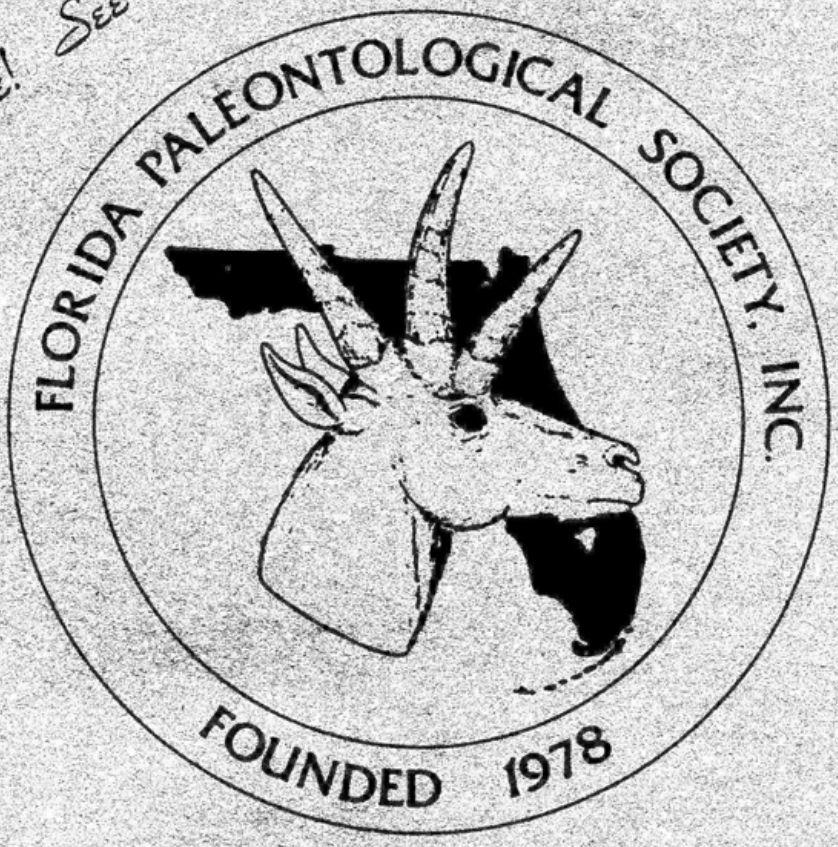
Florida Paleontological Society, Inc.

Newsletter

Dues are due! See Page 27.



Volume 10 Number 4 Fall Quarter 1993

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

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BOARD OF DIRECTORS

Tom Ahern, Tampa, 1995
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Steve Manchester, Gainesville, 1995
Rudi Johnson, Tampa, 1994
Roger Portell, Gainesville, 1994
Tony Estevez, Tampa, 1996
Don Crissinger, Nichols, 1995
Robyn Miller, Jacksonville, 1995
Bruce MacFadden, Gainesville, 1996
Terry Sellari, Tampa, 1996
Barbara Toomey, Sanibel, 1996

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Auction Committee:	S. Manchester, T. Ahern, T. Sellari
Book Committee:	R. Portell, D. Jones, B. McFadden
Nominations:	J. Pendergraft, S. Pendergraft
Spring Meeting Committee:	Tony Estevez, Terry Sellari
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Historical:	Eric Taylor
Board of Editors:	G. Morgan, F. Rupert, A. Brown, E. Taylor
Museum Representative (appointed):	Doug Jones
Resident Agent:	Frank Rupert

HONORARY MEMBERS

Margaret C. Thomas Anita Brown Lelia and William Brayfield David Webb

INFORMATION, MEMBERSHIP, AND PUBLICATION INFORMATION

Please Address: Secretary, Florida Paleontological Society, Inc.
Florida Museum of Natural History
University of Florida
Gainesville, FL 32611

FLORIDA PALEONTOLOGICAL SOCIETY INC. NEWSLETTER

Volume 10, Number 4 Fall Quarter 1993

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The Officers and Board of the Florida Paleontological Society Wish You and Yours A Happy Holiday Season and a Prosperous 1994!

F.P.S. Happenings

Fall Meeting Highlights

The FPS Fall Meeting was held November 6 and 7 in Lake City, Florida. Lake City was selected this year because we were due for a northern Florida meeting location, and the surrounding area offered some interesting and varied collecting sites. Some members were disappointed that it wasn't held in Gainesville, which was one of the original ideas. However, the logistics of getting a meeting room and motel space in Gainesville on a home football game weekend just didn't work out. Therefore, our multi-talented Secretary Eric Taylor, with help from Treasurer Phil Whisler, took the reins and put together a really nice meeting weekend in his own hometown.

Saturday the 6th started out rainy, with a leisurely breakfast bar at Qunicy's for those members who showed up early. We then adjourned to the Columbia County Public Library for the annual meeting activities. Highlights of the business meeting included presentation of this year's Howard Converse Award to Steve and Roxane Wilson in honor of their numerous contributions to Florida paleontology. Both were absent, but Dr. Doug Jones read the citation and displayed the inscribed wooden plaque with a fossil replica attached, which will be sent to the Wilsons. Lelia and Bill Brayfield and Dr. S. David Webb, one of our guest speakers for the day and also one of the founders of the FPS, were unanimously elected to honorary membership. New board members Terry Selari, Barbara Toomey, Bruce MacFadden, and Tony Estevez were elected to fill the four outgoing member's positions.

After the business meeting, we were treated to a series of four fascinating talks by staff from the Florida Museum of Natural History. Dr. Bob Chandler provided us some interesting and entertaining insight into the fossil record of *Titanis walleri* in Florida. Next, Dr. David Webb presented a captivating slide-talk on his on-going research at a submerged Pleistocene site in the Aucilla River. Then, as recipient of last year's student research award, Craig Oyen gave us an overview of his dissertation research on Neogene Echinoids, and the interesting use to which he put his research award money. Finally, Dr. Steve Manchester presented an review of the plant fossils of Florida...a relatively under-studied group of fossils and one in which he is constantly looking for new data from amateur collectors statewide.

By the end of the talks, we were somewhat behind schedule and adjourned for lunch. Eric Prokopi led a small group to a local quarry for some afternoon collecting. The Board members convened at Quincys for lunch and a Board meeting, after which we adjourned until the evening banquet and auction.

Saturday evening we enjoyed a delicious banquet dinner at the Holiday Inn, followed by our annual fossil auction. Many interesting items were donated for the auction...books, fossils, and fossil casts. Phil Whisler served as auctioneer, and did an outstanding job. A good many items went for great prices, including some rare and out of print paleontology publications and fossils from the now closed Leisey Pit. All in all, we cleared about $800 from the auction. This money will be applied to our annual student research scholarship fund. Many thanks to this year's auction committee - Robyn Miller, Steve Manchester and Helen Cozzini. We appreciate their efforts in getting all the donations together.

Sunday was devoted to collecting trips. The group split up into groups, some going to the Mayo quarry and some to the river sites. Eric Taylor summarizes their finds in his *Fossils Are Where You Find Them* column this issue.

Once again, many thanks also to all those who helped put the meeting together and participated in the talks and field trips.

Roxane and Steve Wilson Receive Converse Award

During the annual FPS Fall Meeting, held November 6-7th in Lake City, the 1993 Howard Converse Award was presented to Steve and Roxane Wilson of Arcadia, Florida. The Converse Award recognizes an individual (or individuals) from the non-professional paleontological ranks who has made outstanding contributions to Florida paleontology, typically through donations of fossil specimens or volunteer service to the Florida Museum of Natural History. The award is named in honor of the late Howard Converse, a former museum staff member in vertebrate paleontology, who had a great statewide impact on paleontology. Award recipients are selected each year by the museum paleontology staff and are presented with a personalized wall plaque; their names are also inscribed on a large, permanent plaque which

hangs in the museum.

This year's winners are no strangers to many of you. Steve and Roxane Wilson are very enthusiastic fossil collectors, active members of the Southwest Florida Fossil Club, and resident experts on the fossil faunas of the shell pits in the DeSoto County area. They have made substantial contributions of rare and interesting specimens to both the Vertebrate and Invertebrate Fossil Collections at the museum. Of particular note are the tiny fossil fish skeletons which they have washed and sorted from the matrix that fills shells of large Plio-Pleistocene mollusks, yielding previously unrecorded species. These finds, along with many rare invertebrate fossils from the same beds, have greatly enhanced our understanding of the paleoecology and diversity of Florida's ancient past. Although Steve and Roxane could not be with us in Lake City to receive their award, they should know that the FPS members present at the meeting gave them a hearty round of applause for their accomplishments after Dr. Doug Jones from the museum made the official citation.

From the Secretary...

by Eric Taylor

Information on our membership since the last newsletter.

It is with regret that we announce the death of long time member Bernard L. Smeltzer from Windsor PA in May 1992. The report of his death came from his father, Horace Smeltzer.

I am pleased to announce that the past quarter was one of the Society's best in terms of new members. A total of 27 new memberships were started, including several couples, families and, most pleasing of all, several junior members. Our existing membership is largely responsible for this increase and, combined with a good rate of retention in the past year, implies a good future for the FPS! (But...only if you pay your dues for 1994 when they are due in January!)

New members joining since September 8, 1993:

Rena and Stephen Jacobson from Tampa, FL

Jim Brown from Okeechobee, FL

Lawton and Sandra McCall from Palm Springs, FL (I'll bet it has more fossils than the one in California!)

Adam Black from Jupiter, FL

Margaret Flagg from Old Town FL, (Margaret is a close friend of FPS member, sculptor, diver, and fossil finder extrordinaire Steve Hutchens. She join specifically to come to the Fall meeting and then couldn't attend!)

Mark Renz of Alva, FL (Last quarter's newsletter contained Mark's article on his outstanding find in a creek in southwest Florida. He is also founder and president of the Paleontological Society of Lee County, a recently formed group based in Ft. Myers.)

Ed Fisher of Stuart, FL (Ed is in the process of trying to found the Treasure Coast Paleo Society. Members from that area should try and contact Ed.)

Charles Wagers from Fairfield OH.

Bill and Cheryl Wildfong from Maitland FL

Jerry and Sara Morey and family from Longwood FL

Jody Barker, Cathy McFee and Family from Orlando FL.

Robert Miller from Ocala FL

Jeremy T. and Diane Smith and family from Orlando FL

Carolyn and Greg Hehir from Rockledge FL

Derk Kuyper from Orlando FL (Derk attended the Fall meeting. Ask him about the "unique find he made in Parener's Branch!)

Liz Rollason from Inverness FL (Liz is a junior member. Luck to you Liz!)

Don Munroe from Gainesville FL

Stuart A. Michaels from Lutz FL

D.J. Kurtzman from Lakeland FL (DJ got wetter and dirtier than almost everyone else at the Fall Meeting field trips and found a bunch of stuff too!)

Bob Vandergronden from Tampa FL

Ray Ridgeway and Family from Tampa, FL (The Ridgeway's supported the Society's scholarship fund in fine fashion at our auction in Lake City. They outbid me on some nice stuff!)

Clay and Brenda Winne from Silver Springs, FL (The Winne's are divers and presented quite a contrast while hunting in Price Creek during the Fall Meeting field trips. Brenda was freezing on the bank and helping some of the kids to find stuff and Clay was WAY up the creek in his wet suit and made probably the best find of the day when he found an antelope straggles!)

John Mosely from Gainesville, FL

Annette Korn from Gainesville, FL

Kevin Marks from Lutz, FL

Kenneth Ebling from Boynton Beach (Junior member Kenneth is the son of Boynton Beach Chiropractic Physician Randall Ebling)

Because of the extent of these notes, our member profiles will be resumed again in the Winter quarter's newsletter.

PAY YOUR DUES NOW!
Use Renewal Form on last page

Book Bits

Good News...the Brayfield book is finally out. With its updated nomenclature and numerous photographic plates, it provides an excellent reference book on Florida's fossil shells. The back orders are currently being shipped, and new orders in quantities of 10 or more are now being accepted (see order form this issue, and review below).

Recent paleontology books:

A Compendium of Fossil Marine Families by J. John Sepkoski Jr, 1992, Contributions in Biology and Geology number 83, Milwaukee Public Museum, 156 pages. $25 softcover. Summarizes the stratigraphic features of more than 4000 fossil marine animal families. Suitable as a reference for classification of fossil marine animals and as a source of recent paleontological literature references.

A Pictorial Guide to Fossils, by Gerald R. Case, 1992, Krieger Publishing, 514 pages. $49.50. A reference for identifying fossils from around the world. Contains over 1300 illustrations and faunal listings for each phylum from protozoa to mammals. Suitable for use by students, experienced amateurs, teachers and researchers.

BOOK REVIEW
by Dr. R. Tucker Abbott

A Guide for Identifying Florida Fossil Shells and other Invertebrates. By Lelia and William Brayfield. Third Edition. Florida Paleontological Society, Gainesville, FL. 1993. 111 pp., 280 figs. Paperback, $10.00. ISBN 1-883167-02-7.

This third edition is a vast improvement to the earlier useful guides produced by the Brayfields. Under the careful guidance of Dr. Douglas S. Jones, Roger W. Portell and Kevin S. Schindler the nomenclature of the 258 species of Tertiary shells has been brought up to date. Twelve fossil corals and eight echinoderms, most likely to be found in our fossil pits, are also included.

Several pages of classification supply the various authors of the species, although unlike recent books on living mollusks, the dates of publication are not given. An adequate text with good locality data accompanies each of the excellent black and white photos. A glossary, list of references and an index round off this well-done, useful guide.

This is a splendid publication of the Florida Paleontological Society. Individual copies of the booklet may be obtained from the Museum Store of the Bailey-Matthews Shell Museum, P.O. Box 1580, Sanibel, FL 33957, of from the collector's Shop of the Florida Museum of Natural History, Gainesville, FL 32611.

Editor's note: This book may also be ordered wholesale from the FPS in quantities of 10 or more. See order form in this issue.

News Notes...
by Frank Rupert

Brayfield Book Now Available

Thanks to all you who placed advanced orders and then waited patiently for publication of the latest edition of Guide to Identifying the fossil shells and corals of Florida, by Lelia and William Brayfield. As mentioned in the last newsletter, the book was beset by an incredible number of problems and delays. After seeing it for the first

time at the FPS Fall Meeting in Lake City, I believe it was worth the wait. Doug Jones, Roger Portell, and Kevin Schindler did a fine job editing the new edition and bringing the older nomenclature of previous printings up to date. Roger also worked tirelessly in the relatively thankless job of proofing the text, dealing with the printer and working out the numerous problems with the plates. We owe him a big thank you for his time and dedication to this project.

Update on the North Florida Incident

Last issue I mentioned the fossil collectors who were accosted by a Fish and Game Commission officer on a northern Florida river. Since then one of the collectors, who wishes to remain anonymous, contacted Russ McCarty at the Florida Museum of Natural History. Russ as you may know oversees the Vertebrate Collecting Permit program. The anonymous collector confessed to Russ that he had Indian artifacts among the fossils he had recovered from the river bottom. This is the reason all his finds, including fossils, were confiscated by the officer. He realizes he was in the wrong, and just wants the matter clarified for everyone's edification.

Please remember that, unfortunate as it may seem, it is illegal to collect cultural resources in state rivers. A number of different law enforcement agencies are empowered to stop you from doing so. We would like to see an article from one of our knowledgeable members, perhaps one of our archaeologists, on the details of the law which covers artifacts. It would help clear up some of the misunderstandings regarding artifact collecting.

New fossil club established in Ft. Myers

We extend a warm welcome to the Paleontological Society of Lee County, Florida's newest fossil club. One of the club's goals is to become an organization which will help make real contributions to science through its own collecting activities and information exchange with other amateurs and the professional community. Mark Renz, author of last quarter's superb newsletter article on fossil collecting in Florida's creeks, is the club's President. The Society had its first meeting October 21st, and will have regular meetings on the third Thursday of each month at 7:30 P.M. at the Lee County Nature Center, 3450 Ortiz Avenue, Fort Myers. Interested individuals may contact the Society at P.O. Box 50597, Fort Myers, FL 33905-0597 or phone (813) 728-3532.

More on the proposed national vertebrate fossil law

Upon reading my note last quarter on the revised Baucus Bill, the so called Vertebrate Resources Protection Act (S-3107), member John Babiarz of Mesa, Arizona wrote to remind me that while this bill allows amateurs to collect on federal land, their finds remain the property of the U.S. Government. He makes the valid point that most collectors would like to keep what they find, a privilege that is not guaranteed by the new Baucus Bill.

As it turns out, I was talking about an alternate bill last issue, not the Baucus Bill. Through a minor misunderstanding, which involved a cover page from the Baucus Bill being stapled to a copy of the American Lands Access Association bill (outlined below) provided to me by members Jim and Sue Pendergraft, I transposed the two. I'm sorry Jim and Sue! The information on who to contact about Senator Baucus' bill in Washington was correct as provided...I was just quoting the ALAA bill when talking about it. Therefore, I hope the following clears things up.

In response to the controversy on this subject, the American Lands Access Association proposed an alternate bill to that of Senator Baucus'. Entitled the Paleontological Resource Preservation Act Of 1993, this alternate bill parallels the original legislation. However, it allows for simplification of the regulatory procedures prescribed in S-3107, allows casual collectors to keep finds that are not scientifically significant, provides for commercial and other non-commercial collecting with permits, and allows the exchange and trading by amateurs of finds valued at $500 or less. If any FPS members are interested in seeing the text of the ALAA bill, contact John Babiarz at 2558 East Lehi Road, Mesa, Arizona, 85213.

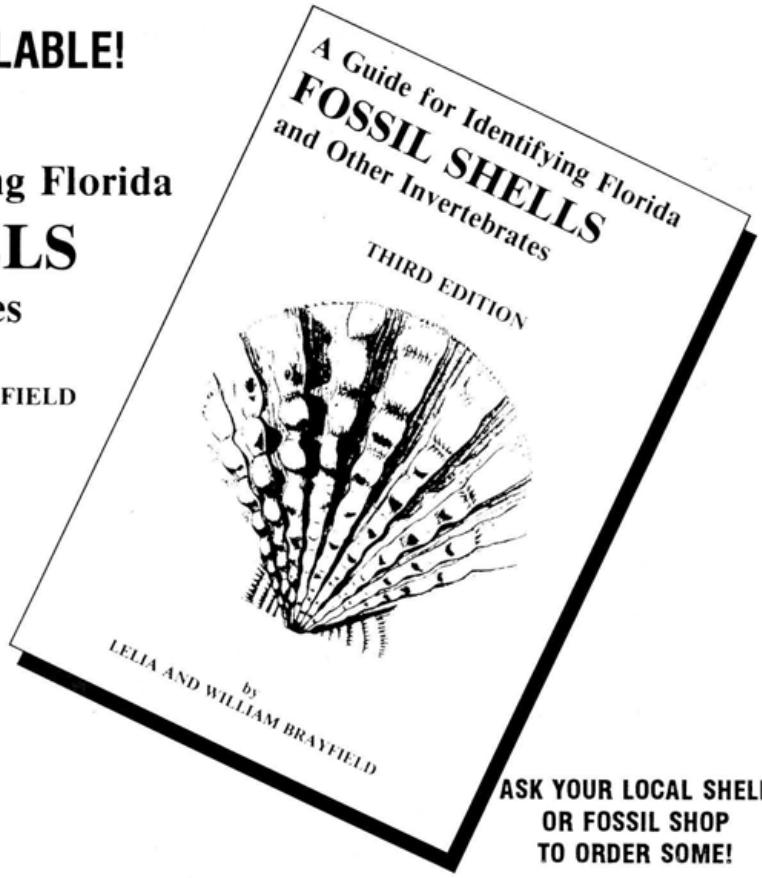
Also, for those interested, the November 1993 issue of Geotimes magazine has several pages of articles on fossil collecting on federal lands, including a perspective from the Society of Vertebrate Paleontology, a piece on the ALAA bill mentioned above, and an article supporting the role of commercial collectors in paleontology. This issue also contains an excellent commentary entitled *In Defense of Paleontology* by Warren Allmon. In it, Warren effectively argues the need for the continued teaching of paleontology in this age of dwindling job opportunities and academic budget-cutting. It's interesting reading.

New Edition!

NOW AVAILABLE!

A Guide for Identifying Florida
FOSSIL SHELLS
and Other Invertebrates

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

Florida Paleontological Society, Inc.
Financial Statement (10/16/92 - 11/1/93)

REVENUE		
Membership Dues		$5,187.50
Sales		
Publications		
Beach and Bank Collecting		5,148.82
Fossil Shells of Florida		432.14
Handbook of Paleo. Prep.		762.24
Plaster Jacket		39.65
Papers in Fla. Paleontology		282.00
Butvar		544.00
Miscellaneous		
Meetings		1278.50
Fall (1992) Auction		2,000.00
Donations		150.00
Other		341.66
	TOTAL REVENUE	$16,167.01
EXPENSES		
Publications (reflecting only those incuring expense for this statement period)		
Fossil Shells of Florida		335.94
Newsletter		2,177.08
Hulbert Book		22.28
Scholarship Award		500.00
Postage		621.61
Butvar		632.11
Miscellaneous		
Meetings		1,863.08
Office Supplies		259.54
Printing		190.90
Display Case		710.08
Other		118.72
	TOTAL EXPENSES	$7,431.34
	INCOME OVER EXPENSES	$8,735.67
	OUTSTANDING BILLS	$8,707.50
STATEMENT OF ASSETS (11/1/93)		
Cash		
Checking		$10,665.99
Savings		13,423.95
Inventory		
Beach and Bank Collecting (195 @ $2.00)		$390.00
Florida's Fossil Shells (1657 @ $4.36)		$7,224.52
Handbook of Paleo. Prep. Tech. (172 @ $3.25)		559.00
Papers in Florida Paleo. (890 @ $2.50)		1,510.00
Plaster Jacket (2,926 @ $.50)		1,463.00
Butvar (140 # @ $4.52/#)		632.11
	TOTAL INVENTORY	$11,778.63
	TOTAL ASSETS	$35,868.57

Minutes
Annual Business Meeting
Florida Paleontological Society
November 6, 1993

The Fall 1993 meeting was called to order by Frank Rupert, President, at the Columbia County Library in Lake City, Florida, at 9:23 A.M, 11/6/93.

Frank Rupert announced the availability of the new Brayfield shell book and described it to the members. He also announced that the Thomas book had entered its 26th printing and that ISBN numbers had been obtained for all FPS publications.

Eric Taylor described the agenda for the meeting, including a description of the field trip sites.

Dr. Doug Jones, Museum Representative, announced that the winners of the 1993 Howard Converse Award for contributions by amateurs to the science of paleontology were Roxanne and Steve Wilson of Arcadia, Florida.

Gary Morgan reported on the progress of the fossil vertebrates book. All pictures are finished and the text should be in the hands of the reviewers by the end of the year.

Tony Sellari and Tony Estevez of Tampa, Barbara Toomey of Naples and Bruce MacFadden of Gainesville were elected to the FPS Board of Directors by the membership.

Phil Whisler, Treasurer, passed out the financial report and reviewed it with the attending members.

Phil Whisler nominated Lelia and Bill Brayfield to honorary membership in the Society in honor of their important contributions to Florida Paleontology. Both were unanimously elected by the attending members. Anita Brown nominated Dr. David Webb to be an honorary member in recognition of his years of service to the FPS. He was also approved by unanimous acclamation.

Helen Cozzini motioned that the FPS donate the funds to pay for the concrete floor in the Thomas Farm site pole barn. A discussion of what Thomas Farm is and why the pole barn needed a floor followed. President Frank Rupert directed that more data be obtained on the costs involved, and action was postponed until the information is obtained.

The business meeting was adjourned at 11:00 AM.

Respectfully submitted,
Eric G. Taylor, Secretary

Minutes
Board of Directors Meeting
Florida Paleontological Society, Inc.
November 6, 1993

The meeting of the Board of Directors was called to order by President Frank Rupert at 2:40 PM at Quincy's restaurant in Lake City, Florida. Present were:

Frank Rupert	President	Helen Cozzini	Director
Gordon Hubbell	Vice President	Steve Manchester	Director
Eric Taylor	Secretary	Tom Ahern	Director
Phil Whisler	Treasurer	Terry Sellari	Director
Roger Portell	Director	Tony Estevez	Director
Rudi Johnson	Director	Various members and guests of the FPS	

Following a discussion of future FPS meetings, it was decided to hold the Spring Meeting in the Tampa area sometime in early April. Terry Sellari and Tony Estevez volunteered to head a committee to set up the meeting.

At Eric Taylor's urging, the Fall '94 meeting will be held in Gainesville and will feature Thomas Farm and its unique place in Florida paleontology. A tour of Thomas Farm, talks about the paleontology of the site, and displays of fossil material found there will be part of that meeting.

The Board decided to continue the program of having Eric Taylor represent the Society at Fossil Fairs around the state under the same ground rules as agreed to last year. During '94, he will display items from Thomas Farm and promote the FPS Fall Meeting.

Dr. Doug Jones volunteered to head the 1994 Student Research Award scholarship committee, in the absence of Dr. Bruce MacFadden.

Phil Whisler and Roger Portell reported on the $1500 cost overrun on publishing the Brayfield book. The publication process was wrought with unavoidable problems, and the overrun will reduce slightly the amount the FPS clears on each book. The extra expense does not pose a hardship to the Society, and the updated book promises to be a popular item.

Gary Morgan reported that a new Papers in Florida Paleontology is likely by Spring, 1994.

President Frank Rupert appointed Terry Sellari, Tom Ahern and Steve Manchester to serve as the Annual Fossil Auction Committee for 1994.

Eric Taylor was directed to complete the revisions to the FPS By-Laws. Cliff Jeremiah was temporarily removed from his committee appointments due to his recent inactivity in the Society.

The Board discussed the ethical considerations involved in the publication of papers alleging to be scientific in nature and the refusal of some members to allow scientific access to important items in their personal collections. It was decided that the Society, through its officers and newsletter, should take an active stance in urging its members to allow scientifically important specimens to be studied by qualified professionals, and that inaccurate, pseudo-scientific papers should be countered in print by competent persons.

There being no further business to discuss, the meeting was adjourned at 4:00 PM.

Respectfully submitted,
Eric G. Taylor
Secretary

Prep Talk

by Russ McCarty

Greetings from the bone lab. Where did 1993 go? The earth has almost finished its yearly journey around our local star (did you know that binary star systems are more common than solitary systems such as ours?---what a trip to see two sunrises and two sunsets every day). I just got back from the Florida Fossil Hunters annual fossil fair in Orlando where I enjoyed seeing old acquaintances and making new ones. Florida Fossil Hunters, the Orlando area fossil collector's group, is to be commended for their focus on education at the fossil fair.

The fair also offered the perfect opportunity to exchange information with other preparators, both professionals and part-timers. I talked with Tony Estevez, one of the best preparators in Florida. Tony and I have compared materials and techniques for several years. On request, I took the Little Salt Springs giant tortoise, which I had just finished reconstructing, with me to the fossil fair. It generated a good deal of interest, especially since this specimen was the much publicized tortoise that was found with a wooden stake resting between the top and the bottom of the shell. The stake, which yielded a Carbon 14 date of around 12,000 years, plus charring seen on parts of the shell, and on clay beneath the shell, implied that Paleo-Indians had killed the tortoise and cooked it sometime near the tail-end of the Pleistocene. At the fair, the tortoise prompted many questions from people who were trying to reconstruct tortoises which they themselves had found. Turtles and tortoises are the favorite fossils of very few persons. I wonder why? When they are reasonably complete and skillfully reconstructed, they can be impressive specimens. Perhaps, collectors shun them because of the time and frustration involved in putting a turtle together correctly. It can be a tedious operation. There are some tricks of the trade regarding turtle reconstruction, e.g. to build the carapace of the Little Salt Springs giant tortoise, I fabricated a device which I call the "lazy-tortoise", a kind of rotating, adjustable affair which could hold a tortoise shell while under construction. In essence, I took a discarded adjustable-height office chair and removed the seat and wheels. To the bracket which once bolted to the chair seat, I welded an arrangement of 3/8 inch bendable soft iron rod (pencil rod) into something that looked like a sturdy umbrella frame. The iron rod was flexible enough to bend to the desired shape of the tortoise shell, thus, the shell was supported as it was being built. An additional advantage, is that the frame (along with the shell) rotates around the base providing easy access to all areas of the shell and giving the all-round view necessary to keep the curvature accurate. This device might be applicable to other reconstructions as well. I'll discuss turtle reconstruction in a future bulletin.

Let's finish with the gomphothere jaw first. In the last bulletin, the left and right sides of the gomphothere were joined together. To complete the reconstruction, it would be necessary to reproduce the missing areas. These areas included the very front of the jaw and the alveoli for the flat shovel tusks, a portion of the left ascending ramus (the highest portion of the mandible which juts up through the zygomatic arch of the skull), and the right 2nd molar, of which we had only about the front quarter.

We tackled the front of the jaw first, since that was the greatest task facing us. Unless you're a closet science fiction writer given to creating strange life forms, your first choice, when it comes to reconstructing missing areas, should be to find another specimen of the animal on which to model your reconstruction. In our collections from Moss Acres, we did have another gomph jaw, but the front was missing on that specimen. I also found an isolated alveolus, however, it was so crushed and distorted that it wasn't a good model. In fact, there were no specimens to serve as models except the two just mentioned. Next step!...Check the literature. Was I lucky! A perfect specimen was found in Texas several years ago. Not only was it written up, but there were two photographs. I took a copy of the photograph and enlarged it by projector to size of my specimen. This gave me an approximate template for various lengths and widths on my specimen. Another reconstruction

tool that can be used when you have photographs of more complete specimens, is the use of ratios and proportions to transfer dimensions on the photograph to the full size specimen. So by hook, crook, and visions in the wee hours of the night, I now had a plan and blueprints to follow. Using a soft flexible metal mesh (something like chickenwire), I fabricated an armature (a skeleton on which to lay up a modeling material). Onto the armature, I applied a modeling compound of plaster of paris and taxidermist mache mixed 50%/50%. Using photographs and the specimens from our collection, I sculpted the front of the jaw and the alveoli for the tusks. I later made a mold of some shovel tusks in our collection and cast a pair of tusks to put in this specimen.

Next, we turned to the missing left ascending ramus, an easy repair job. This thin, flat process which projects up under the zygomatic of the skull is frequently broken on fossil jaws. Fortunately, for us, the right ascending ramus was complete. And now, the miracle of VisQueen (or any clear, flexible plastic sheeting, even a food bag) is revealed!! For whatever reasons, our quirky universe has made certain things identical in all respects but one--- "handedness". These things possess that almost intangible quality of being "left-handed" or "right-handed"; they are mirror images of each other. This quaint feature may add a certain charm to the everyday world, but unless, you're the reincarnation of Michelangelo, its very hard to sculpt, by eye, the missing element of a matched left-right pair. In my past life, I was a County Kerry potato farmer, so wherever possible, I cheat, when it comes to sculpting. I laid a piece of clear plastic sheet on the existing right ascending ramus, then traced it out with a black Sharps marker. When turned over to view the opposite side of the sheet, I saw a mirror image. At this time, I positioned the tracing over the missing ascending ramus and drew in that part of the outline which coincided with the broken or jagged edge. I now had an exact drawing of the missing portion of the left ascending ramus. Laying a piece of 1/8 inch hardware cloth mesh over the tracing,I retraced the outline on the mesh with the black marker. Cut out the mesh outline with tin snips and PRESTO!...you have a wire mesh left ascending ramus. A dab of 5 minute Epoxy glue will affix this to the broken edge. You now have an armature over which you can apply a molding compound (Magic Sculp epoxy putty, my favorite, or mache/plaster mixture). Touch up the finished job with fine sandpaper and you have a perfect left ascending ramus.

For want of a right 2nd molar, this gomph jaw was not complete. We had found a small piece of it, perhaps, 2 cusps out of a total of 6 or 7. As Fate would have it, Eric Taylor, who had helped out a few days at the gomph site, walked into the lab with a story about how he and his son, Craig, had visited the site after we had finished working there. Craig, had found a fragment of gomph tooth on the spoil piles and had taken it to Austin, Texas where he goes to school. Since we had never found any lone fragments of gomph tooth in seven years of visiting the site, I felt sure that what Craig had found was part of the missing 2nd molar. Craig, sent the fragment back to Florida, and sure enough, it was the missing rear portion of the 2nd molar. Figuring that this gomph had generated enough miracles in its 7 million year history, and that the missing middle third would never show up, we fabricated a tooth. Once again, VisQueen to the rescue. Laying a clear plastic sheet over the existing left 2nd molar and tracing it gave us a template which we could turn over and have a copy of the missing right 2nd molar. This template allowed us to set up the missing parts in clay and sculpt in the missing middle portion in Magic Sculp. The finished tooth was put in the gomph jaw and an 18 month project was complete. Pheww!! I made a mold of the reconstructed tooth and sent Craig Taylor a painted copy, which his father has assured me he displays in a prominent place (a shoebox in his closet). HAPPY NEW YEAR!

Please send questions, answers, or comments to:

Russ McCarty
Vertebrate Paleontology
Florida Museum of Natural History
University of Florida
Gainesville, FL 32611

Announcing the Florida Paleontological Society's

STUDENT RESEARCH AWARD

2ND ANNUAL COMPETITION

Prospectus and General Overview

The Florida Paleontological Society (FPS) is pleased to announce the second annual competition for its Student Research Award. The purpose of this award is to promote a better understanding of **paleontology and the ancient life of Florida** through new research discoveries. Eligible fields of relevance within Florida paleontology include invertebrates, vertebrates, microfossils and plants. This award is open to any **college student, undergraduate or graduate**, in good standing at a Florida college or university.

For this second competition, the FPS has allocated an award of up to $500. The purpose of this grant is for expenditures such as (but not restricted to) field work, museum research travel, laboratory analyses, research materials, etc. It is not intended to fund travel to scientific meetings, indirect (overhead) costs, or salaries and wages. The **deadline** for receipt of proposals is **1 March, 1994**.

Applications must be postmarked on or before the deadline and be sent to the Secretary at the address listed below. Applications will be screened by a committee and will be judged based on the following criteria: (1) merit of the proposed research, (2) feasibility of the project, (3) clarity of expression, and (4) a letter of recommendation from a faculty sponsor. The screening/award committee shall consist of professional and hobbyist paleontologists. In order to avoid potential conflicts of interest, students whose advisor serves on this committee are ineligible to apply. The Award will be announced on May 15th, 1994 and a check for the requested amount (up to $500) will be sent by the Treasurer to the recipient.

It is expected that, during or after completion of the research, the recipients will present the results of their discoveries and additions to knowledge in the form of (1) a short article of a non-technical nature to be published in the FPS Newsletter and/or (2) a talk presented at an FPS meeting. In the event of the latter, the student's travel expenses to the meeting will be paid by the FPS (but this does not have to be included in the originally requested budget).

Application Process and Requirements:

The application process is intended to be short - thus, items 1-4 below are limited to two pages (minimum 10 point type, standard 1" margins). The application must include:

1. Title of research project
2. Name, address, and phone number of applicant
3. Current college status (where enrolled, major, degree program, anticipated graduation date).
4. Project description written in **general**, i.e., **to the extent possible, non-technical**, terms to include a description of what he/she plans to study, why it is interesting or important, how and when it will be done, and a short budget of proposed expenditures.
5. Appended to this proposal there must be a letter from a faculty sponsor who will vouch for the qualifications of the applicant as well as the importance of the project, and a statement that he/she will supervise the research.

*Applications should be submitted by **1 March 1994** to:*

Eric Taylor, Secretary
Florida Paleontological Society
Florida Museum of Natural History
University of Florida
Gainesville, FL 32611-2035

Fossils *Are Where You Find Them*

YOU CAN GET WET, DIRTY AND COLD ANYWHERE IF YOU TRY!

by Eric Taylor

Well, the fall 1993 Meeting of the Florida Paleontological Society, Inc. is over. Those who attended know what happened, those who want to find out the details of the meetings and auction can read President Rupert's report or the minutes, and those who are interested in fossils can read this article!

You can't say I didn't warn you about the impact of weather on the field trips we had planned! As a result, this month I am introducing the WD&C index for fossil hunting (stands for Wet Dirty and Cold!)

We actually lucked out a lot. The only site of the four that was badly affected by the rain the previous day and the previous week was the Suwannee river. There, the water came up two feet from Friday afternoon to Sunday morning and made working in the locations I had scouted nearly impossible. Despite the fact that only two areas were at all accessible, a couple of neat items were located. One was a large piece of sea turtle shell that dropped out of a chunk of rock I had hacked loose (thanks for the good eye, Eric Prokopi!) and the other was a previously unknown (from this site) species of snaggletoothed shark. D. J. Bethea from Lakeland FL, a new member on his first river trip, stuck with it longer than most everyone and found a lot of fish fossils. He also took home a bucket of rock to screen wash, something others should have considered. You are all invited to come back when the weather is hot and the water low for some interesting collecting experiences (but don't forget your collecting permit!) Suwannee River WD&C index rating: W-6 D-6 C-8.

According the Roger Portell from the Florida Museum of Natural History's Invertebrate Paleontology Department (Crunchies and Squishies), the trip to the lime rock mine in Mayo was an outstanding success. Several important and interesting specimens were found and donated to the museum, with Wendy Conway's largely intact (including the original shell) echinoid winning the prize for the best find (I hope I got this right. As you may know, I don't know much about invertebrates!) Lime rock mine WD&C index: W-1 D-1(they saw some dirt!) C-4.

The only person I talked to who went to the Parener's Branch site was new member Derk Kuyper from Orlando. He left the Suwannee River as soon as he saw the water level, was afraid to go through the gate at the trailer park at Price Creek and so went down to Parener's Branch. He reports lots of W and D and quite a bit of C along with some sea cow bones, some shark teeth and a fragmentary advanced bovine artiodactyl jaw that he sent me pictures of. Derk, you are not the first person to be fooled by Elsie the Cow remains by any stretch of imagination! I can't tell you the number of times I thought I had finally found that elusive camel mandible or leg bone only to have the item "moo" quietly when someone else looked at it. As a matter of fact, I have two of those items on my back porch right now that I carefully wrapped and brought home from the Santa Fe River while working on the Mammoth Savings and Loan site! I'm glad you found something and it was a nice cow jaw! WD&C index rating: W-5 D-8 C-5.

After leaving (WD&C to beat the band!) the Suwannee River, most of the intrepid fossil collectors headed for Price Creek. This interesting and productive site appears to have been the hit of the suite as most everyone who went there and got involved in collecting ended up staying for several hours. Some interesting and significant finds were made in the clay and gravel in the bottom of this small, quick flowing creek.

John Yule and his son Adam from Lecanto Florida got into the water and worked steadily for almost three hours. John spent almost all of that time in one spot digging sand and gravel out of the bed of the creek and filling other peoples' stainers for them. Part of this effort resulted in a jaw fragment from the very small Clarendonian rhinoceros. Gary Morgan has been trying to identify this

creature for over 5 years since the first traces of it showed up in the Occidental Chemical Phosphate Mine material that my sons and I donated to the museum. This jaw fragment is the first located from anywhere in the north Florida area and is now part of the collection at the FLMNH. Thanks Yule's!

The biggest contrast within a family could be found in new members Clay and Brenda Winne from Silver Springs. Brenda awarded the whole day a WD&C rating of 999 and really wanted to go sit by the fire somewhere. She gutted it out though and spent several hours standing on the creek bank helping the Yule's and others look through their stuff and looking hopefully up-creek for husband Clay. Clay had on his wetsuit and was probably the best dressed person there that Sunday as a result. In addition, he found lots of very interesting items including the astragalus from a tiny Clarendonian antelope. Only the fact that the museum had several others allowed Clay to keep possession of that beautiful little specimen. The Winnes left after I did and at least one of the pair had a great time!

Lots of others were there too and some found lots of material that is unique to this part of the state. There were lots of shark teeth, ray plates beyond counting, sea cow bones of every type except skulls, horse teeth (THAT small?!?) and various others.

The WD&C rating for Price Creek was difficult to calculate with precision. The W was clearly a 9 (whose daughter was that who spent two hours up to her neck in the water?) The D varied from a 9 to a 0 depending on how wet you got. The C started off at about an 8 but by the time the day was up was down to about a 3. Overall, make it: W-9 D-3.5 C-4.

On November 30, 1993, I took a load of furniture to my son in Austin, Texas. I would like to report that it is a long drive from Lake City to Austin and that the WD&C index can be applied to fossil hunting there as well!

Craig (my son) has found a deposit in the Eagle Ford Shale (Upper Cretaceous) that is rich in fish and shark fossils, including lots of extinct mollusk eating shark teeth. Unfortunately, this shale is in the bottom of (you guessed it!) a creek! Austin, Texas, is colder in early December than Florida but that didn't stop Craig and me from hitting the creek as soon as I arrived there.

Luckily it hadn't rained much. Unfortunately, we had to park the car about 1/2 mile from the location of the outcrop and the only way to search for the shark teeth in the rock was to haul it out of the creek and take it back to the house. That led to lots of wet, dirty shale kicking my you-know-what all the way back to the car! (And blood blisters from hitting my thumbs with the hammer used to break the shale up! But that's another story!) The end result? Another fossil locality with a WD&C rating! Shoal Creek in Austin TX gets: W-3 D-8 C-9 (and two visits to the medicine chest for antibiotic for my thumb!)

The moral of the story is in the heading. The fossils are out there folks! And if you love 'em, you'll go even if the WD&C rating is straight 999 and you have to drive to Austin or further to get Wet, Dirty and Cold!

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Thar she blows! -Whales in Florida's Geologic History

by Wm. Thomas Miller
Florida Museum of Natural History

The sight of dolphins swimming along a white sandy beach or riding the bow waves of local boats is a familiar one to many of us in Florida. Indeed, dolphins and their cousins, the great whales, are not only well loved, familiar animals but are the base of a large tourist industry in our state as one of the lures to our emerald waters. Unknown to many, whales and dolphins have lived around Florida since it was nothing more than a peninsular underwater shelf - over 50 million years ago! This article is written to familiarize you, the reader, with the group of animals categorized under the Order Cetacea - the whales, dolphins, and porpoises, and their occurrence in Florida's geologic past.

Cetaceans are mammals, just like you, me, horses, mice, giraffes, camels, cats and dogs - just to name a few. They have hair (when new born though not much to speak of), the females bear their young live and nurse them, and they must breathe air. But what makes a whale a whale, different from other mammals? The combination of characteristics which are unique to cetaceans include paddle-shaped flippers (which are derived from a forelimb constructed similarly to our arms), a lack of hind limbs, a pair of horizontal flukes at the end of the tail, a layer of thick blubber for warmth, a streamlined body, almost total loss of hair, modified ear bones for better underwater hearing, and extension of the skull, or "telescoping", so as to cause the nares to move to the top of the head.

The cetaceans, while being very similar to each other, have certain dissimilarities within their group. The most important differing characteristics are the skull and associated feeding apparatus. It is on the basis of this and some other attributes that cetaceans are divided into three suborders: the Archaeoceti, the Odontoceti and the Mysticeti.

The Archaeoceti is the oldest suborder and is completely extinct. They are believed to be ancestors of all modern cetaceans. Archaeocetes lived during the Eocene and Oligocene epochs. The characters which are distinctive to these whales start with the nares being located on the rostrum (snout) - this is because they exhibit no telescoping of the bones of the rostrum over the skull. They have heterodont dentition (differentiated teeth) consisting of 12 incisors, 4 canines, 16 premolars and 10 molars. The cheek teeth are distinctive in that they are laterally compressed, serrated and have two roots which give them a yoke-like appearance. It is because of this that Archaeocetes have the informal name of Zeuglodont. These ancient creatures have occurred globally.

Five are known from the United States, three of which are native to Florida waters. They are the giant *Basilosaurus cetoides* (65 ft), *Zygorhiza kochii* (20 ft) and the as yet headless *Pontogeneus brachyspondylus*.

***Basilosaurus'* frolic in an Eocene sea** (From Olsen, 1959).

The Odontoceti are the varied and familiar toothed whales. This group includes the celebrated sperm whale, the mysterious beaked whales, the narwhal, beluga, killer whales, river dolphins, as well as the porpoises and dolphins. Odontocetes are characterized by a telescoping of bones of the rostrum over the skull so that the single blowhole is on top of the head. The skull itself is an asymmetrical aid in echolocation (which is a feeding strategy exclusive to these whales), homodont dentition (all teeth the same - roughly conical and curving, except in porpoises, who have triangular teeth, and the male narwhal which has a roughly 8 ft tusk emerging from the upper jaw) and symphysial jaws (the two halves connect at the front of the mouth). Ancestors of these cetaceans

are the curious members of the superfamily Squalodontoidea - the shark-toothed whales. They are about the size of a modern dolphin and had teeth shaped remarkably like a shark's.

The Odontocetes which occur off Florida today include the sperm whale, Cuvier's beaked whale, killer whale, false killer whale, short finned pilot whale, Risso's dolphin, Atlantic spotted dolphin, pantropical spotted dolphin, spinner dolphin, clymene dolphin, striped dolphin, common dolphin, rough toothed dolphin, pygmy killer whale, the dwarf and pygmy sperm whales, and of course the bottlenose dolphin. Odontocetes are known to have existed in Florida since the Miocene epoch.

Mysticete whales, also known as baleen whales, are some of the largest animals in the earth's history. The biggest cetacean ever - the Blue whale, is estimated to weigh in at around 200 tons; this far exceeds the estimated weight of the two largest dinosaurs, *Ultrasauras* and *Seismosaurus*, both over 90 tons. The Mysticetes are classified on a lack of erupted teeth but do possess baleen, keratinous comb-shaped structures which hang from the roof of the mouth and are used for straining marine organisms from sea water. These whales also exhibit a telescoping of the skull so that the blowhole, with its double opening, is on top of the head. The skull is symmetrical, the jaws highly curved and asymphysial (do not connect at the front of the mouth).

Mysticete whales occurring off Florida today include fin whales, Bryde's whale, humpback whale, right whale and minke whale. Ancestors of these whales had teeth and are thought to have originated in the Oligocene (along with the Odontocetes). Baleen whales are known in Florida since the Miocene epoch.

Fossil remains of cetaceans have been found throughout our state. The kinds of remains which have been found as fossils include skulls, jaws, teeth, ribs, ear bones, and vertebrae. The ages of these finds date back to the middle Eocene. Between that time and the Miocene, this state was submerged beneath the ocean. Since whales have swam over the areas where we now make our homes, their fossils are found as far inland as Alachua County. The Florida peninsula began to emerge as dry land during the Miocene. Thus, fossils of the late Tertiary and the Quaternary are commonly found further south and closer to the modern coasts in marine sediments deposited by the retreating seas.

Cetacean fossils may be found in the same sorts of sites you are used to prospecting. Quarries are an important place to look as digging activity constantly brings newly exposed rock to the surface. Road cuts also offer exposed rock which every fossil hunter should examine, no matter what they seek. Rivers are the most important way nature exposes the past. Several of the most important cetacean finds in Florida are from our rivers and streams. In northern Florida rivers cut through deposits as old as the Eocene and Oligocene. It is important to note the fact that rivers cut through sediment of varying ages along their courses and that any fossils one finds are likely to be mixed with fossils of younger and older occurrence.

Archaeocete whales, having lived in the early Tertiary, represent the oldest fossil cetaceans in Florida. A variety of locales have yielded important fossils over the years. In 1913, G.C. Fraser discovered a hind portion of the skull of a zeuglodont in Eocene Ocala Limestone sediments in the Oakhurst Lime Company quarry, Marion County. From this same site C.C. Meffert obtained a single vertebrae. Archaeocete ribs and vertebrae where found in the Ocala Limestone by Harbans Puri at the Williston Shell Rock Mine, Lafayette County. In a quarry near Haile in Alachua County, several vertebrae were collected by Dow Rowland and P.A. Leivonen. Kelly Brooks (University of Florida Geology Department) discovered an Archaeocete incisor in an Ocala Limestone quarry near Gainesville. In Ocala Limestone in the Sam Wall quarry, Alachua County, Fred Dixon found a zeuglodont skull fragment. Dave Gillette recovered an Archaeocete cheek tooth in the Steinhatchee River in Lafayette County (you guessed it - the river cuts through the Ocala Limestone). In the Withlacoochee River, Pop Taylor recovered one vertebrae. Roger Portell (of the FLMNH) found much of a *Zygorhiza* in Mayo, Lafayette County. Within the last few years, a *Basilosaurus* was discovered in the Avon Park Formation (Middle Eocene). It is easy to distinguish *Basilosaurus*, not only by its large size, but also from its very long vertebrae which

may be as large as 1.5 feet long and 8 inches wide. More recently, members of the Florida Speleological Society found portions of *Zygorhiza* and *Pontogeneus* in a cave.

By the turn of the Miocene epoch, Odontocetes and Mysticetes had replaced Archaeocetes around Florida. Many cetacean fossils from this time are found in a place known as Bone Valley. This area is actually comprised of parts of DeSoto, Hardee, Hillsborough, Manatee and Polk Counties. The area is heavily mined for phosphate for use in fertilizer. This digging activity has uncovered much in the way of cetacean fossils.

Of the whales occurring here, some of the most interesting are members of the superfamily Platanistoidea - the long beaked dolphins (named for, yes - their long rostrum and jaws). Members of this family surviving today are known as river dolphins and inhabit rivers of China, India and South America. Their ancestors, however, were marine animals which occurred with apparently some frequency around Florida.

Several specimens of these mammals have been found. A complete skull was found by Arnie Lewis in 1957, in Polk County, at the Homeland Mine. It is almost three feet long and 4/5 of this is the rostrum and jaws. The largest Platanistid is known from only a few specimens. It is called *Megalodelphis*. Gary Morgan of the FLMNH pointed out in his Plaster Jacket article of 1978 that the teeth of this dolphin may be confused with the marine crocodile *Gavialosuchus*, which was a contemporary. This crocodile's teeth can be distinguished on the basis that they are less curved than the dolphin's, have a distinct ridge (carina) on the anterior and posterior edges, and have an open root. Interested persons may wish to view the Museum's *Gavialosuchus* which is on display along with a number of other Florida vertebrates (including the Archaeocete, *Zygorhiza*). Other specimens are known from north and central Florida. Recently Sue Harrison donated the fossil remains of a long-beaked dolphin that she found in the Gainesville area to the Museum. Bill Tilden also donated the fragments of a Platanistid he found in a stream bed on his property near Sopchoppy, Wakulla County.

Other small cetaceans are known from Florida's fossil record. *Goniodelphis* is another Bone Valley specimen. It is related to the modern South American river dolphin, *Inia geoffrensis*. Goniodelphis is known from only two fragmentary skulls, a set of lower jaws, and isolated teeth.

Larger toothed whales are known from Florida's past too. A larger relative of the modern pygmy sperm whale *Kogia* is found here. It is called *Kogiopsis*. Its teeth are 3 to 4 inches long and 1 to 1.5 inches wide at the base. They may have wear facets and longitudinal grooves. A larger sperm whale, *Scaldicetus*, has left teeth 5 to 8 inches tall and up to 2 inches wide in the Bone Valley Member of the Peace River Formation. All three living relatives of these animals - the sperm, pygmy sperm and dwarf sperm whales - may be found off Florida today.

Baleen whales are also known from Florida since the Miocene. Two cetotheres (an extinct group) are known from fossils of their auditory bullae (an ear bone which is highly diagnostic in Mysticetes) in the Bone Valley. They are called *Mesocetus* and *Isocetus*. A large relative of the blue whale, named *Baleanoptera floridana* is also known from a nearby complete 6 foot mandible (jaw bone), which was found in a phosphate mine in Polk County. A right whale, *Eubalaena glacialis*, was collected from a beach deposit close to Jacksonville. From this area also Dr. Clifford Jeremiah collected bullae and skull fragments of the humpback and fin whales, *Megaptera novaeangliae* and *Balaenoptera physalus* respectively. In 1982, Chris Kreider, along with Robin and Jan Brown, discovered part of a large whale in the Caloosahatchee River (Tamiami Formation, Pliocene).

The underwater excavation of this find was accomplished by the FLMNH and the fossil assessed as a *Balaeonoptera*. The Museum also has two skulls of the little known atlantic gray whale *Eschrichtus robustus*, which apparently went extinct during colonial times. The first skull was found by Mr. and Mrs. Kornit on Jupiter Island and donated by Burckett Neely. The second skull was found by Dr. Jesse Robertson of Jacksonville University, on Jacksonville Beach.

The finds listed in the preceding paragraphs give but a glimpse of what the rocks of Florida hold for us. It is always exciting to find such fossils, but have you ever held a tooth, part of a mandible or perhaps a bulla in your hand and

wondered just what did this whale do? How did it hunt, socialize, or reproduce? Today we know something of how past cetaceans lived. This information comes to us mostly from examples of living whales, comparative anatomy and paleobiology.

Cetaceans today live in family groups known as pods. These groups help each other hunt, raise the young and defend themselves. It is reasonable to hypothesize that extinct cetaceans lived in such groups, especially the more similar they are to modern forms.

Baleen whales make their living by straining organisms from sea water with their baleen combs. They consume varieties of plankton, krill, fish and molluscs. The modern humpback whales have an organized feeding strategy in which pod members encircle schooling fish with bubbles, in effect "netting" them (thus this strategy is called bubble netting). The whales then rush through the center of the "bubblenet" with mouth agape. Often, pregnant females get first shot. This method is very different from the one employed by the grey whale. This cetacean scoops up mouthfuls of bottom muck and filters out small organisms.

Odontocete whales hunt in a very different manner. They have evolved an echolocation system to find prey. In this method the whales will emit a focused sound wave from their forehead or "melon". The sound bounces back to the whale from objects in the water. Thus they may actively seek prey which they can not see. Their conical teeth are perfect for grabbing prey (such as fish or squid) and enabling the animal to swallow it whole.

The hunting method of the Archaeocete whales has long been a matter of debate. In order to test various feeding hypotheses for these extinct animals, who could neither echolocate nor had baleen, Kenneth Carpenter and David White (both of Mississippi) restored the masticatory musculature and studied chipping on the lingual side of the maxillary teeth. They concluded the whale they were studying (*Zygorhiza*) was an opportunistic feeder which fed a great deal on fish, although krill and other mammals were not ruled out.

Modern whales have a variety of ranges. We all have seen local dolphins living along our shores over the years. Some dolphins of the same species (such as the bottlenose dolphin) turn out to be migratory. In the Pacific Northwest are three pods of killer whales. Two are residents and one group is "transient", with no apparent home range. Baleen whales frequently migrate to the north or south polar regions to feed in summer and return to our tropical latitudes to mate and bear young each winter. The California grey whale makes the longest migration of any animal known, from Baja California to the Bering Sea and back again. It is not known if Archaeocetes were resident animals, migratory, or both.

Whales have lived off our shores (when sealevel was low enough to have a discernable shore) for thirty million years, and in this part of the world for fifty million years. They have a long and diverse history which is reflected in their fossil record. Modern Florida, having had a marine origin, is rich in the heritage of the cetacean lineage. Much has been found - but not all. I hope this article has helped you become more familiar with the whales and where they may be found. Please keep digging and enjoy!

Acknowledgements

My thanks to Gary S. Morgan for supplying me with his FPS articles of 1978, 1983 and with his personal input. Without this help my lists of cetacean fossil finds in Florida would be quite scant. I also thank Roger Portell, Art Poyer and Erica Simmons for their support and enthusiasm.

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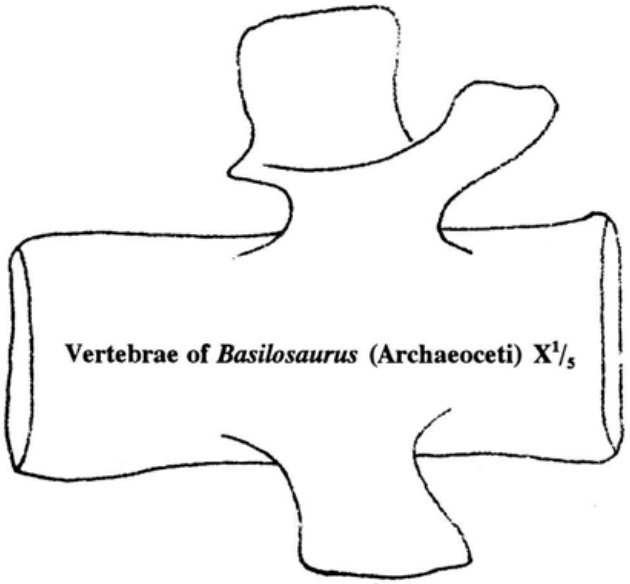
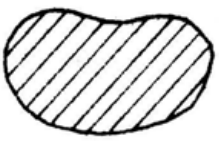
Some whale fossils:

(from Morgan, 1978)

Auditory bulla of *Balaenoptera* (Mysticeti) X1

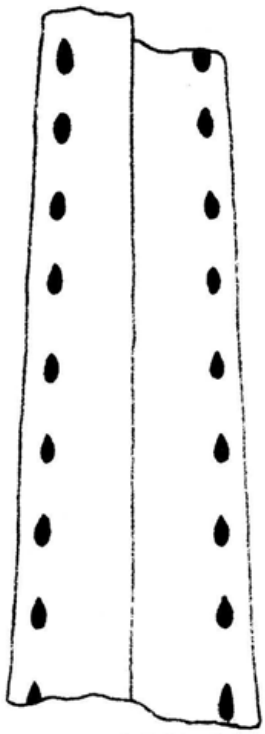


Vertebrae of *Basilosaurus* (Archaeoceti) X$^1/_5$



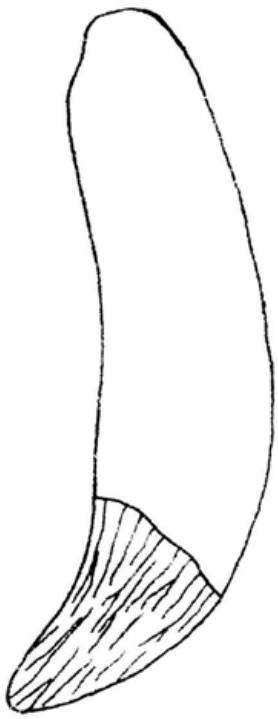
cross section

Tooth of *Kogiopsis* (Odontoceti) X1



Rostrum of *Schizodelph* long- beaked dolphin (Odontoceti) X1

Archaeoceti cheek tooth X1



Archaeoceti incisor or canine X1

Fossil, Shell, and Archaeology Clubs in Florida

In recent years we have seen the appearance of a number of new amateur clubs in our state. Florida is unique in having both a large and growing population which provides an interested member base, and an abundance of fossils, miles of shelling beaches, and a rich paleoindian history.

Amateur clubs play an important role in the advancement of science. More than simply supporting a fascinating hobby, clubs contribute much to the education of the general public, and through their individual members, provide a source of new discoveries. Many additions to our current knowledge were made by amateur collectors. Clubs also provide group access to many collecting sites such as mines and quarries which are not available to individual fossil hunters.

With its mix of both professional and amateur members, the Florida Paleontological Society attempts to encourage and promote the open interchange of paleontologic information. Many of our members also belong to local clubs around the state. This offers an excellent opportunity for continued interaction with the other societies with which we share common interests. In an effort to ascertain the current status of the amateur fossil, shell, and archaeology organizations in Florida for our own members edification, and to give our fellow clubs a little free advertising, we conducted a mail survey of the clubs currently on our newsletter exchange list. We asked for general information about their activities and membership dues, and included a stamped envelope for return of the questionnaires. Of the 24 Florida-based clubs on our list, only six responded. Of these six, one was no longer in existence (Greater Tampa Shell Club), and one (who shall remain nameless) returned a note to the effect that their organization no longer had anyone interested in fossils, so stop sending them things.

While the overall response doesn't particularly smack of good inter-club relationships, we realize we can't expect a 100% response. Most clubs operate on a volunteer basis, and may not have the time to fill out a survey form. Some may be leery of our motives, or otherwise have no interest in participating. Since the response was somewhat disappointing, this editor pondered even preparing this article. However, the clubs that responded should be recognized, and in addition, we needed a list of Florida clubs for general reference. The staff here at the Florida Geological Survey will utilize the list in responding to the requests we get from newcomers and out-of-staters about amateur organizations in Florida. As such, it will be kept on file and continually updated with new information, or with any corrections we hear about as a result of publishing this article.

The following club summaries were composed from the information sent back to us and, in the case of several of the larger non-responding clubs, from their newsletters and our own knowledge of their activities.

A special thank-you is in order for those clubs who sent back the survey questionnaire (each is acknowledged with a star-the most we could do). The remaining clubs who, for whatever reasons did not return the completed survey form, are listed at the end of the article. Some may be defunct. Others may have no interest in participating or maybe just unintentionally overlooked the questionnaire. They are listed for your reference.

We did not purposely leave anyone out, but if we did overlook an organization, please let us know. If any of the stated information is incorrect, we would also appreciate hearing about it.

-- *Frank Rupert*

Astronaut Trail Shell Club, Inc. ★
Melbourne, FL

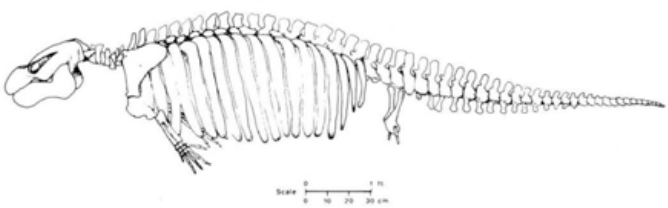
Business address: P.O. Box 360-515, Melbourne, FL 32936
Club Interests: All types of mollusks - land, freshwater, marine, and fossil.
Meetings: Held the fourth Wednesday of each month at 7:30 PM, at the Melbourne Beach Community Center, 509 Ocean Ave., Melbourne Beach. Meetings feature a program or speaker, a shell raffle, discussions, and club business.
Club Activities: Monthly activities, including collecting trips, museum visits, or viewing member's collections. Also conduct an annual shell show in January, a swap meet in October, a June picnic, and a Christmas party in December.
Newsletter: **The Capsule**, published monthly, with local shell news, trip and meeting info., etc.
Membership dues: $10 per year
For membership information, contact:
Jim Cordy
385 Needle Blvd.
Merritt Island, FL 32953
(407) 452-5736

Bone Valley Fossil Society
Lakeland, FL

Business address: 2704 Dixie Rd., Lakeland, FL 33801
Club Interests: All types of fossils.
Meetings: Held the third Friday of each month at 8:00 PM at the North Lakeland Elementary School on Robson Street, just south of I-4 and east of US 98. Meetings feature club business, a fossil store, and a program and/or speaker
Club Activities: Field trips, fossil hunting, and an annual fossil fair.
Newsletter: **Bone Valley Fossil News**, published monthly.
Membership Dues: $10 single, $15 family
For membership information contact:
Mary Harris
130 E. Johnson Ave. #205
Lake Wales, FL 33853

Florida Fossil Hunters
Orlando, FL

Business Address: P.O. Box 533736, Orlando, FL 32853-3736.
Club Interests: All types of fossils.
Meetings: Held the third Wednesday of each month at the Lee Middle School, on Maury Road, two blocks west of Edgewater, in Orlando. Meetings feature a guest speaker, fossil identifications, and fossil items for sale.
Club Activities: Field trips, fossil workshops, and an annual Fossil Fair. Club volunteers speak at local schools. Club also functions as the Florida Prehistorical Museum, Inc., a not-for-profit educational organization dedicated to the discovery, study, and preservation of Florida's fossils.
Newsletter: The **Fossil Hunter**, published monthly.
Membership Dues: $16 a year single, other household members at no charge w/o vote.
For membership information, contact:
Lorri Dee Rascoe
P.O. Box 533736
Orlando, FL 32853-3736
(407) 898-1677



Miocene dugong *Hesperosiren crataegensis*, from Quincy, Florida.

Florida Paleontological Society, Inc.
Gainesville, FL

Business Address: Florida Museum of Natural History, University of Florida, Gainesville, FL 32611.
Club Interests: All types of fossils.
Meetings: Twice a year, Spring and Fall. Meeting dates vary. Feature guest speakers, fossil collecting trips, fossil identifications, displays, and publication sales. Annual fossil auction held at Fall Meeting.
Club Activities: Functions as a liaison between Florida Museum of Natural History and amateurs statewide. Club funds and disseminates publications on Florida paleontology, including popular fossil identification books, a fossil preparation manual, and the annual Florida Papers in Paleontology. Professional members visit other clubs and serve occasionally as guest speakers and/or fossil identifiers. Sponsors an annual scholarship award for paleontology majors at Florida schools.
Newsletter: **Florida Paleontological Society Newsletter**, published quarterly.
Membership Dues: $15 single, $20 couple.
For membership information contact:
Eric Taylor
Florida Paleontological Society
Florida Museum of Natural History
University of Florida
Gainesville, FL 32611

Paleontological Society of Lee County
Fort Myers, FL

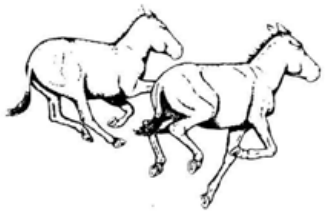
Business Address: P.O. Box 50597, Fort Myers, FL 33905-0597.
Club Interests: All types of fossils.
Meetings: Held the third Thursday of each month at 7:30 PM at the Lee County Nature Center, 3450 Ortiz Avenue, Fort Myers. Feature a guest speaker and show and tell sessions.
Club Activities: Fossil hunting trips and assistance with fossil excavations.
Newsletter: Published monthly.
Membership Dues: $10 single, $12 couple, $15 family, $3 child <18 yrs.
For membership information contact:
Mark Renz
P.O. Box 50597
Fort Myers, FL 33905-0597

Fossil Club of Miami
Miami, FL

Business address: 12540 SW 37th Street, Miami, FL 33175
Club Interests: All types of fossils.
Meetings: Held the first Tuesday of each month at 7:30 PM in the lapidary workshop at the Museum of Science, 3280 South Miami Ave., Miami. Meetings feature club business, a program and guest speaker, and fossil show and tell session.
Club Activities: Collecting trips and joint fossil hunting activities with "Aquaventures Unlimited", a local dive organization. Also participate with fossil booths and exhibits at the annual Lapidary Guild Hobby Show in Miami.
Newsletter: Behind Times, published monthly.
Membership Dues: $9.00 single or family
For membership information contact:
Harold A. Cook
2620 SW 15th Street
Miami, FL 33145
(305) 856-8261

Palm Beach County Shell Club, Inc. ★
West Palm Beach, FL

Business Address: 1081 Westchester Drive, West Palm Beach, FL 33417
Club Interests: Recent and fossil mollusks.
Meetings: Held the first Wednesday of the month at 8:00 PM at the YWCA, 901 South Olive Avenue, West Palm Beach. Meetings feature a guest speaker and a flea market for selling or trading shells.
Club Activities: Local fossil-collecting trips twice a year, Recent shell-collecting trips throughout the year, and a club picnic and annual Bazaar.
Newsletter: **Seafari**, published monthly (except August).
Membership dues: $12 per year single, $15 family.
For membership information, contact:
Phyllis Diegel
1081 Westchester Dr. E.
West Palm Beach, FL 33417
(407) 689-7598



Pony Express
Florida Fossil Horse Fund

Business address: Florida Museum of Natural History, University of Florida, Gainesville, FL 32611.
Club Interests: Fossil horses.
Meetings: Newsletter only, no regular meetings.
Club Activities: Special members-only fossil horse dig opportunities at sites such as Thomas Farm.
Newsletter: **Pony Express**, published quarterly.
Membership Dues: $20 single, $30 family, $20 institutions. Dues are paid to the Fossil Horse Fund at the Florida Museum of Natural History, and support fossil horse research projects, displays, and educational programs.
For membership information contact:
Pony Express
Florida Museum of Natural History
Gainesville, FL 32611.

Sanibel-Captiva Shell Club
Sanibel Island, FL

Club Interests: Recent and fossil mollusks.
Meetings: Held the last Tuesday of each month at 8:00 PM at the Sanibel Island Community Center.
Club Activities: Collecting trips and participation in annual shell show.
Membership Dues: $10 single, $15 couple, $175 life.
For membership information contact:
Al Bridell
2265 Gulf Drive #240-E
Sanibel, FL 33957
(813) 472-1637

Southwest Florida Conchologist Society
Ft. Myers, FL

Business Address: P.O. Box 876, Fort Myers, FL 33902
Club Interests: Recent and fossil mollusks.
Meetings: Held the second Friday of each month (except summer) at 7:00 PM, Edison Community College, Henry Hall, Room G-143. Feature guest speakers. Call for current information.
Club Activities: Collecting trips, crafts, annual

S.W. Florida Conchologist Society, *continued:*

shell show.
Membership Dues: $8 single, $12 couple, $10 foreign, $3 child.
Newsletter: **Southwest Florida Shell News,** published monthly.
For membership information, contact:
Al Bridell
2265 Gulf Drive #240-E
Sanibel, FL 33957
(813) 472-1637

Southwest Florida Fossil Club
Port Charlotte, FL

Club Interests: All types of fossils.
Meetings: Held on the second Saturday of each month at 7:00 PM, at the Federal Savings and Loan Building near the Quality Inn, downtown on Route 41, Port Charlotte. Meetings feature a guest speaker, program, and show and tell sessions.
Club Activities: Field trips, fossil learning and identification sessions, annual auction.
Newsletter: **Southwest Florida Fossil Club Newsletter,** published monthly.
Membership Dues: $8 single, $12 couple, $10 Foreign, $3 child.
For membership information, contact:
Al Bridel
2265 Gulf Dr. #240-E
Sanibel, FL 33957
(813) 472-1637

Aturia alabamensis
A Late Eocene nautiloid from the Ocala Limestone. X 1/8

Sun Coast Archaeological & Paleontological Society ★
St. Petersburg

Business Address: 1529 30th Ave. N, St. Petersburg, FL 33704
Club Interests: All types of fossils and archaeology.
Meetings: Held the third Friday of each month at the Science Center, 7701 22nd Ave. N., St. Petersburg. Feature guest speakers and programs on archaeology and paleontology.
Club Activities: Occasional fieldtrips.
Newsletter: Published every other month. Contains interesting news stories on paleontologic and archaeologic discoveries.
Membership Dues: $10.00 single, $15.00 couple.
For membership information contact:
Ray Robinson
1529 - 30th Ave. N.
St. Petersburg, FL 33704
(813) 821-0805

TAMPA BAY FOSSIL CLUB
P.O. BOX 290561
TAMPA, FL 33687-0561

Club Interests: All types of fossils.
Meetings: Held the first Saturday of each month (except summer) at 7:30 PM at the University of South Florida (call for current meeting room). Meetings feature a program, guest speakers, and fossil identification workshops.
Club Activities: Field trips, collecting trips, and annual fossil fair.
Newsletter: **Tampa Bay Fossil Chronicles,** published monthly except summer.
Membership Dues: $15 single, $20 family.

Tampa Bay Fossil Club, *continued:*

For membership information contact:
Terry Sellari
P.O. Box 290561
Temple Terrace, FL 33687
(813) 968-6820

Time Sifters* Archaeology Society
Sarasota, FL

Business Address: P.O. Box 25642 Southgate Station, Sarasota, FL 34277.
Club Interests: Florida archaeology and anthropology. Help in protecting archaeological sites, volunteering for archaeological digs, and dispensing information on archaeology and Florida's historical heritage.
Meetings: Held the third Wednesday of each month, and the second Wednesday in December at 7:30 PM, Southgate Plaza Community Room, Bee Ridge and US 41, Sarasota. Feature guest speakers and programs on various aspects of archaeology and archaeological sites.
Club Activities: Fieldtrips and assistance in archaeological digs at sites such as Crystal River, Little Salt Springs, Pine Island, as well as trips to historical sites such as St. Augustine, and museums. Active in the Florida Anthropological Society. Sponsor the annual Florida Archaeology Week, a week of educational lectures and reconstructions of indian life at various historic sites around the state.
Newsletter: Published monthly September through May.
Membership Dues: $15.00 single, $25 family, $10 student, and $35 sustaining.
For membership information contact:
Cornelia Futor
3955 Country View Drive
Sarasota, FL 34233
(813) 922-2675

The following clubs, which appear on the FPS newsletter exchange list, did not respond to our survey. We would welcome information from any Florida clubs that we have inadvertently overlooked. And any of those that have not yet returned our questionnaires, please do so. We will update our readers as the information is received.

Broward Shell Club
P.O. Box 10146
Pompano Beach, FL 33061

Central Florida Shell Club
c/o John Young Museum
810 East Rollins Ave.
Orlando, FL 32803

Fort Myers Beach Shell Club
2904A Estero Blvd
Fort Myers Beach, FL 33931

Greater Miami Shell Club
1955 Exdra Road
North Miami, FL 33181

Gulf Coast Shell Club
925 Rosemont Dr.
Panama City, FL 32405

Jacksonville Shell Club
1010 N. 24th Street
Jacksonville, FL 32250

Marco Island Shell Club
P.O. Box 633
Marco Island, FL 33937

Naples Shell Club
P.O. Box 1991
Naples, FL 33939

Northwest Florida Shell Club
P.O. Box 68
Shalimar, FL 32579

Treasure Coast Shell Club
99 Yacht Club Place
Tequesta, FL 33458

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.