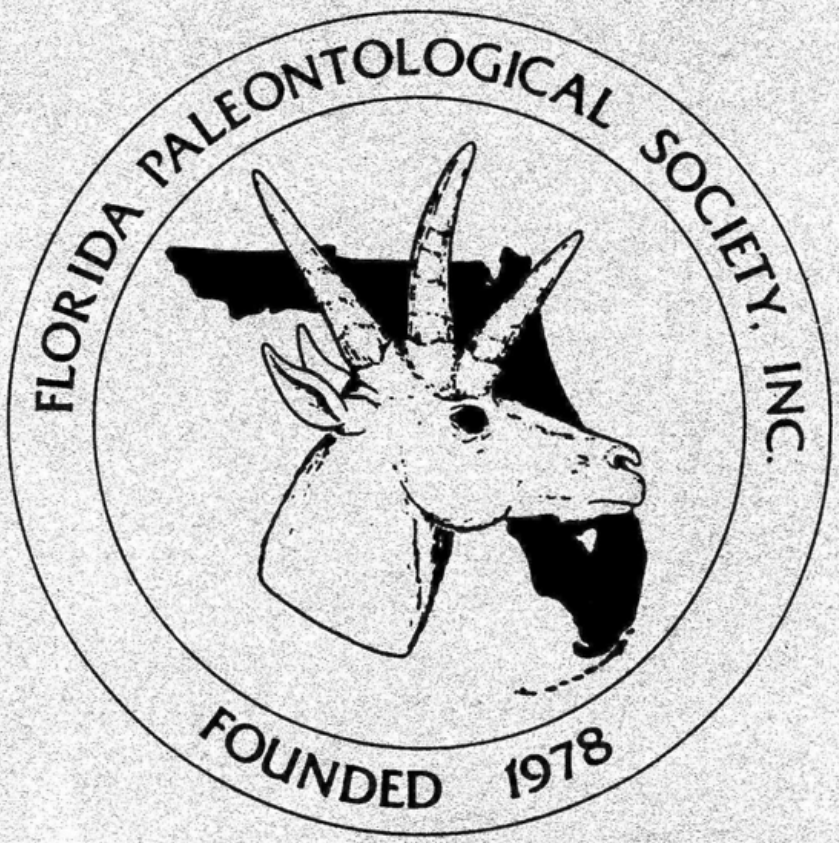
Florida Paleontological Society, Inc.

Newsletter



Volume 10 Number 2 Spring Quarter 1993

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Please Address: Secretary, Florida Paleontological Society, Inc.
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FLORIDA PALEONTOLOGICAL SOCIETY INC. NEWSLETTER

Volume 10, Number 2 Spring Quarter 1993

CONTENTS

Message from the Editor

We have a pleasantly thick issue of our newsletter this time thanks to those of you who have begun to respond to our requests for input. Several members have taken the time to submit articles of their own, which the editors appreciate very much. Keep your writings coming so that we can develop a reserve of them!

We have the beginnings of what could be a regular feature article this issue. Gary Morgan has written the first (and hopefully not the last) "What's In A Name" column. It is an excellent opportunity for members to write in with their questions on Florida's rock and fossil terminology. It is intended to be a question and answer column, much the way Russ McCarty's "Prep Talk" started out. Fortunately Russ has been good at carrying on a one-sided conversation, because questions have not been coming in. Surely you readers don't know it all! Let's try and show both of these talented writers that we care about what they are doing for us and provide some questions for them.

Finally, in past issues of the newsletter we have provided members full addresses, and sometimes phone numbers in the annual membership lists and in the quarterly member notes sections. It was recently brought to my attention that the FPS Board of Directors voted sometime in the distant past to list only member names in the newsletter. This was intended to protect members' privacy. Therefore, this is the last issue in which any members full addresses will appear.

Frank Rupert

F.P.S. Happenings

Spring Meeting Report

The FPS Spring Meeting was held April 16 and 17 in Clewiston, on the balmy southern shore of Lake Okeechobee. Clewiston is a respectable little sugarcane town, complete with an annual Sugar Festival which conveniently corresponded with our meeting weekend there.

As many of you know by now, we had a minor problem with the local K.O.A. campground, which was to be the meeting headquarters and barbecue pit. Unfortunately, they backed out on their food offer at literally the last minute. We are eternally grateful to Marilyn Whetzel, who jumped into action for a second time and rounded up the Clewiston Country Club as an alternative meeting site. The Country Club proved to be a very pleasant second choice, with a meeting room of just the right size and good buffet style food. Friday evening's social well very well, with drinks and light hors d'oeuvres.

Saturday morning, we all met at the KOA for our caravan to the Bergeron Star Ranch Pit. This pit is situated about 29 miles southeast of Clewiston on the west side of U.S. 27. Some members who already knew where the pit was were there waiting for us when we arrived. After checking in at the pit office and showing our proof of insurance cards, we proceeded to the high spoil piles by the water filled pit.

The abundance of Pleistocene fossil shells comprising the spoil piles was immediately apparent. Beautifully preserved cone shells, arcas, pectens, moon snails, whelks, conchs and many others were everywhere. With diligent searching, one could also find many beautiful small mollusks, as well as corals and echinoids. Several people found Gylptodont scutes and a few shark teeth.

Dr. Ed Petuch joined us at the pit, and presented an impromptu talk on the local stratigraphy and the paleoenvironments as indicated by the shell species present. He also was available throughout the day to answer questions and identify species. We all appreciate the time he took to be with us.

It was a simple matter to fill several pails with fossils. As the day wore on, it became more a matter of keeping only the best specimens and throwing back the others. The collecting ended at 3:00 P.M., and all but a few stragglers hit the road back to Clewiston.

The evening meeting featured a delicious buffet dinner at the country club, followed by an outstanding talk and slide presentation by Dr. Petuch. His talk was quite interesting and entertaining, and he provided us one interpretation of what the ancient environments in the south Florida area were like.

All told, the weekend proved to be a success. Many thanks again to Marilyn Whetzel and Roger Portell for their efforts in planning the weekend's events and food.

From the Secretary...

by Eric Taylor

Member Notes

IF YOUR LABEL SHOWS 92 AS YOUR LAST YEAR PAID, YOU WILL NOT RECEIVE FURTHER PUBLICATIONS WITHOUT PAYING YOUR DUES! RENEW NOW!

This column is intended to highlight news and information on the membership of FPS. Anyone who has an article published, a story in the newspaper, or wins an award should send a copy of the information to the Secretary so that recognition can be granted here.

Membership Status

As of May 15, 1993, the Florida Paleontological Society consisted of:

12 Institutional Members.
29 Courtesy Members (receive complementary newsletters)
1 Honorary Member
1 Sustaining Member
25 Subscribers

327 Individual Active Members
19 Couples Members (two per listing)
6 Family Members (two adults per listing)

460 Total Membership

In Memoriam: It is with regret that we announce the death of FPS member Ruth S. Jensen on January 17, 1993. Ms Jensen lived in Savannah Georgia. No details are known.

New Members:

The following individuals, couples, families or institutions have become FPS members since January 20, 1993.

Maag, Lisa
Gainesville, FL

Jacques, Thomas
Ft. Pierce, FL

Savoie, Lauren
Palm Bay, FL

Derouin, Ed
Altamonte Springs, FL

Franklkin Crane
Austin Paleo Society
Austin, TX

Don O'Neill
Central TX Paleo Society
Pflugerville, TX

Spears, Rick
Athens, GA

Moore, Ralph R.
Sanibel, FL

Yule, John Martin
and Family
Lecanto, FL

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c/o Hidalgo Rodriguez
Laredo, TX

Simpson, Larry C.
Oklahoma City, OK

Lane, Renita, Librarian
Dept. Of Environ. Qual.
Jackson MS

Jewell, Ralph
Chicago, IL

Cornish, Kenton
Pensacola, FL

Mathura, Nancy
Drayton Plains, MI

Gilbert, Jenny
Palm Bay, FL

Harper, Don E.
Cape Coral, FL

Yaun, Jeffery B.
Mayport, FL

Punnett, Victoria
Ft. Myers, FL

Carstenn, Susan
Silver Springs, FL

Barthelemy, Virginia
Tampa, FL

Sosnowski, Robert
& Ferriter, Amy
Delray Beach, FL

Tatum, Carlos & Donna
Tampa, FL

Baalke, Ron
Atladenu, CA

McCall, Lawton & Sandra
Palm Springs, FL

Dunnam, Lois W.
Sanibel, FL

Dabbs, Clyde
Ft. Myers, FL

Heilmeier, Tom
Margate, FL

Spitzkeit, James W.
Gonzales, LA

Johnson, Richard A.
Tallahassee, FL

Nesbit, Craig
Farmington, MO

Irvin, Sherry A.
Indian Harbour Beach, FL

Malin, Edwin
Indian Harbour Beach, FL

Marr, J. William & Eleanor K.
Poughkeepsie, NY

Sherman, Joan
Mt. Plymouth, FL

Address changes:

Note: *For privacy reasons, this is the last issue in which full addresses for members will appear. If a current FPS members needs to contact another member, the FPS Secretary can provide address information on an individual basis.*

Taylor, Craig C.
1000 N. Lamar #1106
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Marks, Barbara Lee
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North Port, FL 34287

Crabb, Alan
711 8th ST SE
Independence, IA 50644-3041

Swanson, C. Gail
Rt. 2 Box 189
Marathon, FL 33050

Pankowski, Mark
2975 Bayshore Dr.
Tallahassee, FL 32308-2260

Taylor, Robert
Pack-N-Mail Jesus 2-A
San Miguel De Allende
37700 MEXICO

Prusak, Zackary A.
164 Wekiva Park Dr.
Sanford, FL 32771

Lamont, Robert F.
1 Kitchawan Rd.
Pound Ridge, NY 10576

James, Rodney W.
3004 Tree Corners Pky
Norcross GA 30092-3122

Schafer, Edwin T., Sr.
15709 Polk Circle
Omaha NE 68135

Moss, Dorothy
74 Lake Dr.
Midway, GA 31320-9612

Flanigan, Valerie
1731 Camelia Lane
Naples, FL 33942

Special Announcement!

Starting next issue, those autobiographical data sheets you turn in with your membership renewal will be used for a member highlights forum, where several members' interests and accomplishments will be discussed each issue!

First Annual FPS Scholarship Recipient Named

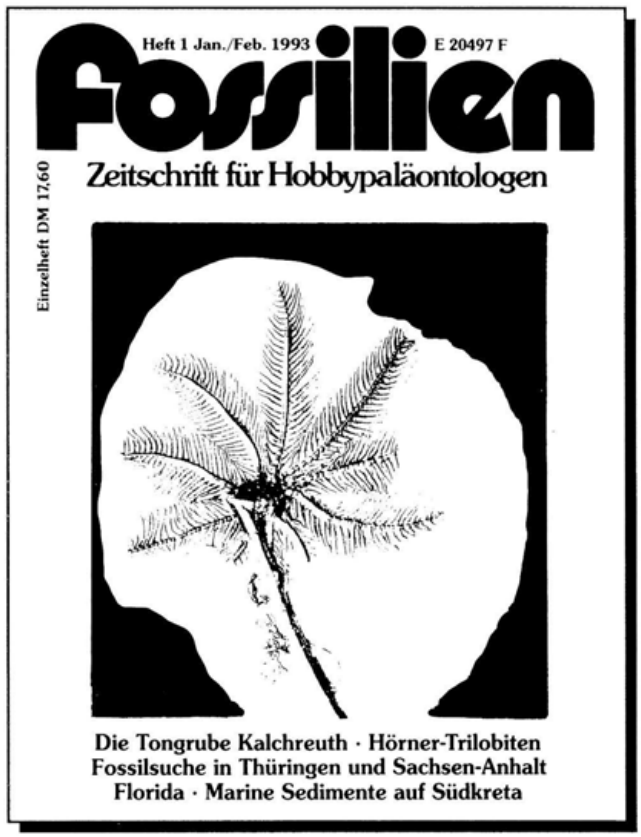
Craig Oyen, University of Florida Ph.D graduate student, is the recipient of the first annual FPS Scholarship Award. He was awarded a check for $500 with which to fund his ongoing study. Craig was selected from this year's applicants by a three member award committee, comprised of one academic and two amateur FPS members. His project is entitled *Echinoid evolution: Interpreting heterochronic, ontogenetic, and paleoecologic patterns*. Craig plans to use the money in his research for x-radiography prints and thin section preparation of both living and fossil echinoids. Congratulations Craig!

A call for proposals for next year's scholarship award will appear in the Fall FPS Newsletter.

Book Bits

FPS member Robin Brown, author of *Florida's Fossils*, forwarded a very interesting German fossil hunting magazine to us (see illustration). It is written entirely in German, and contains outstanding B/W and color fossil photos. There is apparently a strong interest in fossil hunting in that country, and this particular issue contains an article on fossiling in south Florida. Many of the winter tourists in south Florida are German, and a fair number probably hit the shell pits while they are here. As Robin points out, contact between FPS members and our German friends might be very interesting and productive. Although we're lacking in German translation skills, we believe the editor's name and address is as follows:

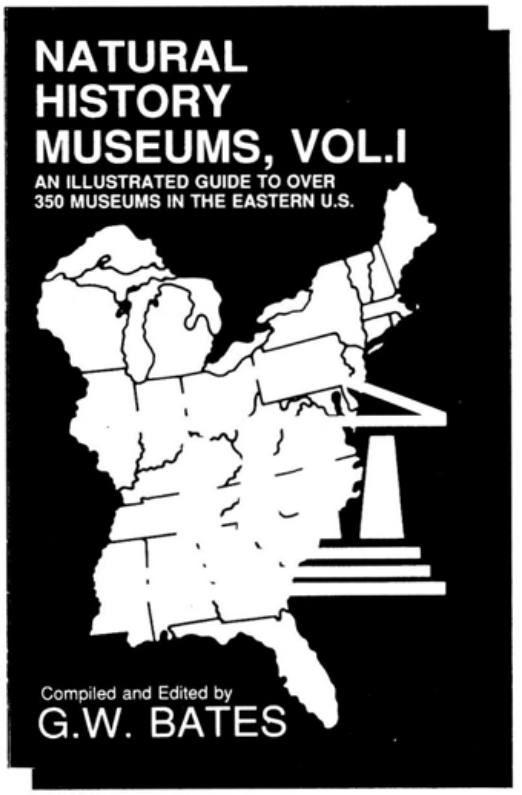
W.K. Weidert, editor, Fossilien, Goldschneck-Verlag, Postfach 12 65, 7054 Korb, Germany, Tel. 04 31/54 90 73 Fax 04 31/54 90 74.



For the archaeology enthusiasts among us, the Time Sifters Archaeology Society is offering a new book by I. Mac Perry entitled *Indian Mounds You Can Visit*. This 320 page paperback includes

details on 165 sites, Everglades to Suwannee, and contains 120 illustrations, photos, maps, and charts. Available from: Time Sifters, P.O. Box 25642, Southgate Station, Sarasota, FL 34277. ($14.95)

Batax Museum Publishing is offering FPS members a special price on their latest book, ***Natural History Museums, Volume I: An illustrated Guide to Over 350 Museums in the Eastern U.S.,*** by FPS member G.W. Bates. In addition to a complete listing of natural history museums in the eastern U.S., this book also includes ideas to enhance your museum visits and illustrations of innovative displays and institutions. The cover price is $12.95, but FPS members may order this book for $5.00, which includes Florida sales tax and postage. Mail check or money order to: Batax Museum Publishing, 301 Racquet Club Rd., Suite 202, Ft. Lauderdale, FL 33326.



For our vertebrate fans, this editor recently had the opportunity to examine Frank Garcia's latest publication entitled "***Miracle at Cockroach Bay...The Leisey Shell Fossils***". This 32 page softcover book is full of pictures of Frank and others collecting at the famed Leisey Shell Pit. It includes Frank's own story on the discovery of the bone bed, and the volunteer efforts that ensued. Frank also provides photos and drawings of many of the more interesting vertebrate fossils recovered from Leisey. For information on obtaining copies, contact: Jack Weldon, Garcia Paleontology, Inc., 2232 Brevard Road N.E., St. Petersburg, FL 33704, (813) 823-4762.

The Florida Geological Survey announces that its Special Publication No. 36, on the Plio-Pleistocene shell beds of southern Florida, (mentioned in the last newsletter) is back from the printer and ready to order. By mail, send $1.00, check or money order payable to "State of Florida" to: Publications Office, Florida Geological Survey, 903 West Tennessee St., Tallahassee, FL 32304.

Likewise, the Cenozoic Echinoid poster by Roger Portell, Craig Oyen, and Frank Rupert (see ad this issue) is now available...also $1.00 by mail from above address.

Upcoming Events...

April 4-7 **Paleozoic microinvertebrates, The Gross Symposium,** Berlin, Germany (S. Turner, Queensland Museum, Box 3300, S. Brisbane, QLD 4101, Australia).

July 12-16 **Conchologists of America Convention,** Panama City, FL (Jim Brunner, P.O. Box 8188, Southport, FL 32409.

Sept. 18-19 **Central Florida Shell Show,** Orlando, (Larry Stiles, 1505 N. Carolwood Blvd, Fern Park, FL 32730).

Oct. 9-10 **Tenth Annual Bone Valley Fossil Fair,** Winter Haven (813-665-3426)

Oct. 13-16 **Society of Vertebrate Paleontology Annual Meeting,** Albuquerque NM, (Spencer Lucas, 505-841-8837).

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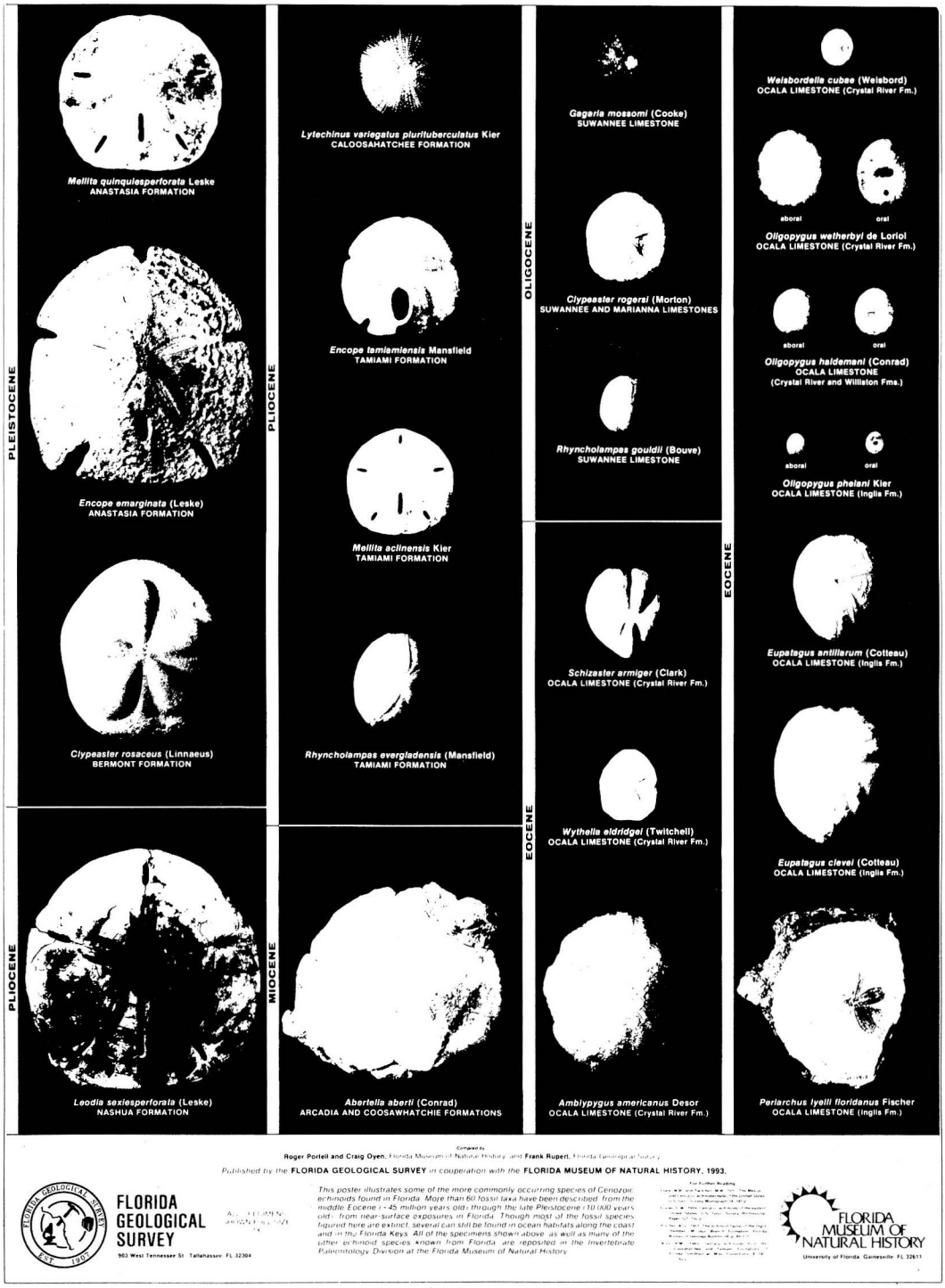

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Fossils are Where You Find Them

While we have done pretty well on FAWYFT articles lately, with some coming in at the last minute each issue, it would sure make the editors feel more secure to have a backlog of them waiting to be published (C'mon folks! It only takes a few minutes and think of the everlasting fame!). This issue features a discussion of some recent lucky finds, and a story by member Rozaline Johnson on how she broke into fossil collecting.

Fossils Are STILL Where You Find Them! (But You Gotta LOOK!)

by Eric Taylor

Anyone who was able to see the article in the April 5, 1993 Gainesville, Florida "Sun" newspaper about Sue Harris' find knows why this column carries the title it does. Sue, a North Central Florida native who now lives on Cape Cod, Massachusetts, was visiting her mother in Chiefland when she decided to look for fossils in some of the creeks that riddle the landscape in Gainesville. These creeks, running through the late Miocene Hawthorn Formation clay, have long produced large numbers of marine and estuarine fossils, primarily shark teeth and Dugong skeletal parts. Sue was a little more lucky.

In an area no more than 50 yards from the busiest thoroughfare in Gainesville, Sue found an erosion gully that ran into the creek from the area immediately behind a closed fast-food restaurant. She liked the look of the exposed clay and checked it out, finding a couple of small shark teeth in the bottom of the gully. She screen washed some of the spoil, but didn't find much except for a small bone fragment. She returned to the creek and continued her trip up the main flow, but kept thinking about the gully. She finally returned for another look and found several more bone fragments that had the same appearance as the first she had found. She wasn't able to identify them but knew they were not dugong bones. Since she was only a mile or so from the Florida Museum of Natural History, she decided to ask the experts there what she had.

Vertebrate Paleontology Collection Manager Gary Morgan took one look and advised Sue that her find was part of the skull of the long-jawed Miocene dolphin *Pomatodelphis inaequalis*. He suggested returning to the site and seeing if more was there. Sue left, and about 10 minutes later Gary had a phone call from her saying "I think you guys need to come out here!"

Russ McCarty told me later that they worked by lamp light and stumbled out of the creek bed in the dark. When removed from the plaster jacket and prepared, Sue's find was revealed as the upper and lower jaws and parts of the front of the skull of one of the largest *Pomatodelphis* ever seen. The portion recovered measured 37 inches from the tip of the beak to the last piece of the skull. Sue, who helped in the restoration at the museum, received a very nice newspaper write up (complete with a color photo!), the thanks of the museum staff for donating her find, and the undying envy of those of us whose *Pomatodelphis* finds consist of isolated teeth and jaw fragments

2 inches long or so.

"Pony Express", the publication of the Florida Fossil Horse Fund, mentioned that FPS member Suzan Watts had found a *Neohipparion eurystyle* horse tooth in the DeSoto Shell Pit. I asked Suzan about it at the Spring Meet and she indicated that no one had been able to figure out where the silly thing came from! *N. eurystyle* is found in the classic Bone Valley deposits and has not been reported before from the early Pleistocene.

Since the weather is warm and water levels low, many will be taking to the creeks and rivers for recreation all over the state. Fossils from all ages can be found in the waterways from the Pensacola region to South Florida. Some of the first fossils ever found in the Florida came from spring-fed rivers like the Itchetucknee in Colombia county (now a State Park) And these sites are still capable of producing amazing numbers of bones and teeth.

FPS member Steve Hutchins recently discovered a late Pliocene deposit while SCUBA diving in a river near his home in Old Town. Steve, an expert diver, was exploring the bottom in very poor visibility when he encountered some nice bones that appeared to be recently washed out of the bank. Following the bones upstream led him to a clay lens in the bank. From this he extracted most of the skull of the short faced bear *Arctodus*, the upper and lower jaws from a capybara, several beautiful items from the little Pliocene antelope, *Capromeryx*, and some material from the long limbed llama, *Hemiauchinia*. Spectacular stuff Steve (but I still wouldn't have been in the water in that visibility!

Eric Prokopi, Terry Solari, my son Craig Taylor, and I had been collecting material from a gravel bed in the Santa Fe river for over two years. When Eric and I recently returned there for the first time this spring, pickings were pretty slim. We went looking for other deposits and stopped at one location without particular expectation of success. When we had been in the water for about 15 minutes, I swam over to Eric to suggest we leave (I hadn't found anything) only to find him uncovering a Probocidian limb bone from the bottom. So far, we had recovered parts of at least three different *Mammuthus colombi* (Colombian Mammoth) including a complete set of adult molars, several matching juvenile teeth, one half dozen or so partial limb bones, and parts of two lower jaws. The site is really strange, with almost nothing in the deposit but turtles, tortoises, and mammoths. We have found only two pieces of deer bones and nothing else identifiable. The really weird thing about the site is that it is within a very short distance of one of the most popular public use areas on the entire Santa Fe River!

One note of caution. Do not attempt to dive for fossils unless you are familiar with the characteristics of the waterway you are on. It is possible to be very badly surprised by swift or swirling currents, obstacles, trash, or poor visibility. Take time to investigate first. Do not use SCUBA equipment unless you are certified and trained and most of all, obtain a permit from the Florida Program for Vertebrate Paleontology before collecting from rivers or lakes. This permit requires you to submit a report each year, costs five dollars, and can be obtained by writing the Program at the Florida Museum of Natural History. Fossils collected from Florida waterways may not be sold for profit.

In summary, keep your eyes open, don't assume that old sites are totally worked out, get wet, and be careful! (And send your stories to us. I may run out!)

The Birth of a Fossil Collector

by Rozaline K. Johnson

Hobbies are born in strange ways. Little did I think that a jingle on the telephone one perfect day in Virginia would be the birthday of my fossil collecting.

For several years I had been living in the area of the James and York Rivers. On sunny days it was delightful to visit the beaches and wade in the warm waters, kicking the shells as I went along. Little did I know at the time that the shells which made up the beaches were just a little different than those found on other beaches. As I would later discover, they were in fact many millions of years older.

My friend suggested that this day would be ideal to go to the beach and look for shark teeth. I thought that she was a little bit daft, as I knew there were no sharks in the area she suggested visiting. She explained that these were fossil teeth. I was game for the venture, so she said she would pick me up in her car.

We drove to an inlet known as Indian Creek on the York River north of Yorktown, where, as I now know, a section of the Yorktown Formation is exposed. This unit has long been a classic collecting site for Middle Tertiary fossils. At that time, it was just a beach with the tide out, covered solid with whole and broken shells. Black and grey mostly in color. My friend explained that the teeth were to be found among the shells, and that they too were a blue-black grey. The proverbial needle in a hay stack.

"What did they look like...how big were they?", I asked. She explained as best she could without a sample to show me. Remember, I was GREEN. I bent to my task...straining eyes and neck, crawling on hands and knees, digging and scratching. About three dozen broken pieces of shell later, each piece enthusiastically held aloft with the question "Is this one?", I was told I really had one. MY FIRST SHARK'S TOOTH.

Return trips of seek and find with the increasing awareness of other treasures to be found and acquired, built up quite an assortment of shells and teeth of different sizes and shapes. It was natural that my curiosity was piqued. An effort was made to find the answers for the how, when and why.

In asking, I found that there were others equally interested. Through a series of events, I acquired books that held some of the answers. I was now "hooked" into becoming an amateur fossil collector. It has been a most rewarding hobby throughout the years.

The Yorktown Formation belongs to the Miocene Series, Tertiary System of the Cenozoic Era. Because of the location, where fossiliferous beds are well exposed, the name was proposed in 1906 by Clark and Miller. The name was most appropriate because the best exposures are found along the south bank of the York River above and below Yorktown. It is principally made up of sand, clay, coquina and diatomite, largely marine. The foremost fossils are mollusks with certain fossil faunas known only in the York beds. In an area 1 to 2 1/4 miles south of Yorktown is one of the finest collecting localities. Some 90 species, mostly mollusks, have been found. At this writing however, we are interested only in the shark teeth found there.

Sharks belong to the phylum Chordata, subphylum Vertebrate, Class Chondrichthyes, Subclass Elasmobranchii, order Cladoselachii (ancient Sharks) or Order Pleurancanthodii (early freshwater sharks). The Miocene had many genera, which were widely distributed in the warm waters of the western and eastern seaboards.

The reason that so many teeth have been found lies in the number of teeth present in a shark jaw as well as the mechanism of tooth replacement. Cartilaginous shark jaws contain up to 250 teeth in both the upper and low jaw, with as many as four or five rows in each jaw. The loss of a tooth is replaced by one of the reserve teeth moving forward, and a new tooth grown to keep the supply constant. Each genus has a distinct tooth shape. Also of interest is that the teeth found on the eastern seaboard are dark in color, while those on the western seaboard are light. This is possibly due to the mineral content of the waters. The European shark teeth that I have seen are grayish.

With few exceptions, not merely the Order but the families of fossil sharks present at the beginning of the Tertiary are among those still living in the seas and oceans today. There are about 258 species.

Several Tertiary species had teeth 6 to 8 inches long. They often attained a length of 45 to 50 feet from head to tail. In comparison, some present day species have 3 inch teeth, and have been found up to 40 feet in length.

Among the smaller species are the infamous man-eaters with suspidate teeth. Perhaps the most famous is the Great White shark. A chart showing the lineage of the Great White would appear as follows:

1. *Otodus obliquus* (Eocene)
2. *Charcharodon augustidens* (Miocene)
3. *Charcharodon megalodon* (Miocene)
4. *Charcharodon sulcidens* (L. Miocene - Pliocene)
5. *Charcharodon carcharias* (Recent)

The sharks were truly the dominant vertebrates of the Tertiary seas. The fascination and mystique in collecting their fossil teeth has me hooked for life.

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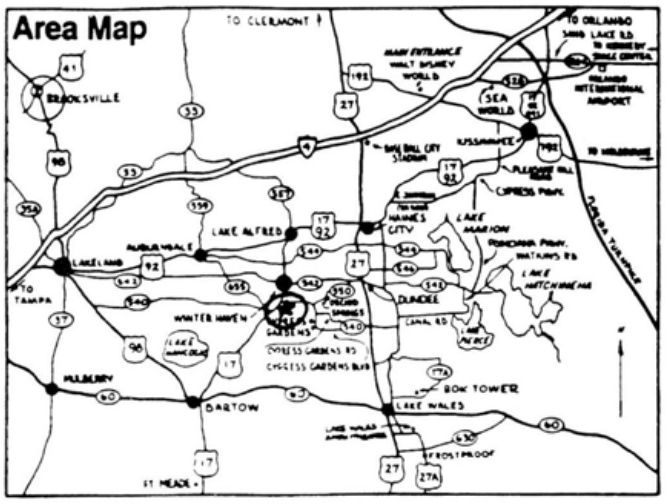

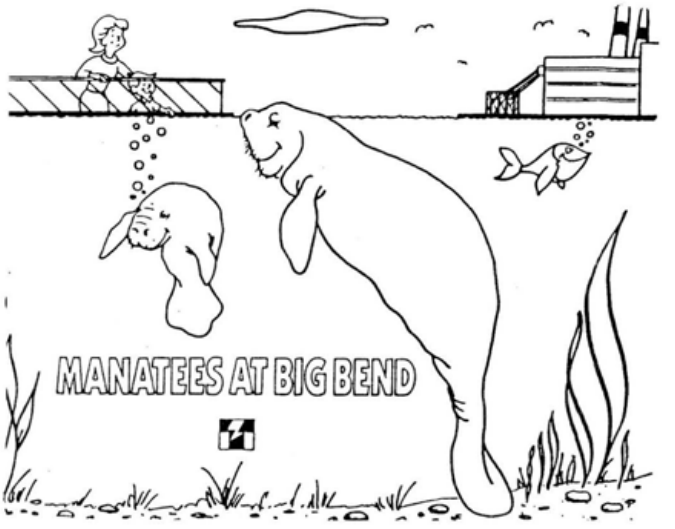

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Paleontology and Biostratigraphy of the Miami Limestone Quartz Sand Subfacies in Palm Beach County, Florida

by
Richard A. Johnson, P.G.

Introduction

The oolitic quartz sand and sandstone facies of the upper Pleistocene Miami Limestone crops out only in southeastern and east-central Palm Beach County, southeastern peninsular Florida, where it comprises the entire thickness of the Miami unit. This facies forms a lateral lithologic transition with the nonoolitic upper Pleistocene Fort Thompson Formation to the west and northwest. The outcrop area represents the northern terminus of the late Pleistocene ooid shoal represented by the present-day Miami Limestone. The quartz sand/sandstone facies is the most diversely-fossiliferous lithology in the Miami Limestone. This paper examines the fauna of the quartz sand/sandstone facies of the Miami Limestone and compares it to that of the type Fort Thompson (as discussed by DuBar, 1958). The Fort Thompson type area occurs in the banks of the Caloosahatchee River, southern Glades and northern Hendry Counties, approximately 70 miles west-northwest of the present day study area. In this paper, all species are identified with the names in use in 1958 in order to facilitate biostratigraphic correlation with the type Fort Thompson in DuBar (1958). Current genus and species nomenclature may differ.

Methods

In the field, the three thickest exposures of the quartz sand/sandstone facies of the Miami Limestone in Palm Beach County were identified and visited. Representative samples were obtained from all oolitic Miami beds in the sections. The unconsolidated to poorly-consolidated quartz sand subfacies was found to be most amenable to fossil extraction, whereas the fossils in the well-consolidated quartz sandstone subfacies proved to be impossible to disaggregate without destroying them.

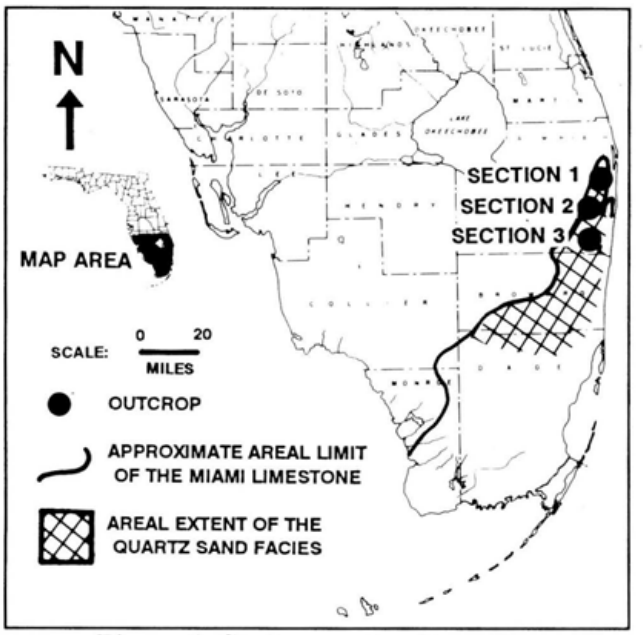

Figure 1. Study area location map.

In the laboratory, the sample obtained from each poorly-consolidated to unconsolidated bed was washed through a standard sieve in order to concentrate the contained macrofossils, and to eliminate the unconsolidated sand, consolidated sandstone, and ooid fractions. The remaining material was selectively picked and separated into three categories: gastropods, pelecypods, and other fossils. Each specimen was identified to species level where possible (using DuBar, 1958 and Morris, 1951, and Brayfield and Brayfield, 1986), and tabulated. Finally, the fossils characteristic of the Miami Limestone quartz sand subfacies in Palm Beach County were compared to the fossils characteristic of type Fort Thompson utilizing the plates, faunal lists, and systematic paleontology of DuBar (1958), as well as the Florida Geological Survey's invertebrate paleontology collection, which contains many of DuBar's original specimens.

Sampled Sections

Section 1 occurs in the south bank of the West Palm Beach Canal beneath the Haverhill Road Bridge (Township 44 South, Range 42 East, Section 1, NW 1/4 of the NW 1/4), east-central Palm Beach County. Here, 5 feet (4 beds) of variably-oolitic, variably shelly quartz sand and sandstone are exposed. Only the samples from beds 1 (basal), 2, and 4 (top) were processed, as bed 3 consists of consolidated sandstone.

Section 2 is a temporarily dewatered (1991) sand and shell pit located northwest of the intersection of Boynton Beach Boulevard (SR 804) and the Florida Turnpike (T45S, R42E, Section 20, SE of SE 1/4), southeastern Palm Beach County. Six and one-half feet (3 beds) of Miami Limestone quartz sand subfacies were exposed in the north end of this (now water filled) pit. No consolidated quartz sandstone beds occur in this section. The sample from the basal bed was not wet-sieved and analyzed because fossil concentration was extremely low, and because stratigraphically and lithologically, the bed is not fully representative of Miami Limestone.

Two, beds or 5 feet of Miami are exposed in Section 3, which is located in extreme southern Palm Beach County on the south bank of a Lake Worth Drainage District Canal, directly west of Boca Raton (T7S, R42E, Section 21, NE 1/4 of SE 1/4), and approximately 150 feet west of Powerline Road (SR 845). The well-cemented bed 2 at the top of the exposure could not be paleontologically analyzed. Basal bed 1 consisted of unconsolidated sand and shell material, and was wet-sieved and picked for this paper.

Results

Table 1 lists 43 molluscan species identified in the samples from the 6 beds. Several additional molluscan genera were recovered and identified; however, in all cases, the single-individual specimens recovered were extremely small and could not be accurately classified to species level. The total fauna is almost exclusively molluscan in nature, with only a few small barnacles and fragments of crab carapaces and claws recovered from two samples. The mollusks consist predominantly of very small (large microfossil size) to small, dwarfed, or immature individuals, and of species which are normally very small (such as *Olivella mutica*, a gastropod). However, rare specimens of the pelecypods *Chione cancellata* and *Lucina pennsylvanica*, and the gastropods *Busycon contrarium* and *Cerithium muscarum* occur in relatively large size locally.

Table 2 lists the mollusks present in all six Miami Limestone quartz sand beds analyzed for this paper.

Table 1.

Gastropods	Pelecypods
Bulla occidentalis	*Anadara transversa*
Busycon contrarium	*Anomalocardia caloosana*
Busycon pyrum	*Anomia simplex*
Cerithium muscarum	*Brachidontes exustus*
Columbella rusticoides	*Cardita floridana*
Conus stearnsii	*Chione cancellata*
Crepidula convexa	*Codakia orbiculata*
Crepidula fornicata	*Divaricella quadrisulcata*
Diodora listeri	*Laevicardium mortoni*
Epitonium humphreysii	*Loripinus chrysostoma*
Fasciolaria gigantea	*Lucina pennsylvanica*
Longchaeus marionae	*Macrocallista nimbosa*
Marginella apicina	*Mactra fragilis*
Melanella intermedia	*Phacoides radians*
Melongena subcoronata	*Tagelus divisus*
Modulus modulus	*Tellidora lunulata*
Nassarius vibex	*Tellina sayi*
Natica plicatella	*Trachycardium isocarda*
Olivella mutica	*Transennella conradina*
Terebra dislocata	
Terebra taurinus	
Turbonilla elegantula	
Turbonilla hemphilli	
Vermicularia spirata	

Table 2.

Gastropods	Pelecypods
*Olivella mutica**	*Chione cancellata**
*Cerithium muscarum**	*Transennella conradina**
	Loripinus chrysostoma
	Codakia orbiculata

Discussion

DuBar (1958) divided the type Fort Thompson Formation into four members: the uppermost Coffee Mill Hammock Marl Member; upper-middle and basal freshwater marl members, and lower-middle *Chlamys*-rich member. In the present study, the molluscan fauna recovered from the quartz sand subfacies of the Miami Limestone in Palm Beach County contains neither *Chlamys gibbus* irradians (a pectin-like pelecypod), nor the freshwater *Helisoma scalare* (a planispiral gastropod). However, in Table 2, species marked with a * are common to abundant in and/or characteristic of the type Coffee Mill Hammock Marl Member of the uppermost Fort Thompson Formation (4 of 6 species, 67%). These four species are listed by DuBar (1958) as constituting large percentages (10.3% to 51.0%) of the total fauna he obtained from the type Coffee Mill Hammock Marl Member. DuBar (1958) also stated that the most characteristic species of the Coffee Mill Hammock Marl Member is *Chione cancellata*, which occurs in all samples of Miami quartz sand subfacies analyzed for this paper.

These facts suggest that the Miami Limestone stratigraphic unit is directly correlative with the uppermost portion or top of the Fort Thompson Formation, the Coffee Mill Hammock Marl Member.

Of the 43 molluscan species identified in the Miami quartz sand subfacies from Palm Beach County, 7 species were not recorded by DuBar (1958) as characteristic of and/or abundant to common in type Coffee Mill Hammock Marl, but were characteristic of type Fort Thompson in general. These are listed in Table 3.

Table 3.

Gastropods	Pelecypods
Busycon pyrum	*Anomia simplex*
Columbella rusticoides	*Phacoides radians*
Fasciolaria gigantea	*Tagelus divisus*
	Trachycardium isocardia

Fourteen of the 43 species of mollusk which were recovered from the Miami quartz sand subfacies in Palm Beach County were not recorded by DuBar (1958) from either the Coffee Mill Hammock Marl Member or from type undifferentiated Fort Thompson Formation (Table 4). Most of these are extant species occurring in the present-day fauna found along the marine shores of late Holocene Florida (12 of 24, marked with a * in Table 4). This somewhat different faunal assemblage is probably the result of both the physical separation between the Palm Beach paleoenvironment and the type Fort Thompson paleoenvironment, and the fact that the Palm Beach paleoenvironment also represented the extreme northern influence of the upper Pleistocene Miami Limestone ooid shoal. Thus, a slightly different molluscan assemblage was present in the Palm Beach County area. The influence of the ooid shoal paleoenvironment could also explain the small size ("dwarfed or immature") of most of the species collected in the Miami quartz sand subfacies. Conditions characteristic of the formation and/or deposition of ooids and pellets may not have been conducive to mollusk growth.

Table 4.

Gastropods	Pelecypods
*Crepidula convexa**	*Brachidontes exustus**
*Diodora listeri**	*Codakia orbicularia**
*Epitonium humphreysii**	*Divaricella quadrisulcata**
Melanella intermedia	*Loripinus chrysostoma**
Natica plicatella	*Lucina pennsylvanica**
*Terebra taurinus**	*Mactra fragilis**
*Vermicularia spirata**	*Tellidora lunulata*

References

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DuBar, J.R., 1958, Stratigraphy and paleontology of the Late Neogene strata of the Caloosahatchee River area of southern Florida: Florida Geological Survey Bulletin 40, 267 p.

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Prep Talk

by Russ McCarty

Greetings from the bone lab. In the last newsletter, I described, how hard work, luck, and a few sacrifices to various minor gods, had enabled us to appease GRAVITY and drag into the prep lab an elephantine plaster jacket which contained the jaw of a large shovel-tusked gomphothere named *Amebelodon britti*. The mammoth (no pun intended) task of preparing this five foot long jaw was about to begin.

The first order of business in the prep lab was to remove matrix and cut away more of remaining plaster jacket until the jaw was exposed. The specimen was then photographed to document the position (I call this the "remnant" configuration) of the fragments. Even though a specimen is badly crushed and broken in many pieces, the matrix will preserve much of the configuration the bone possessed when it was part of the living animal. When a specimen is removed from its matrix, whether that matrix is in the ground or in a plaster jacket, the remaining vestige of this remnant configuration is lost forever, so remember to document it with a photograph, a drawing, a tracing, or whatever. And since plaster jackets capture the matrix (and thus configuration) as well as the specimen, this is one more reason to make plaster jackets for important specimens.

Looking down into the jacket, one could see what appeared to be a large right mandible with the front extending toward the right and the mandibular condyles (where it would have articulated with a skull) to the left. It was broken into many pieces, some large, many smaller. While two cheek teeth could be seen, there was no trace of the lower tusks which, which in *Amebelodon*, are flat, blade-like structures eight or nine inches wide and four or five feet long. From the visible evidence, it seemed likely that the left mandible was just under the right side, both mandibles having been crushed together into a nine inch thick bone and clay sandwich ... *not a pretty sight*!...however, the configuration had been preserved by the plaster jacket.

A piece of clear plastic sheeting (e.g. like VisQueen) was laid over the exposed right mandible, and then the overall outline of the mandible, including fracture lines of the fragments was traced onto the plastic sheet. All features, such as grooves or nerve and blood vessel openings (foramena) were also depicted in the tracing. Ideally, the finished overlay could be placed on a table or floor and each fragment of the mandible be removed from the jacket and placed on the corresponding position traced on the plastic overlay.

Before actually removing any pieces of the jaw from the plaster jacket, the exposed bone was scraped clean with dental picks and then hardened with a thin solution of Butvar. At this point, when working with most plaster jackets, this finished side would have been capped and turned over for work on the other side, but since this specimen consisted of two mandibles crushed together, the interior sides of each mandible (which were touching since they were crushed together) could not be prepared or strengthened in the jacket. The best decision now was to remove the right mandible from the jacket and lay it out on the overlay.

Starting at the mandibular condyle, each fragment was carefully removed. By this time, there was not enough matrix left in the jacket to bind the pieces of the right mandible, so most came out easily. The condyle and ascending ramus posed no problems, however, that part of the mandible which contains the teeth (alveolus) is double walled and hollow, so the exterior side facing the observer tended to come out by itself,

leaving the teeth and interior wall of the alveolus still in the jacket. The interior wall was held together by a thin layer of clay which had formed between the left and right mandible. Wear on the teeth showed that this gomph was chewing on the M2 and one or two cusps of the still erupting M3, which meant that this particular specimen was not yet a mature adult when it died. On closer inspection, the M2 was only about 1/3 complete. The power shovel operated by John Claytor had uncovered the jaw, but had unfortunately damaged, and removed some of the jaw, including the right M2.

The teeth were removed and placed with the half of the alveolus already removed. The other side of the alveolus still in the jacket was broken into many small pieces, so it was very important to preserve their configuration by whatever means possible. After cleaning them, a little Butvar was brushed over the break lines to hold the pieces in place (masking tape can also be pressed over a broken area to stabilize it). When this fragmented section was removed, its underside was cleaned and then all pieces permanently glued together with a strong glue. In the prep lab, a five minute epoxy (Epoxo 88 Glue and Dent Filler sold by auto body repair supply stores) is used to repair large specimens where strength is required, or small specimens when contacts are minimal.

After the cheek teeth and alveolar wall of the jaw were removed, what remained in the jacket was the symphysis area which would have contained the tusks. In *Amebeledon*, this is a massive area unlike that of any other North American fossil proboscidean. From the condyle to the cheek teeth, the jaw is not too different from a mammoth or a mastodon; however, unlike those proboscideans, where the jaw drops off sharply into a pointed chin, the *Amebelodon* jaw extends forward another two and a half feet. This extra architecture is necessary to house the four and a half foot flat shovel tusks. The two alveoli for these tusks were severely crushed together; a symphysis which should have been 12 inches wide had been compressed to about four inches. In addition to this, the power shovel which had removed the overburden from above the specimen had scraped away and damaged significant areas of the symphysis. Since this damaged area would present the greatest problem during reconstruction, for the present, it was left in the jacket.

Attention was focused on the rear portion of the mandible, the condyle to cheek tooth region which had been previously removed and laid out on the plastic overlay. Each piece was cleaned, front and back, as it was removed, then glued to its proper contact with a rapid curing epoxy cement. To keep this large specimen strong, missing areas were filled in as the pieces were glued. In the prep lab, a product called MagicSculp is the preferred filler when strength and a material capable of being modeled is required. MagicSculp is a two-part epoxy putty which cures at room temperature in three or four hours or in 20 minutes under a heat lamp. (From: Wildlife Artist Supply Co., 1306 West Spring St., PO Box 967, Monroe,GA 30655 tel: 1-800-334-8012). A 50/50 mache/plaster mixture is an excellent filler also. The mache is a taxidermists mache made by Jonas Brothers taxidermy supply (Jonas Bros., 1901 S. Bannock, Denver, Col. 80223). Most hardware stores have various wood fillers, auto body repair fillers, or as a last resort even plaster of paris. In the next newsletter we will discuss how to make forms and sculpt in missing features and learn how strengthen large specimens.

Send your preparation questions to:

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University of Florida Campus
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What's In A Name

by
Gary Morgan
Florida Museum of Natural History

Some of the questions most frequently asked of paleontologists at the Florida Museum of Natural History relate to various technical "terms of the trade." Whether they are scientific names (***Parahippus leonensis*** - a Miocene three-toed horse), anatomical terms (**tarsometatarsus** - the lower leg bone of a bird), time periods (**Hemingfordian** - an early Miocene land mammal age), or stratigraphic names (**Caloosahatchee Formation** - a late Pliocene geologic unit from southern Florida), technical terms often confuse or intimidate avocational paleontologists, many of whom may not have had formal training in zoology and/or geology. My intention in this column is to try to make these technical terms more understandable to the general paleontological public. If the FPS membership is interested, this could become a regular column in the Newsletter like Russ McCarty's *Prep Talk*. Please feel free to send me your questions on scientific terminology relating to Florida paleontology and I'll try to discuss them in future columns.

In response to a request from FPS member Phil Whisler, my first several columns will cover some of the names for the geological time periods represented in Florida, particularly the North American Land Mammal Ages. Most people interested in fossils probably have a general understanding of the basic units of geological time, but for the sake of completeness I will briefly review the geological time scale as it pertains to Florida. In recent issue of *Papers in Florida Paleontology* (Number 6, May 1992), Richard Hulbert provided a detailed summary (Table 1, page 3) of the geological time units of Florida and their ages. All rocks, sediments, and fossils found at the surface in Florida (or near the surface in mines, shell pits, sinkholes, etc.) belong to the **Cenozoic Era**, the period of time covering the last 65 million years. Million years is sometimes abbreviated Ma for mega-anna (for example 2.5 Ma for 2.5 million years) and thousand years is abbreviated ka for kilo-anna (for example 10 ka for 10,000 years). The Cenozoic Era is subdivided into seven **Epochs** (from oldest to youngest with approximate age range in Ma): **Paleocene** (65-57 Ma), **Eocene** (57-35 Ma), **Oligocene** (35-23 Ma), **Miocene** (23-5.2 Ma), **Pliocene** (5.2-1.6 Ma), **Pleistocene** (1.6 Ma-10 ka), and **Holocene** (10 ka-present). No Paleocene rocks occur at the surface in Florida. Our oldest rocks and fossils are middle Eocene in age, approximately 45 million years old. Several other less commonly used subdivisions of the Cenozoic that you may have heard or read about are the Paleogene, Neogene, and Quaternary. These are called **Periods** and fit between Eras and Epochs in the hierarchy of geological time. The **Paleogene Period** includes the Paleocene, Eocene, and Oligocene Epochs; the **Neogene** includes the Miocene and Pliocene; and the **Quaternary** includes the Pleistocene and Holocene (also called Recent with a capital R).

Now that we've briefly reviewed the geological time scale for the Cenozoic Era, I would like to discuss the **North American Land Mammal Ages** (NALMA for short). Many of you may have heard vertebrate paleontologists use terms such as **Irvingtonian**, **Hemphillian**, and **Arikareean**, and wondered what relationship they might have to the more familiar epochs. The concept of Mammal Ages for North America was first proposed in 1941 in a paper by Horace E. Wood and six other authors entitled *Nomenclature and correlation of the North American continental Tertiary*. (Bulletin of the Geological Society of America, volume 52, p. 1-48). Wood et al. (1941) named most of the NALMA currently in use today, although they did not include the Pleistocene. The two Pleistocene NALMA, the **Irvingtonian** and **Rancholabrean**, were named later in a paper by Donald Savage (1951. *Late Cenozoic vertebrates of the San Francisco Bay region:* University of California Publications in the Geological Sciences, vol. 28, p. 215-314.).

North American Land Mammal Ages are characterized by a composite fauna of land mammals, usually genera, that coexisted in North America during a particular interval of the

Cenozoic Era. The typical mammalian assemblage for each NALMA has been constructed from correlative faunas throughout North America, and contains genera and/or species that are either restricted to that Age or have their first or last appearance during that Age. For example, the **Hemphillian** NALMA, which covers the time period from the late Miocene to the early Pliocene (approximately 9-4.5 Ma), is characterized by the first appearance of ground sloths (*Pliometanastes* and *Thinobadistes*) in North America and the last appearance of North American rhinoceroses (*Aphelops* and *Teleoceras*). All four of these genera are known from sites of Hemphillian age in Florida.

Fossils representing nine North American Land Mammal Ages are known from Florida. In order from oldest to youngest these are (with age ranges in Ma): **Whitneyan** (29-28 Ma); **Arikareean** (29-20 Ma); **Hemingfordian** (20-16.5 Ma); **Barstovian** (16.5-11.5 Ma); **Clarendonian** (11.5-9 Ma); **Hemphillian** (9-4.5 Ma); **Blancan** (4.5-1.9 Ma); **Irvingtonian** (1.9-0.3 Ma); **Rancholabrean** (0.3 Ma-10 ka). These NALMA rather conveniently divide into four groups which I will discuss in separate columns, starting with the youngest and working backward in time to the oldest. The youngest NALMA, the Rancholabrean, will be discussed in the remainder of this column. In the next FPS newsletter I will cover the two Pliocene and early Pleistocene NALMA, the Blancan and Irvingtonian. The middle and late Miocene NALMA, the Barstovian, Clarendonian, and Hemphillian will follow. The final column will review Florida's oldest land mammal faunas from the Oligocene and early Miocene, the Whitneyan, Arikareean, and Hemingfordian.

The Rancholabrean Land Mammal Age began approximately 300,000 years ago and lasted until the end of the Pleistocene 10,000 years ago. Savage (1951) named this NALMA for the late Pleistocene fauna from the famous Rancho la Brea tar pits in Los Angeles in southern California. The beginning of the Rancholabrean is defined by the first appearance of *Bison* in North America. Bison evolved in Eurasia and then migrated across the Bering Land Bridge into the North America about 300,000 years ago. The Rancholabrean is divided into the early Rancholabrean of middle Pleistocene age (300 ka to 130 ka) and the late Rancholabrean of late Pleistocene age (130 ka to 10 ka). The boundary between the early and late Rancholabrean is the beginning of the last or Sangamonian interglacial period. The early Rancholabrean is typified by the presence of the giant bison, *Bison latifrons*, while the species *Bison antiquus* occurs in later Rancholabrean faunas. The end of the Rancholabrean is characterized by the first arrival of humans in the New World about 12,000 years ago and the subsequent rapid extinction of almost 30 species of large mammals (often called the **Pleistocene megafauna**). Proponents of the "Human Overkill Hypothesis" suggest that overhunting by humans caused the extinction of the Pleistocene megafauna in a remarkably short period of time between 12,000 and 10,000 years ago. Other paleontologists attribute these extinctions to climatic and vegetational changes that occurred at the end of the Pleistocene.

Many other species of mammals besides Bison are characteristic of Florida Rancholabrean faunas. Xenarthrans or edentates found in Florida during the Rancholabrean include: the glyptodont *Glyptotherium floridanum*, the giant armadillo *Holmesina septentrionalis*, the beautiful armadillo *Dasypus bellus*, Jefferson's ground sloth *Megalonyx jeffersonii*, and Harlan's ground sloth *Paramylodon harlani*. Among large carnivores, typical Rancholabrean species include: the dire wolf *Canis dirus*, the sabretooth cat *Smilodon fatalis* (also called *Smilodon californicus, S. floridanus*, and *S. populator* by various authors), the American lion *Panthera atrox* (some authors consider this to be the same species as the African lion *Panthera leo*), the jaguar *Panthera onca*, and the Florida cave bear *Tremarctos floridanus*. Ungulates found in Florida Rancholabrean faunas include: the Vero tapir *Tapirus veroensis*, the extinct horse *Equus* (the fossil species of *Equus* are currently in a state of chaos), the forest peccary *Mylohyus fossilis*, the flat-headed peccary *Platygonus compressus*, the short-limbed llama *Palaeolama mirifica*, and the long-limbed llama *Hemiauchenia macrocephala*. The American mastodon *Mammut americanum* and the Columbian mammoth *Mammuthus columbi* typically occur together in Florida Rancholabrean faunas. A third elephant-like species, the gomphothere *Cuvieronius tropicus*, apparently went

extinct in Florida during the early Rancholabrean. Many species of small mammals such as the opossum, shrews, moles, bats, rodents, and rabbits also occur in Florida Rancholabrean faunas. The most impressive of these "small" mammals are the bear-sized giant beaver *Castoroides ohioensis* and the extinct capybara *Neochoerus pinckneyi*. The latter species is a close relative of the largest living rodent, the South American capybara.

Webb (1974) provided faunal lists of mammals for more than 30 of the best known Rancholabrean sites from Florida. Kurtén and Anderson (1980) discussed many of these same sites. Because of their proximity to the Recent, there are far more Rancholabrean vertebrate faunas known from Florida than those of any other NALMA. More than 100 Rancholabrean faunas are known from Florida, the great majority of which are late Rancholabrean in age. On the other hand, early Rancholabrean faunas are rather rare in the state. The best known Florida early Rancholabrean faunas are the Bradenton Site in Manatee County which produced several beautiful *Bison latifrons* skulls, the Haile 8A Site in Alachua County which yielded a complete skeleton of an adult and a juvenile *Bison latifrons*, and the Daytona Beach Site in Volusia County best known for several skeletons of the giant ground sloth *Eremotherium mirabile*.

In the limited space available, it will only be possible to mention several of Florida's best known late Rancholabrean faunas. Three of the earliest sites of this age discovered in Florida were the Vero Beach Site in Indian River County, the Melbourne Golf Course locality in Brevard County, and Seminole Field in Pinellas County. These sites were all found early in this century by paleontologists from the American Museum of Natural History, Smithsonian Institution, and Harvard University. Dry caves, sinkholes, and fissures have produced large samples of Rancholabrean vertebrate fossils, particularly from northern Florida. Cave and fissure sites often have extremely rich samples of microvertebrates such as snakes, birds, bats, and rodents. Well known localities of this type include Arredondo and Haile in Alachua County, Reddick in Marion County, and Sabertooth Cave in Citrus County.

Many rivers in Florida, particularly in the northern half of the state, have long been known to produce well preserved fossils of large mammals. In fact, almost all of the species of Pleistocene megafauna mentioned above have been recovered from one or more of Florida's rivers. Some (but certainly not all) of the rivers known to produce rich samples of Rancholabrean fossils are: Chipola, Aucilla, Steinhatchee, Santa Fe, Ichetucknee, Waccasassa, Oklawaha, Rainbow, Withlacoochee (southern), and Peace. Several deep underwater sinkholes and springs in Florida have also produced rich late Rancholabrean faunas. Best known among these are Wakulla Springs in Wakulla County, Devils Den in Levy County, Hornsby Springs in Alachua County, and Little Salt Springs and Warm Mineral Springs both of which are in Sarasota County. Little Salt Springs and Warm Mineral Springs are especially important because both sites document the association of paleoindians and extinct Pleistocene megafauna, including *Smilodon fatalis, Megalonyx jeffersonii*, and the giant land tortoise *Geochelone crassiscutata*.

ADDITIONAL READING (A note of caution, most of these books are highly technical, not to mention expensive. You might want to borrow the books from the library or a friend and look them over before purchasing a copy. Unfortunately, David Webb's book on Florida Pleistocene mammals is out of print, but it should still be available in libraries).

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Woodburne, Michael O. (Editor) 1987. *Cenozoic mammals of North America: geochronology and biostratigraphy.* University of California Press, Berkeley, 336 pages.

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A Guide for Identifying Florida
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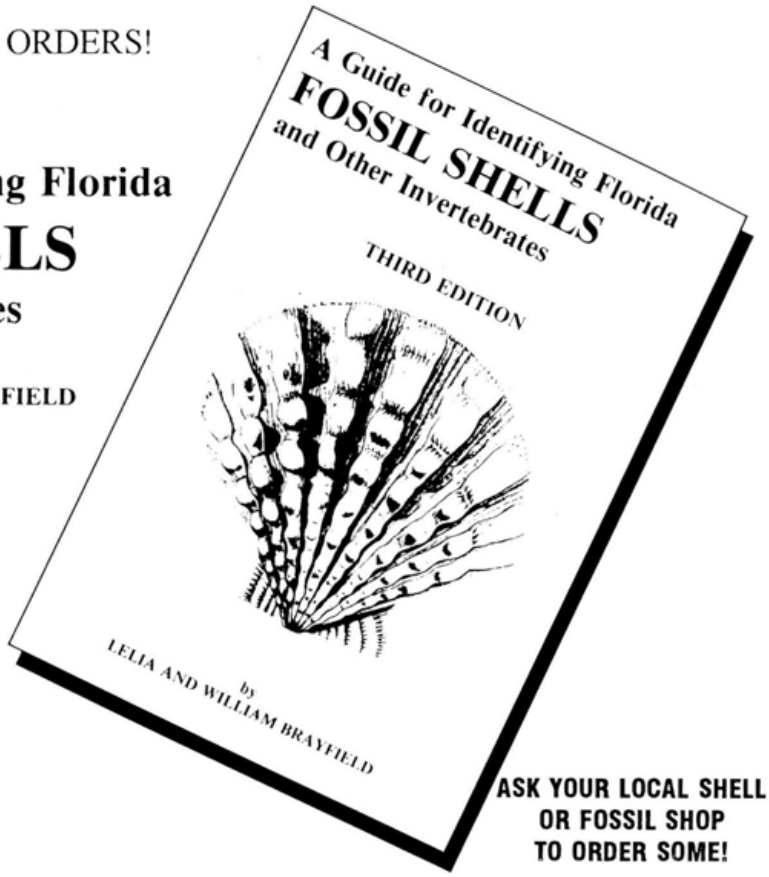
by
LELIA AND WILLIAM BRAYFIELD



Updated by the staff of the Invertebrate Paleontology Division, Florida Museum of Natural History.

"Our hope is that collectors of Florida fossils will continue to enjoy the Brayfields' book, find this edition more useful than ever in identifying their specimens, and feel that we have been faithful to the authors with our revision."
Dr. Douglas S. Jones, Roger W. Portell and Kevin S. Schindler.

ASK YOUR LOCAL SHELL OR FOSSIL SHOP TO ORDER SOME!

FLORIDA PALEONTOLOGICAL SOCIETY, INC.
FLORIDA MUSEUM OF NATURAL HISTORY
UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA 32611

PURCHASE ORDER NO._____DATE _____

BILL TO: SHIP TO:

_____ _____
_____ _____
_____ _____
_____ _____

QUANTITY DESCRIPTION UNIT PRICE TOTAL

_____ A Guide for Identifying Florida FOSSIL SHELLS and Other Invertebrates (THIRD EDITION) _____ $ 4.97 _____

SHIPPING AND HANDLING (Based on charges at time of shipping) _____

TERMS: 30 DAYS NET FROM DATE OF BILLING
MINIMUM 10 BOOKS PER ORDER

State of Florida Fossil Permit Application

The State of Florida has declared its intent to protect and preserve vertebrate fossils and vertebrate paleontology sites. All vertebrate fossils found on state–owned land shall belong to the state with title thereto vested in the Florida State Museum. Field investigations of vertebrate fossils may be conducted under the authority of a permit issued by the FSM Program of Vertebrate Paleontology in accordance with Chapter 84–316 F.S. and the University of Florida RULE 6C1–7.541 F.A.C.

What Areas Are Covered?

It is the intent if the state to encourage preservation of its heritage wherever vertebrate fossils are discovered; the state encourages all persons having knowledge of such fossils to notify appropriate authorities. A permit is required for field investigations on all land owned or leased by the state and on land in state–designated vertebrate paleontological sites. This includes sites located both on submerged lands and on uplands.

What Objects Are Covered?

It is Florida's public policy to protect and preserve all vertebrate fossils, including bones, teeth, natural casts, molds, impressions, and other remains of prehistoric fauna. Fossil sharks teeth are specifically excluded from these regulations, as are fossil plants and invertebrates, including shells.

Who May Obtain A Permit?

Anyone with an interest in Florida vertebrate fossils may apply for a permit.

Who Must Obtain A Permit?

(a) Any person or entity buying, selling or trading vertebrate fossils found on or under state–owned or leased land, or on state–designated vertebrate paleontology sites; and/or

(b) Any person or entity engaged in the systematic collection, acquisition, or restoration of vertebrate fossils found on state–owned or leased land or on state–designated vertebrate paleontology sites. "Systematic collection" is hereby characterized by one or more of the following three features:

(1) Volume of collections of vertebrate fossils in excess of one gallon at one site;

(2) Use of any power–driven machinery or mechanical excavating tools of any size or hand tools greater than two (2) feet in length;

(3) Repetitive visitation and collection at a particular site, totaling more than three (3) full days or a maximum of twenty–four (24) hours during a period of one year.

How Is A Permit Obtained?

Any person wishing to engage in field investigation of vertebrate fossils on Florida lands may apply for a permit by completing the form below and mailing it to the FLORIDA PROGRAM OF VERTEBRATE PALEONTOLOGY at the address indicated below. The application must be accompanied by a self–identification document such as a certified copy of the applicant's birth certificate, driver's license, passport, or Social Security card, and a check or money order for $5.00 US made payable to the PROGRAM OF VERTEBRATE PALEONTOLOGY. A permit shall be issued for one year. Scientific institutions may be granted longer–term blanket permits. A multiple–user permit will be granted to an individual representing an organization or institution.

What Obligations Does A Permit Carry?

The holder of a permit is expected to report any unusual specimen or unusually rich site to the PROGRAM OF VERTEBRATE PALEONTOLOGY as soon as possible. At any convenient time, no later than the end of the permit year, the permit holder shall submit to the PROGRAM OF VERTEBRATE PALEONTOLOGY a list of vertebrate fossils or fossil lots collected during the permit year along with appropriate locality information; or the actual collections with appropriate locality information. If within sixty (60) days of receipt of the list or the actual collection the PROGRAM OF VERTEBRATE PALEONTOLOGY does not request the permittee to donate one or more of the fossils collected, they may be released as "non–essential fossils" to be disposed of however the permit holder may choose.
Questions about fossil vertebrates may be directed to the PROGRAM OF VERTEBRATE PALEONTOLOGY, Florida State Museum, University of Florida, Gainesville, Florida 32611.

This application is for a permit that will entitle the permittee named below to collect vertebrate fossils on land owned or leased by the state of Florida for one (1) year. The permittee must abide by all the provisions contained in Chapter 84–316, Laws of Florida, and the University of Florida Regulations implementing this law.

The following are to be enclosed with this application: (A) Certified copy of permittee's identification as stated above; (B) Check or money order for $5.00 in U.S. currency payable to the Program of Vertebrate Paleontology and mailed to the following address: Program Of Vertebrate Paleontology, Florida State Museum, University of Florida, Gainesville, Florida 32611. **PLEASE DO NOT SEND CASH.**

Application For Permit

Name:_____ **Telephone:**_____

Address:_____

_____

I, the undersigned, affirm that I will abide by Chapter 84–316, Laws of Florida and the Regulations of the Program of Vertebrate Paleontology, University of Florida Rule 6C1–7.541 F.A.C.

_____

Signature Date

FLORIDA PALEONTOLOGICAL SOCIETY, INC.
APPLICATION FOR MEMBERSHIP

NEW_____ RENEWAL_____ MEMBER NUMBER (From Label)_____

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP CODE _____ TELEPHONE (___)-___-____

TYPE OF MEMBERSHIP

1. INDIVIDUAL ACTIVE ($15.00)_____
2. SUBSCRIBER ($15.00)_____
3. INSTITUTIONAL ($15.00) _____
4. GIFT (Mark Type) _____
5. FAMILY (3 or more. $25.00)_____
6. COUPLES ($20.00) _____
7. SUSTAINING ($50.00) _____
8. ASSOCIATE (Under 18 $5.00)_____

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:

	VERTEBRATE	INVERTEBRATE	BOTANY	MICRO
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!

Payments, contributions or gifts to the Florida Paleontological Society are not deductible as charitable contributions for federal income tax purposes. Dues payments may be deductible by members as ordinary or necessary business expenses. We recommend that you consult with your tax advisor.

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.

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.