFuniak Springs, and proceed back east on I-10.

This route winds through the red clayey sand hills of the Western Highlands. When you reach central

Washington County, you are in the Marianna Lowlands. Due to the relatively shallow carbonate rock, karst features become more common. Falling Waters State Recreation Area, a few miles south of the Chipley exit, features an interesting tubular limestone sinkhole, into which a small water fall cascades. In this area, Oligocene and Miocene carbonates are near the surface, as they lap up onto the southern flank of the Chattahoochee Anticline. The limestone terrain becomes even more obvious further east, as you approach Marianna. The dry caves at Florida Caverns are also worth a visit. These caves are developed in the Eocene Ocala Limestone, and are perched high and dry above the water table. The Marianna area offers the collector a few opportunities. The exit off I-10 heads straight north into the town. A couple of private limerock quarries are situated northwest of Marianna (see Figure 6). Although the current status of each is unknown, it might be worth checking them out. These quarries produced from the Ocala Limestone, which contain specimens of the large foraminifera *Lepidocyclina* and *Asterocyclina*, as well as the rare nautiloid *Aturia alabamensis*. Remember to obtain permission before entering any of the quarries.

Brown (1988) also suggests looking for Pleistocene vertebrate fossils in upper reaches of the Chipola River near Marianna. River access is available at a boat ramp south of U.S. 90. Take U.S. 90 about 2.5 miles east from Marianna, and turn south on S.R. 71. Travel another 2.5 miles to Oakdale, and turn west on C.R. 280A. Proceed about 1.5 miles to a boatramp at the river. Search the bottom north and south of the ramp.

At this point, you may return to I-10 or take U.S.90 east to Tallahassee. Both routes traverse the rolling Tallahassee Hills. If you pass through Chattahoochee on U.S. 90, you have an opportunity to see the Chattahoochee Formation exposed in a roadcut along the entrance road to Jim Woodruff Dam, on the north side of town. Northern Gadsden County, in the vicinity of Quincy and Midway, also contains a number of Fuller's Earth clay mines, which have yielded both vertebrate and invertebrate fossils. Unfortunately, most of the mines are inaccessible to the general public. If your journey home takes you through Tallahassee, stop and see the Mastodon exhibit at the Museum of Florida History, 500 S. Bronough Street, in Tallahassee. You can also stop in at the Florida Geological Survey, at the corner of Woodward and Tennessee Streets, on the F.S.U. campus. We have a Miocene dugong on display,

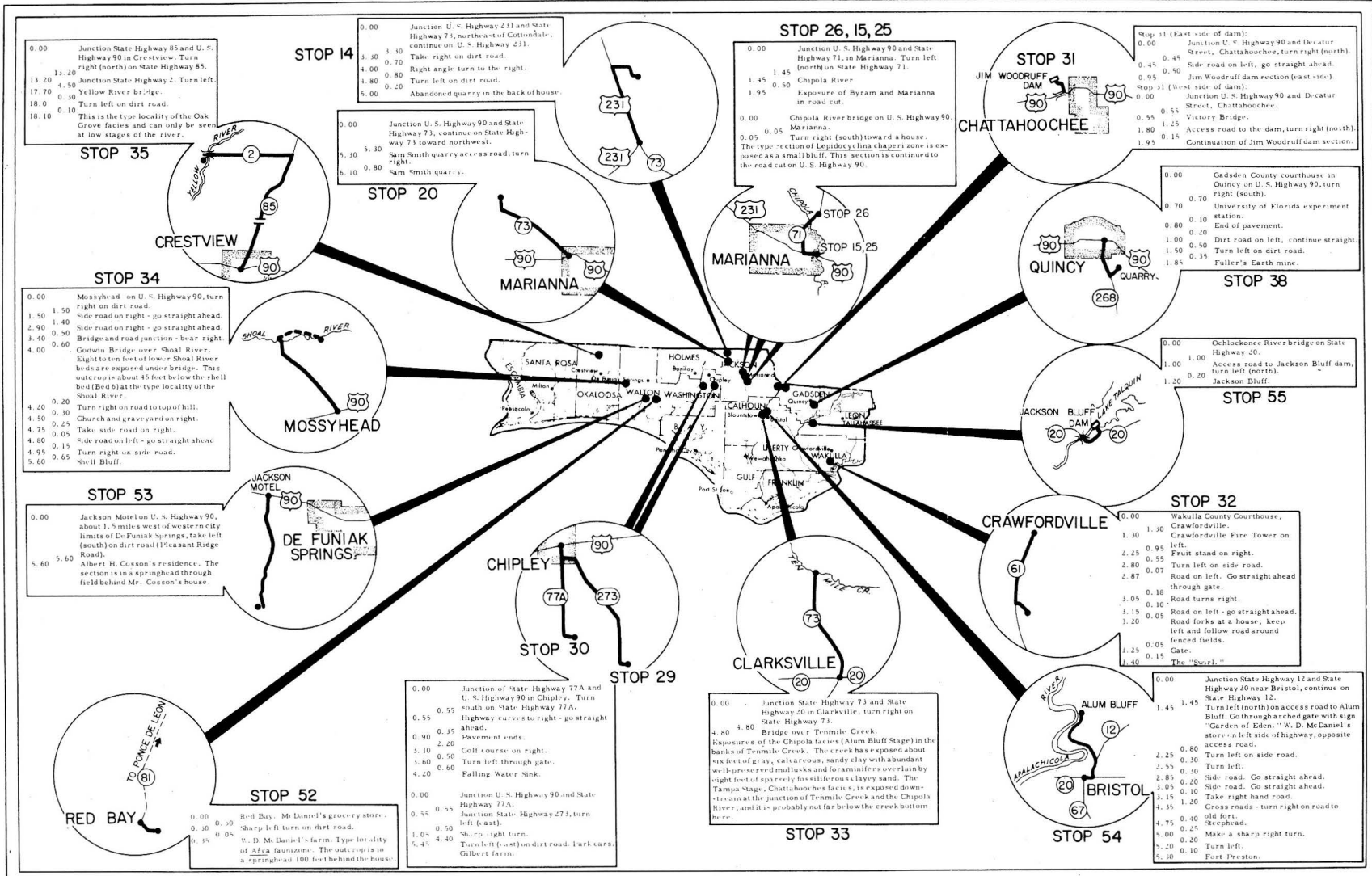


Figure 6: Classic panhandle localities (from Puri and Vernon, 1964).

along with other Florida minerals and fossils, and you can pick up some of our publications on the geology of Florida in the library.

In the next issue we will examine the geology of the northern Florida peninsula

References

Brown, R. 1988, Florida's Fossils, Guide to Location, Identification and Enjoyment: Sarasota, The Pineapple Press, 208 pages.

Campbell, K., 1993a, Geologic map of Calhoun County, Florida: Florida Geological Survey Open File Map Series 20.

_____, 1993b, Geologic map of Bay County, Florida: Florida Geological Survey Open File Map Series 19.

_____, 1993c, Geologic map of Holmes County, Florida: Florida Geological Survey Open File Map Series 24.

_____, 1993d, Geologic map of Washington County, Florida: Florida Geological Survey Open File Map Series 18.

Gardner, J., 1926-1950, The molluscan fauna of the Alum Bluff Group of Florida, Parts A-I: U.S. Geological Survey Professional Paper 142, 709 p., Parts A-D, 1926; Part E, 1928; Part F, 1937; Part G, 1944; Part H, 1947; Part I, 1950.

Mansfield, W., 1930, Miocene gastropods and scaphopods of the Choctawhatchee Formation of Florida: Florida Geological Survey Bulletin 3, 189 p.

_____, 1932, Miocene pelecypods of the Choctawhatchee Formation of Florida: Florida Geological Survey Bulletin 8, 240 p.

_____, 1935, New Miocene Gastropods and Scaphopods from Alaqua Creek Valley, Florida: Florida Geologic Survey Bulletin 12, 50 p.

_____, 1937, Mollusks of the Tampa and Suwannee Limestones of Florida, Florida Geological Survey Bulletin 15, 334 p.

_____, 1993, Geologic map of Gulf County, Florida:

Florida Geological Survey Open File Map Series 23.

Puri, H., and Vernon, R., 1964, Summary of the Geology of Florida and a guidebook to the classic exposures: Florida Geological Survey Special Publication No. 5 (revised), 312 p.

Rupert, F., 1993a, Geologic map of Franklin County, Florida: Florida Geological Survey Open File Map Series 21.

_____, 1993b, Geologic map of Jefferson County, Florida: Florida Geological Survey Open File Map Series 31.

_____, 1993c, Geologic map of Liberty County, Florida: Florida Geological Survey Open File Map Series 26.

_____, 1993d, Geologic map of Wakulla County, Florida: Florida Geological Survey Open File Map Series 30.

Schmidt, W., 1984, Neogene stratigraphy and geologic history of the Apalachicola Embayment, Florida: Florida Geological Survey Bulletin 58, 146 pages.

_____, 1985, Alum Bluff, Liberty County, Florida: Florida Geological Survey Open File Report 9, 11 p.

Scott, T., 1993a, Geologic map of Escambia County, Florida: Florida Geological Survey Open File Map Series 14.

_____, 1993b, Geologic map of Gadsden County, Florida: Florida Geological Survey Open File Map Series 22.

_____, 1993c, Geologic map of Jackson County, Florida: Florida Geological Survey Open File Map Series 25.

_____, 1993d, Geologic map of Leon County, Florida: Florida Geological Survey Open File Map Series 28.

_____, 1993e, Geologic map of Okaloosa County, Florida: Florida Geological Survey Open File Map Series 16.

_____, 1993f, Geologic map of Santa Rosa County, Florida: Florida Geological Survey Open File Map Series 15.

_____, 1993g, Geologic map of Walton County, Florida: Florida Geological Survey Open File Map Series 17.



FLORIDA PALEONTOLOGICAL SOCIETY, INC. APPLICATION FOR MEMBERSHIP

Mail completed form to: Florida Paleontological Society
Florida Museum of Natural History
University of Florida
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FAMILY AND COUPLES PLEASE LIST NAMES OF ALL APPLICANTS IF NEW.
PLEASE COMPLETE PERSONAL FACT SHEET BELOW IF NEW OR CHANGES
HAVE OCCURRED SINCE PREVIOUS YEAR.

NOTE!!! MEMBERSHIPS ARE FOR A CALENDAR YEAR AND ARE DUE NO LATER THAN
JANUARY 1 EACH YEAR! PLEASE RENEW ON TIME!

BIOGRAPHICAL FACT SHEET

1. NUMBER OF YEARS OF INTEREST IN PALEONTOLOGY _____
2. WHICH BEST DESCRIBES YOUR STATUS: COLLECTOR _____ OCCASIONAL DEALER _____
FULL TIME DEALER _____ PROFESSIONAL POSITION _____ JUST STARTING _____
3. PRIMARY AREAS OF INTEREST:

	<u>VERTEBRATE</u>	<u>INVERTEBRATE</u>	<u>BOTANY</u>	<u>MICRO</u>
PLEISTOCENE	_____	_____	_____	_____
PLIOCENE	_____	_____	_____	_____
MIOCENE	_____	_____	_____	_____
OLIGOCENE	_____	_____	_____	_____
EOCENE	_____	_____	_____	_____
EARLIER	_____	_____	_____	_____

4. LIST ANY PREFERRED TYPES (Horses, Sloths, Echinoids 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, PREPARATION, 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!

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 cooperation 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 IX

- 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.

ANNUAL DUES for the FPS are \$5.00 for Associate Membership (persons under age 18) and \$15.00 for Full Membership (persons over age 18) and Institutional Subscriptions. Couples may join for \$20.00, and Family memberships (3 or more persons) are available for \$25.00. A Sustaining membership is also available for \$50. Persons interested in FPS membership need only send their names, addresses, and appropriate dues to the Secretary, Florida Paleontological Society, Inc., at the address inside the front cover. Please make checks payable to the FPS. Members receive a membership card, the FPS newsletter, the Papers in Florida Paleontology, and other random publications entitled to members.

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