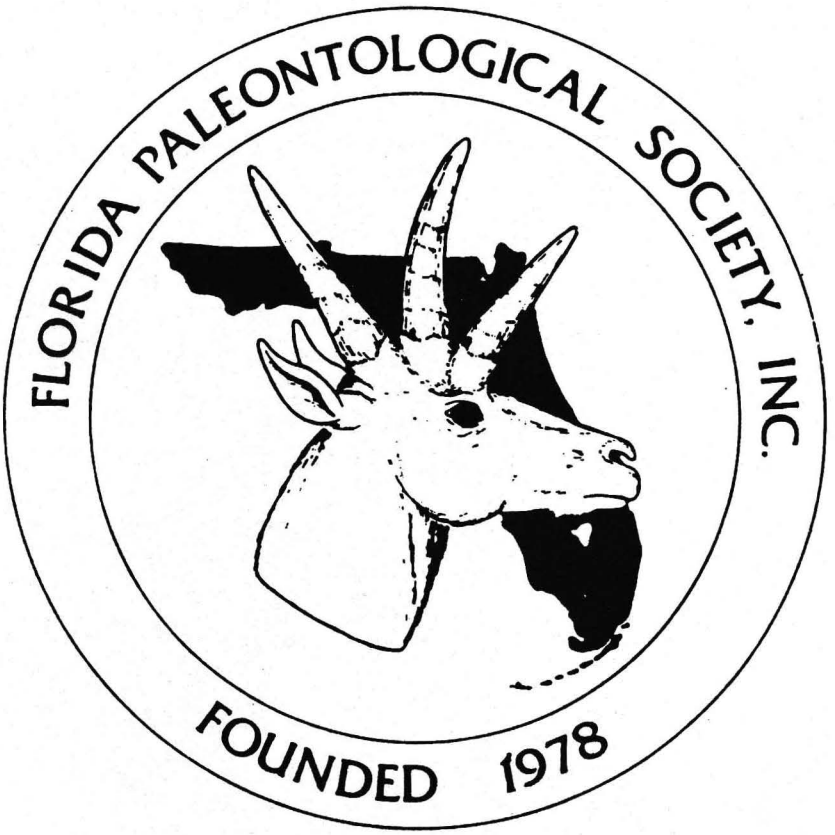
Florida Paleontological Society, Inc.

Newsletter



Volume 12 Number 1 Winter Quarter 1995

FLORIDA PALEONTOLOGICAL SOCIETY, INC.

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

FLORIDA PALEONTOLOGICAL SOCIETY INC. NEWSLETTER

Volume 12, Number 1 **Winter Quarter 1995**

CONTENTS

Attention Club Presidents/Newsletter Editors/Show Chairpersons, etc.:

Florida Paleontological Society 1995 Newsletter Item Due Dates

Winter Quarter Issue	**February 15, 1995**
Spring Quarter Issue	**May 15, 1995**
Summer Quarter Issue	**August 15, 1995**
Fall Quarter Issue	**November 15, 1995**

We invite you to send us news of your club's upcoming activities, shows annual auctions, etc. for inclusion in our Newsletter. Fossil show advertisements should be supplied on white background stock. Your members are also encouraged to submit stories, reports, articles, or other items relating to Florida paleontology. While we can't promise to publish everything, we strive to include all items of an interesting or newsworthy nature.

Please send all submissions to:

Frank Rupert, FPS Editor
Florida Geological Survey
903 West Tennessee Street
Tallahassee, FL 32304

News Notes...

by Frank Rupert

A correction and an apology...

Through a mis-communication on the part of the editors, the last newsletter incorrectly acknowledged Dr. Bruce MacFadden as the recipient of the Vertebrate Paleo Society's Morris Skinner Award. The actual recipient was FPS Honorary Member **Gary Morgan**. Our sincere apologies to both Gary and Bruce.

Spring meeting highlights...

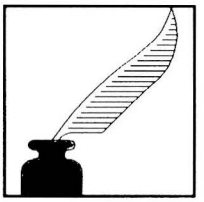
The FPS Spring Meeting was held on Saturday, March 11 in St. Petersburg. The morning events included a group tour of museums in St. Petersburg, followed by lunch at the Columbia Restaurant on the famous "Million Dollar Pier", overlooking Tampa Bay. Members were then free to visit other museums on their own during the afternoon. In the evening, the Great Explorations Museum hosted a wine and cheese party for FPS members in their recently-opened Ice Age Exhibit. This was followed by a talk at the nearby USF campus on "Extinct Megafauna and Early Humans in North America", by Dr. S. David Webb of the Florida Museum of Natural History. Aside from some minor confusion about the location of Dr. Webb's talk, reports from attendees indicate that it was a truely enjoyable day.

Special thanks are due to Susan and Jim Pendergraft, Margaret and Terry Sellari, Barbara Fite, Eric Taylor and Phil Whisler for their outstanding job of arranging all the meeting events.

News from the FLMNH...

Dr. Bruce MacFadden has returned from La Paz, Bolivia, and Buenos Aires, Argentina were he taught last summer as a Fulbright scholar. Bruce taught an eigth-week paleontology course at the University Mayor de San Andres in La Paz, followed in August by a five-day short course in geology at the University of Buenos Aires. While in La Paz, he also curated the National Museum of Natural History's collection of Pleistocene horses from the famous Tarija basin. Honorary FPS member **Anita Brown** and her grand children **Will and Mary Catherine Boyett** worked as volunteers, assisting Bruce in Bolivia with washing, assembling, and sorting more than 1000 fossil horse specimens.

Roger Portell and former FLMNH staffer **Kevin Schindler** spent two weeks in Jamaica last month with **Dr. Daryl Domning** collecting Eocene sea cow fossils. Roger and Kevin also collected numerous other Early Eocene fossils, including crocodile, sea turtle, echinoids, crabs, mollusks, and bryozoans.



From the Secretary...

by Eric Taylor

Member Notes

The FPS continues to grow, with the following people having joined since our last update in the Fall 1994 issue of the Newsletter:

Ken Blackwell Panama City, FL
Jewel K. Pozefsky Altamonte Springs, FL
Elsa M. and John P. Reilly Ft. Myers, FL
Tom Caggiano Commack, NY
James and Patty Hudson Penny Farms, FL
Dean Quigley St. Petersburg, FL
Andrew Dean Cason Dunwoody, GA
James Mathisen Lehigh, FL
Scott Hedglin Edgemont, SD
Gary E. Hacking Mulberry, FL
Jerry Weiler Tierra Verde, FL
Nathan S. Ross Orlando, FL

Don't Forget! This will be your last Newsletter unless 1995 dues are paid!

Book Bits

Florida Geological Survey Special Publication 35, *Florida's Geological History and Geological Resources*, is now available. This 64 page, 8.5 X 11 inch paperback is a general guide to the geology of our state, featuring color and black and white maps, photos, and illustrations. It includes chapters on rocks, geologic history of Florida, environmental geology, economic minerals, oil and gas, water resources, geologic hazards, and waste disposal. It may be ordered for $1.00, check or money order (payable to "Florida Dept. of Environmental Protection"), from the Florida Geological Survey, Publications Office, 903 West Tennessee Street, Tallahassee, FL 32304.

Leisey volume Now Available...

The two-part Florida Museum of Natural History Bulletin, Volume 37, on the *Paleontology and Geology of the Leisey Shell Pits, Early Pleistocene of Florida* may now be ordered. See the review which follows and the advertisement in this issue for details.

Book Review . . . . . by Eric Taylor

Paleontology and Geology of the Leisey Shell Pits, Early Pleistocene of Florida (Part 1)

Richard C. Hulbert, Jr., Gary S. Morgan, and S. David Webb, Volume Editors.

(Bulletin of the Florida Museum of Natural History. Volume 37, Part 1, Nos. 1-10, p. 1-344, March, 1995)

Almost every vertebrate fossil enthusiast in the State of Florida and many from elsewhere in the world is familiar in some degree with the fabulous Early Pleistocene fossils from the Leisey shell pits near Ruskin, Florida, just south of the Tampa area.

Discovered in July, 1983, by Frank Garcia, they have produced an astounding number and variety of vertebrate fossils for amateur and professional paleontologists alike and have added volumes to our knowledge of the life in Florida some one million years or so ago. The Florida Museum of Natural History (FLMNH) has over 50,000 catalogued specimens from this location in its collection that represent over 200 species of vertebrate animals!

The scientific descriptions and research on this site have been progressing since it was first excavated by members of the Tampa Bay Rock and Mineral Club and the staff of the FLMNH in 1984. This work has culminated in what may be the definitive manual on the early Pleistocene of Florida. In a two volume set, almost 700 pages of scientific papers covering the Leisey material have just been published by the FLMNH. This material is too extensive to address in one sitting, so only Part 1 is reviewed here.

Part 1 of this work contains ten separate works by various authors. While some of the papers included are probably too technical for the avocational paleontologist, there is something here for everyone. The first work, titled "overview of the Geology and Biochronology of the Leisey Shell Pit Local Fauna, Hillsborough County, Florida" is worth the entire price of the two volume set! Written by FPS Honorary Member Gary S. Morgan and Dr. Richard C. Hulbert, Jr. (late of the FLMNH staff), this piece not only gives an easy to follow scientific picture of the Leisey pits in general terms, it also reviews all of the important Early Pleistocene localities in Florida, itemizes the fauna found, and describes the methods of deposition that caused them to form in the first place. If the reader doesn't find anything else in the remaining 600 or so pages useful (an unlikely prospect), your $25.00 is well spent just on these 90 pages.

The introductory work is followed by nine others of varying subject. FLMNH's Dr. Douglas Jones and others address Strontium isotope stratigraphy; FPS's Dr. Bruce MacFadden writes on magnetic polarity; two authors discuss the findings of pollen analysis and macroplant remains from the site; FLMNH and FPS members Roger Portell, Kevin Schindler and David Nicol address invertebrate biostratigraphy and paleoecology; Arthur Brogan and Roger Portell discuss the freshwater bivalves found in Leisey 3B site; Ann Pratt and Richard Hulbert have a spectacular work on the taphonomy studies they conducted on these sites; three authors discuss sharks, rays and other fish remains; Peter A. Meylan reports on the amphibians and reptiles; and Dr. Steven Emslie has a wonderfully illustrated work on the spectacular avian fossils of the site.

All of these works also have complete bibliographies attached. An owner of this work would probably need no other source of information to investigate practically any of the myriad species that lived in Florida during the Irvingtonian.

In the next issue of the Newsletter I will review Part 2 of this volume, which includes all the neat stuff like the megafaunal remains found at this wonderful location!

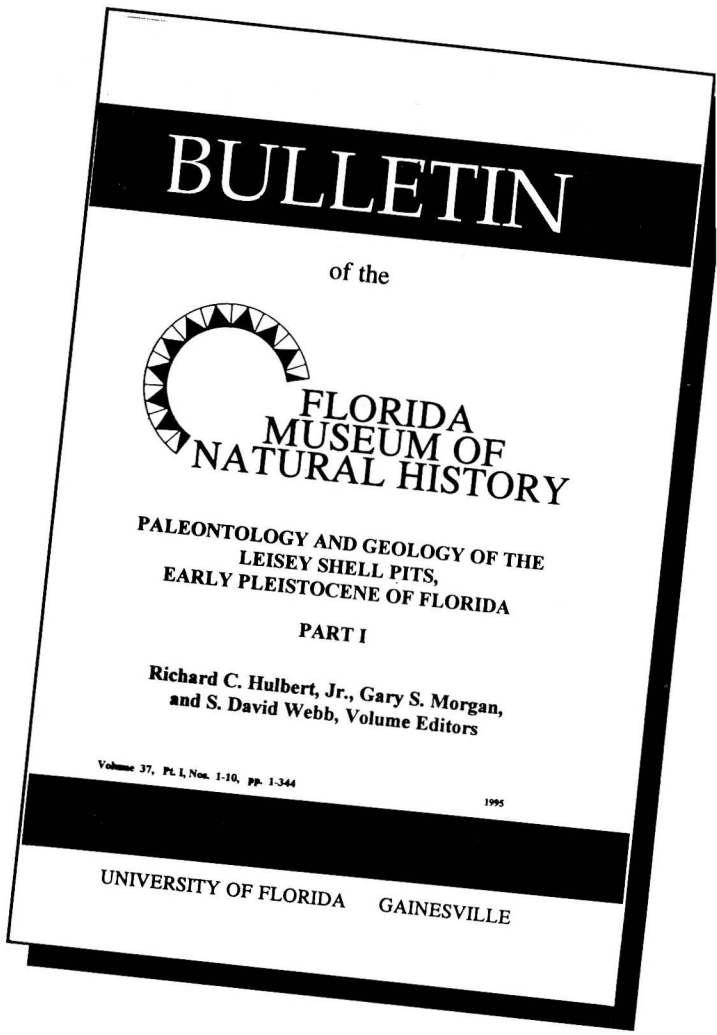
The two volume set is available while supplies last from the museum directly ($30.00 plus $3.00 S & H) or from the supply purchased by the FPS. The FPS is making the set available to members for $25.00 plus $3.00 shipping and handling.

Now Available!

Paleontology and Geology of the Leisey Shell Pits, Early Pleistocene of Florida

Volume Editors:
Richard C. Hulbert, Jr., Gary S. Morgan, and S. David Webb

Bulletin Editors:
F. Wayne King and Rhoda J. Bryant



For the last two decades the Leisey Shell Corporation has operated several pits along Tampa Bay. Draglines unearthed numerous invertebrate fossils and, occasionally, vertebrate fossils. The spoil piles and quarry walls were periodically explored by several avocational paleontologists. In 1983 a tremendous concentration of fossil bones was exposed. Quarrying in the area ceased, thanks to the cooperation of the owner, C.E. "Bud" Leisey, Jr., and manager, Eric Hunter. In 1984, after meetings among representatives of the Florida Museum of Natural History (FLMNH), Leisey Shell Corporation and avocational paleontologists, a major operation was planned. The owners subsequently transferred ownership of the fossils to FLMNH. That Spring major excavations resumed as a cooperative effort among the FLMNH, the Tampa Bay Mineral and Science Club, and the Leisey Shell Corporation. The dig has attracted the attention of local, state, and national news media, including a spot on NBC's "Today Show", an article in Newsweek magazine, and a lengthy Sunday feature in the Tampa Tribune.

This volume is printed in two parts, including twenty papers which cover birds, fishes, invertebrates, mammals, plants, and reptiles and amphibians, as well as the taphonomy of terrestrial mammals and geology of this Early Pleistocene site. Several new species are described.

Bibliographic Data

1995 Volume 37, Part I	352 pages	21 halftones	40 line diagrams	numerous tables
1995 Volume 37, Part II	324 pages	40 halftones	26 line diagrams	numerous tables

Price (in paperback):

FPS Members	$25.00 per set (sold in sets only)
Others	$30.00 per set

Publication Date: March 1995

Readership

Avocational researchers, graduate students and professionals in the fields of invertebrate and vertebrate paleontology, paleobotany, zoology, geology.

FPS Members may order this set for $25.00 plus $3.00 shipping and handling. Please indicate the number of copies desired, and include your name and complete mailing address with your order. Make check or money order payable to Florida Paleontological Society, and mail to:

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

Non-Members may order this set for $30.00 plus $3.00 S & H from:
Managing Editor
Bulletin of the FLMNH
P.O. Box 117800
Gainesville, FL 32611-7800

Working Together To Save Our Fossil Heritage

A Response to S. David Webb's Article Concerning the Value Of Fossils

by Dr. Gordon Hubbell
President Elect
Florida Paleontological Society

I was disappointed to learn of the apparent "loss" of a scientifically significant specimen which should rightly be in the Florida Museum of Natural History's collection, but I was also distressed by the tone of Dr. Webb's article. Paleontological museums, like art museums, theaters, operas, zoos, aquariums and other cultural organizations depend upon a close working relationship among all of the groups which go to make up the whole organization. These include the professional staff, the volunteers (amateurs) and the business (commercial) interests. Without his close relationship the organization will fail. It is a marriage, and for a paleontological museum to be successful, the professional paleontologists, amateur collectors and commercial fossil dealers have to be totally committed to working together for the advancement of the science of paleontology.

Recent accusations of "illegal" fossil collecting in our western states have unfortunately spawned mistrust of some of our professional paleontologists as well as our federal criminal justice system. We have to work to overcome this mistrust and rededicate ourselves to our common goal. The days of indiscriminant collecting are past. We have been awakened to the fact that we must now do everything strictly by the book. Of special concern is the fact that were the federal government to expand their investigations into all paleontological collections they would probably seize many museum collections as well as individual private collections. This would be counterproductive and would destroy decades of important paleontological research. Enough is enough! Let's get back on a more positive track and start working together.

Fossils in private collections serve a very important function. They not only preserve specimens that would probably have been lost to the destructive elements of nature, but they also stimulate an interest in paleontology among a large portion of our population. Amateur paleontologists should not be ignored because many are excellent collectors and some are very dedicated scientists who may know more about a certain aspect of paleontology than their professional counterparts. With public funding for cultural studies shrinking, it is even more important that a widespread interest in paleontology be cultivated, because this in all likelihood will result in the financial and moral support that is needed for our natural history museums to survive. Specimens that are collected may not always end up where we think they should. However, no specimen that is collected and maintained in a collection - whether it is private or public - is lost to the science of paleontology. The only specimens that are truly lost are those that weather out of the ground and are turned to dust by natural elements before they can be collected.

As members of the Florida Paleontological Society we have an obligation to make our specimens available for legitimate scientific study. Hiding our fossil specimens away in our garages, our dens or in our museum basements so that others cannot use them is unacceptable. This does not mean that you should be forced to donate or loan your specimens to a local museum or to ship delicate, rare or very valuable specimens across the state or across the country, but it does mean that they should be made available for examination, measurement and photography at a mutually acceptable location and time.

One should not dismiss the commercialization of fossils as something evil and not worthy of our support. The fossil shark tooth that a child may purchase in a museum gift shop could stimulate a life-long commitment to the study of paleontology. At the very least it will raise an interest in the science, and may eventually result in much needed support. It is no wonder that many of the better fossil specimens that enter the commercial market are going to Japan. The Japanese are making substantial funding available in order to purchase them. However, by encouraging support from the private sector through organizations such as the FPS, we too can raise money for the acquisition of scientifically significant specimens.

Most amateur and commercial collectors are anxious to see their specimens used for the betterment of science. However, these collectors have to be made to feel wanted and appreciated, or the specimens are not going to end up "where they should."

This is not time for handwringing and fingerpointing. This is time for effective leadership, and a total commitment to making this marriage work. We are not going to save all of the scientifically significant specimens for future study, but we will do a lot better job of it if we all work together.

Prep Talk

by Russ McCarty

Greetings from the bone lab! and welcome to 1995. Somehow it has just never seemed fitting to end the old year, or begin the new one, in the middle of winter. In my opinion, there are more seemly temporal markers. Take, for instance, the ancient Celts, whose year ended on the Feast of Samhain, what we today call Halloween. This marked harvest time and the end of the growing season, the natural cycle finished---a logical end to the year. Still---who wants to start the new year with winter just about to begin? The best idea of all is to start the new year with the ascent of Spring---the cycle of rebirth---hope, and the new growing season. Of course, our great grandfathers, three generations removed, did enjoy this novel concept, but for them, it wasn't novelty, but a fact of life. Since the 14th century, England, under the Julian Calendar, had placed the New Year on March 25. Catholic Europe adopted the more accurate Gregorian Calendar in 1582, but England and its colonies, keeping their own counsel after the Protestant reformation did not accept the Gregorian Calendar until 1752, almost two hundred years later. Why did they change when they were having their New Year's Eve parties in the spring time? Well, for one thing, the solar year, according to the Julian Calendar, which had been adopted by Julius Caesar, in the 1st Century B.C., was 11 minutes and 14 seconds too long. So who cares about 11 minutes when considering a year? Well, over the course of a 1,000 years, that 11 minutes and 14 seconds translates into one week. In 4,000 years, the winter solstice (Dec 21), which marks the beginning of winter, would fall on Nov 21. After 16,000 years, winter would begin on Aug 21. In time, the seasons would be reversed. Does this have any relevance to paleontology? Not really, except to point out that scientific conservatism can be harmful in the long run, just as what appear to be small, insignificant errors can magnify in the long run and become gross miscalculations. And, so as not to appear too conservative, I'm going to talk about computers and amateur paleontologists.

As we approach the end of this century we are all aware of the influences, good and bad, that computers are having on our lives. More recently, the personal computer, in conjunction with the Internet, has placed the individual in the center of an information explosion. Much of it is still very confusing and mysterious to the uninitiated, but that is changing rapidly as more and more people take their first steps along the 'yellow brick road' of the Internet. What's out there for amateur paleontologists? Believe me...a lot!! A short example here will prove the point. The exhibits department here at this museum recently purchased a fossil beetle which the sellers claimed was from the La Brea tar pits. The exhibits staff who were incorporating this specimen into a traveling exhibit noticed that the matrix in which the beetle was embedded was crumbling badly and approached me to preserve the specimen for them. That was somewhat of a problem, since, in our 400,000 specimen collection of vertebrate fossils, we didn't have a single La Brea tar pit specimen. Just how do you preserve a matrix that consists of sand and asphalt? Certainly, not with any solvent based hardners such as Butvar which would only dissolve the matrix. The answer was on the Internet. I posted the problem and my questions on how to preserve the specimen to the Vertebrate Paleontology Discussion List which I access through E-mail on my computer. Within a few hours I had twenty responses to my query, and more specifically, preparators from the Page Museum at the La Brea tar pits who work almost exclusively with tar pit material gave me advice I needed to properly conserve this material. I might add that they also told me the specimen wasn't from the La Brea tar pits at all since fossil insects are not found there. The specimen was indeed asphaltic sand matrix, but from another site.

Paleontology Discussion Groups on Computer

Discussion groups or lists are specific interest groups that use computers to pass along information, submit queries, and provide a general clearing house for all aspects of the group's focus. E-mail is used to sign on or off of a list, to submit or extract information, and to post messages to the subscribers of a particular group. One signs on (subscribes) by sending an E-mail message to the group's E-mail address. Further instructions, and a list of information (data bases) available to members are sent upon sign on, or can be requested by the new subscriber.

Assuming that you have a computer, all you need to participate in these groups is E-mail capability and a modem. E-mail, or electronic mail, is a message sending and retrieval service, which can be accessed in a number of different ways. With E-mail, the user can chat with people all over the globe, almost instantaneously, and while there is no cost for the message itself, there can be a charge from the E-mail provider. For instance, E-mail service is provided to subscribers of all the commercial internet providers, such as America on Line, CompuServe, Genie, Prodigy, etc., but E-mail is just one of the many services offered by these commercial providers which usually charge a flat monthly rate. America on Line, for example, charges $9.95 a month, for five hours of use time. Two other commercial providers, Delphi and NetCom, will give you basic Internet services, without all the other commercial features (computer shopping, travel reservations, book reviews, etc) that America on Line and the others listed above have as part of their package deal.

If you don't want to spend $10 - $20 a month on a commercial service, don't despair, there may be a FREENET in your area. Freenets are internet and E-mail providers that usually serve a regional area such as a city or a county. As the name implies, these nets are free to users, and usually depend on stalwart volunteers to keep things going, especially in the set-up stages when a Freenet is first going on-line. Here in Gainesville, Florida, the Alachua County Freenet just went on-line last year. In addition to providing local information, the Alachua County Freenet offers E-mail service, and access to the World Wide Web, the 'really Big Basket of Internet Information'. So with a Freenet you have the basic services offered by the commercial groups, without all the commercial fluff.

If you're fortunate enough to work for a college or university, or are a student, you probably have access to the Internet and all its features. Here at the University of Florida, the primary campus computing entity is NERDC. NERDC provides free user accounts to grad students and all departments of the University.

There is one more internet provider available to all teachers in the state of Florida. It is called FIRN (Florida Instructional Resources Network), and I believe it is also available to all employees of schools, colleges, and universities.

Let's look at a few discussion groups of interest to paleo people. Subscribing to a discussion list is free of charge, and all are easily accessed by sending a short E- mail message to the server's E-mail address. A word of warning here! Some of these groups generate so much message traffic that you can find yourself inundated. Fortunately, you don't have to read each message; instead, you can browse the subject list and read only those messages of interest to you. There are other message management techniques found in the information which each list sends when you sign on their list.

Rocks and Fossils

This is a an interesting group with members from all over the world, both professional and amateur. In addition, to communicating with each other, members post questions about where to find, sell, preserve, identify, and retrieve more information about their fossil and mineral specimens. An active discussion list. To subscribe, send this E-mail message:

SUBSCRIBE ROCKS-AND-FOSSILS

Send the message to:

MAJORDOMO@WORLD.STD.COM

You must type the message and address with dots and dashes as shown. Also, please be aware that your messages go to a computer whose sole use is to the manage traffic on the discussion list. So, when subscribing you must send only the message shown here. Any other words in the message text will cause the server computer to go bonkers misunderstand the message. The server computers are not usually case sensitive, but if the message does not work in all capital letters, try typing the message in lower case and sending it.

Paleonet

Paleonet is a discussion list that originates in England. It seems to have a lot of scientists as members and some of the topics discussed are quite technical, though very interesting. But subscribers post many general questions as well. Paleonet also has three sub-nets to which you may subscribe, each more specific in focus. These are the CollectionsNet, the DatabaseNet, and the TrainingNet. To subscribe to Paleonet send this message:

SUBSCRIBE PALEONET

to: LISTSERVER@NHM.AC.UK

If you are interested, Paleonet will send you information on the sub-nets and how to subscribe to them.

Vertpaleo Discussion List

The vertpaleo discussion list originates in California and subscribers are paleo students, professional and amateur paleontologist, preparators, and conservation specialists. A good place to ask questions about mold making, casting, adhesives, and preservation and conservation techniques to use on your specimens. Also short courses, classes, meetings, and seminars, are posted on this list. To subscribe send this message:

SUBSCRIBE VERTPALEO

to: LISTSERV@VM.USC.EDU

Dinosaur List

As it's name implies, the focus of this list is dinosaurs. Many amateurs, students, and professionals discuss everything you ever wanted to know about dinosaurs. To subscribe send this message:

SUBSCRIBE DINOSAUR

to: LISTPRO@LEPOMIS.PSYCH.UPENN.EDU

Other Paleontology Information Sources on the Internet

The Society of Vertebrate Paleontology News Bulletin is now available on-line through the World Wide Web. You must use one of the net browser programs such as Mosaic, Netscape, or Lynx to access selected issues of the bulletin. The URL address is: HTTP://141.211.110.60/SVP/. If you don't have access to World Wide Web, you can contact David Polly (his E-mail address is: DPOLLY@UMICH.EDU). Tell him what kind of access you have, e.g. Gopher, FTP, E-mail).

The Bibliography of Fossil Vertebrates is a yearly bibliography listing articles and papers on vert paleo topics. It was begun in the 1930s or 1940s, and is an invaluable resource for paleontologists. It is now on line. Here's how to access it:

* You must send an e-mail message to: BFV@VULCAN.LSCF.UCSB.EDU

* The Subject of the message must be: QUERY

* The first line of the message text contains the actual query, e.g.

TAXON='AUSTRALOPITHECUS'

* The second line of the message text should should contain the word address: and your E-mail address. Mine would be:

CORMAC@FLMNH.UFL.EDU

Here's what the message would look like from my computer:

To: BFV@VULCAN.LSCF.USCB.EDU
Subject: QUERY

Message text:
TAXON='AUSTRALOPITHECUS'
ADDRESS:CORMAC@FLMNH.UFL.EDU

This query on the fossil hominid, *Australopithecus*, produced a list of 42 articles published in various journals. Neat! Huh!

Collections and Databases Searchable by Computer

A number of museums which have cataloged their fossil collections on computer have made all or part of these databases available to searches by computer users with access to the World Wide Web. Some of the museums now on-line with their data bases are the New Mexico Museum of Natural History, Yale, UCLA Berkley, the Smithsonian, and soon the Florida Museum of Natural History's Invertebrate Collection. World Wide Web browser tools such as Yahoo, Gopher, and others can connect you with these museums.

The information available on the internet is growing at an astronomical rate as more and more organizations, institutions, governmental agencies, clubs, interests groups, and individuals make their information available. As I hope I have shown, a part of this information explosion is fueled by the growing number of paleontological resources out there for your information and edification.

What Do You Need to Access The Internet?

I won't say too much about this, except that bigger and faster is better. Older, slower, computers with less RAM and smaller hard drives may work alright for E-mail discussion lists, but if you want to download large blocks of information or databases, you will want a fast modem (14,400) and a large hard drive. You will need to run windows on the World Wide Web browsers such as Mosaic and etscape. Ask around in your area, to see what internet providers you have access to. As I learn of more resources dealing with paleontology, or even archeology, I will pass them on to the readers. And please feel free to contact with me with questions, or comments by E-mail. My E-mail address is: Cormac@flmnh.ufl.edu. Have fun surfing the Paleo Internet.

Questions, comments, suggestions? Contact Russ McCarty at the VP Prep Lab care of the Florida Museum of Natural History, University of Florida Campus, Gainesville, FL 32611. Telephone: (904) 392-1721. E-mail: Cormac@flmnh.ufl.edu

WANTED.....

Fossil Tree Trunk: The Florida Museum of Natural History is looking for a large fossilized tree, preferably from Florida, to use in a new exhibit. It should have well-preserved bark and growth ring detail. A large slab of trunk is OK. If anyone has a lead on such a specimen, please contact Dr. Steven Manchester, Paleobotany Lab, FLMNH, University of Florida, Gainesville, 32611, phone (904) 392-1721.

Fossil Trade Specimens: Collector wishes to trade back issues of the *Plaster Jacket* for Florida fossil mollusks. Has issues number 1-8, 11-16, 19, 21-32, and 36. Needs specimens of *Cassis spinella*, *Murex textillis* and *Tropochasca petiti*. Interested individuals please contact: Jim Konecny, 3036 Geronimo Road, Prescott, AZ, 86301.

Plaster Jackets: Anyone wishing to donate their issues of the *Plaster Jacket* back to the FPS, please contact Phil Whisler, Treasurer, Florida Paleontological Society, Fla, Museum of Natural History, University of Florida, Gainesville, FL 32611.

TAMPA BAY **Fossil** CLUB

EIGHTH ANNUAL FOSSIL FAIR

Saturday, March 25, 1995
9:00 AM to 6:00 PM
Sunday, March 26, 1995
10:00 AM to 5:00 PM

Fort Homer Hesterly Armory
504 N. Howard Avenue
Tampa, Florida

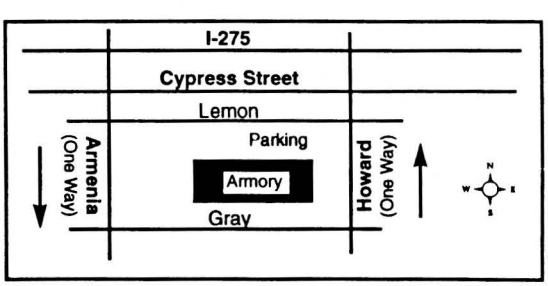
This Years Fair Features

"Ice Age Mammals"

- **Fossils • Artifacts • Gems & Minerals**
- **Displays • Kid's Games • Exhibits**
- **Raffles & Door Prizes • Silent Auction**
- **Renowned Speakers**

Fossils for Sale & Trade

Admission: Adults $3.00 • Children $1.00, Under 3 FREE



Topographic Maps
Useful tools for the Florida fossil hunter

by Frank R. Rupert
Florida Geological Survey

Maps are important tools to anyone working in the field, especially in unfamiliar terrain. One of the more useful maps for the avocational and professional paleontologist alike is the ***topographic map****. Topographic maps have many applications in Florida. In this article we will examine some topographic map basics and discuss their use by fossil hunters.*

A topographic map is a map illustrating the topography or shape of the land surface. Topographic maps show the locations and form of hills, valleys, streams, and other features as well as many man-made landmarks. They illustrate the shape and elevation of surface features by the use of ***contour lines***. Contour lines are imaginary lines (they exist on paper only) which connect points of equal elevation on the earth's surface. They provide a means of displaying three-dimensional information on a two-dimensional sheet of paper. The vertical difference in elevation between adjacent contour lines is called the ***contour interval***.

Consider the illustration in Figure 1. As shown in the upper portion, this figure illustrates a section of hilly coastline bisected by a flat stream valley, and featuring a flat, sandy spit enclosing a small bay. If we were to go to this site and actually paint horizontal lines of equal elevation on the hills and valley floor at each 20 feet interval above sea level in elevation, then look down on the scene from above, we would see a view similar to the map in the lower part of the figure. The lower portion of Figure 1 is a topographic map of this section of coast. Notice several things about the map in this figure which hold true of all topographic maps:

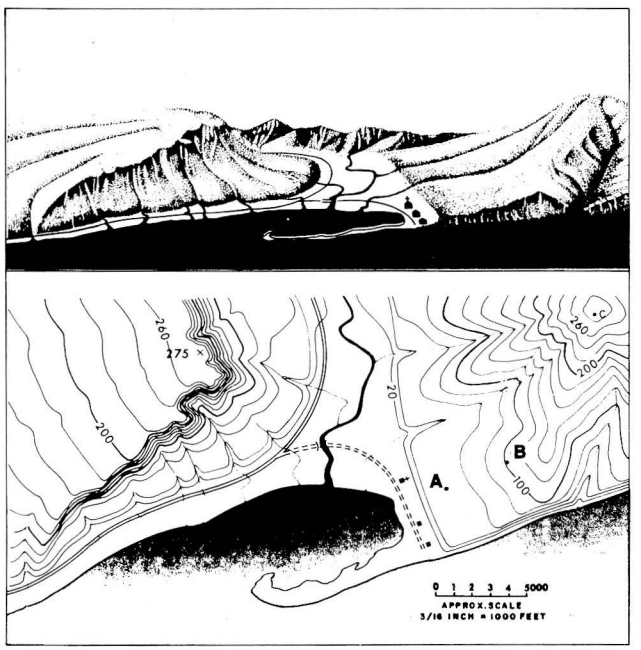


Figure 1. Perspective view and topographic map of a section of hilly coastline (Yon, 1972).

1) Contour lines appear closely packed together on the steep bluff face on the left. In the flat valley and on the gently-sloping hill top above the bluff, they are widely-spaced. This is because on steep slopes elevation increases occur with greater frequency per unit of horizontal map distance and thus appear closer together. To visualize this, imagine a yardstick with the inch markings representing short, parallel contour lines; looking straight down at a yardstick lying flat on the ground, the inch marks appear spaced uniformly at 1 inch apart. Now slowly lift one end of the yardstick to form an imaginary slope face while still looking down at it and watch the inch marks appear to move closer together as you increase the slope of the stick.

2) The land slope, or the ratio of vertical to horizontal distance, may be determined from topographic maps. Slope is usually expressed as a ratio (ie: 1:100) or as a percent (1 percent). The slope between points A and B on Figure 1, for example may be calculated by dividing the elevation increase (vertical distance) from A to B by the horizontal distance between the points. In this case the vertical distance is the elevation at B (100 feet) minus the elevation at A (about 50 feet, as it is halfway between the 40 and 60 feet contour lines), which equals 50 feet. The horizontal distance between A and B is measured from the map bar scale at the bottom of the map, and is approximately 3500 feet. Therefore, the slope is 50/3500 or 1:70, or .014 (1.4 percent).

3) Contour lines do not intersect, cross, or branch. They may touch or coincide only on very steep

slopes (and this is commonly due to the thickness of the printed contour lines - only on vertical slopes would the lines truly coincide).

4) Contour lines form a "V" pointing upstream (or up-gradient) in stream valleys or drainage rivulets. In closely spaced stream valleys, such as those shown on the hill on the right in Figure 1, a series of "W" shapes may result; the stream valley "V's" point towards the top of the hill, the down slope-pointed "V's" are the intervening noses of higher ground between streams.

5) The contour interval is constant on any map. Every fourth or fifth contour line is labeled with their elevation for reference; on actual topographic maps, the contour lines representing every 50 feet of elevation are commonly labeled, while those in between are not. Spot elevations are sometimes shown for specific points on the map. All elevations are relative to mean sea level, which is taken to be "0" foot elevation.

6) Wide rivers and streams are defined by parallel lines approximating their mean width; narrow streams and creeks are shown with single blue lines; coastlines and lake shores are shown with a single unlabeled line.

7) Local man made structures, including buildings, roads, and bridges are commonly shown. Some of these symbols are shown in Figure 2.

On actual topographic maps, many of the different features are delineated in color; contours lines are brown, water is blue, roads are printed in red or black, and structures are printed in black. Cities and other large areas of manmade disturbance are usually printed in either purple or gray shading. Areas of vegetation are shaded green. The maps illustrated on the following pages of this article are, by necessity, printed in black and white. Some of the inherent "readability" is therefore lost.

Topographic maps are prepared today largely from composite aerial photographs, with field checking where needed, and provide some of the most accurate local detail available. Therefore they are a useful tool for locating possible new sites, planning fossil-hunting expeditions, and as references in accurately documenting the location of known fossil sites. Topographic maps can be especially useful in locating areas where fossiliferous strata may be exposed, either naturally by stream erosion and karst activity, or by man's excavations.

Topographic maps in Florida

The entire state of Florida has been mapped by the U.S. Geological Survey in 7.5 minute topographic quadrangles. These maps are termed *seven and a half minute quadrangles* because each map covers a rectangular area of land surface equal to 7.5 minutes of longitude in width (about 7.5 miles) and 7.5 minutes of latitude in height (8.5 miles). Latitude and longitude tick marks are provided along the margins of topographic maps. One thousand and thirty seven 7.5 minute quadrangles are required to cover the entire state. The actual paper quadrangle maps are about 23 inches wide by 27 inches high. This size allows a standard scale for the map of 1:24,000 (one unit of map distance in inches, feet, or millimeters, etc., equals 24,000 of the same units on the surface of the earth). The fractional scale and a bar scale of distance is part of the information printed at the bottom of the map. The direction of true north is always towards the top of the map. Magnetic north, which may be a few degrees east or west of true north, is also indicated on the map.

Earlier topographic maps, generally dating from prior to 1940, were based on 15 minute quadrangles. These covered an area equivalent to four of the 7.5 minute maps, and had a scale of 1:62,500. The larger, modern 7.5 minute maps generally provide better detail, although the older maps can often be used to document historical changes in land features or urban sprawl.

Today, each topographic quadrangle map is given a specific name, usually based on some local geographic feature (i.e., Tallahassee Quadrangle, Okeechobee NW Quadrangle, etc.). Certain of the maps, especially those in highly-populated areas, are updated every several years to show the expansion of civilization. Others in more remote locations may not have been updated since the original mapping in the 1940s. A handy index (see Figure 3) showing the locations and names of all 1,037 quadrangle maps covering the state is printed by the United States Geological Survey.

Some practical examples of topographic map usage for the fossil hunter

In some regions of Florida, topographic maps may prove extremely useful to the avocational paleontologist in search of fossiliferous exposures. They are an aid in locating mines, quarries, sinks and incised streams, all features which might expose otherwise buried fossiliferous strata. Topographic maps may also serve to document the location of sites to revisit. Following are examples of topographic maps from several different areas of

TOPOGRAPHIC MAP SYMBOLS

VARIATIONS WILL BE FOUND ON OLDER MAPS

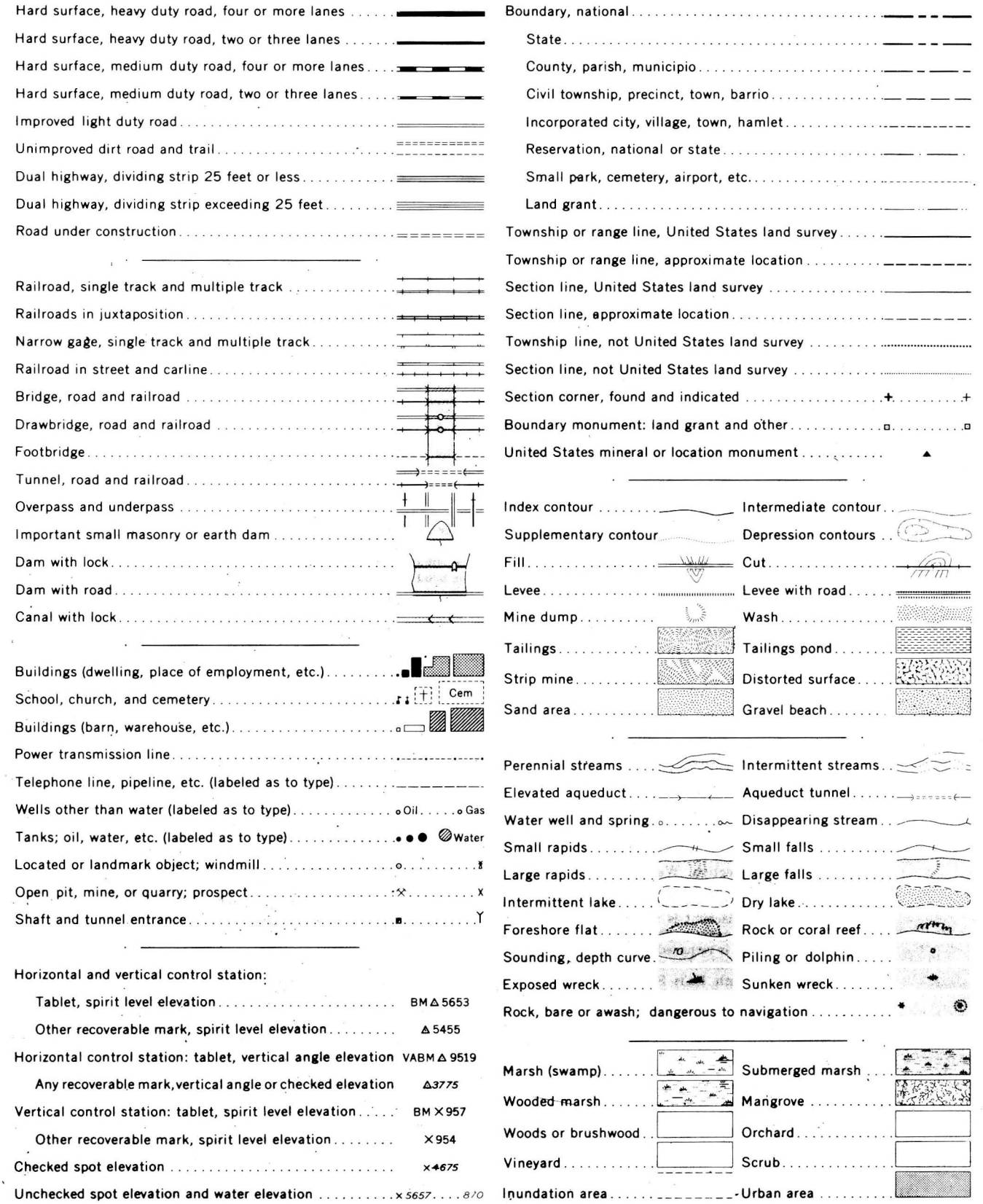
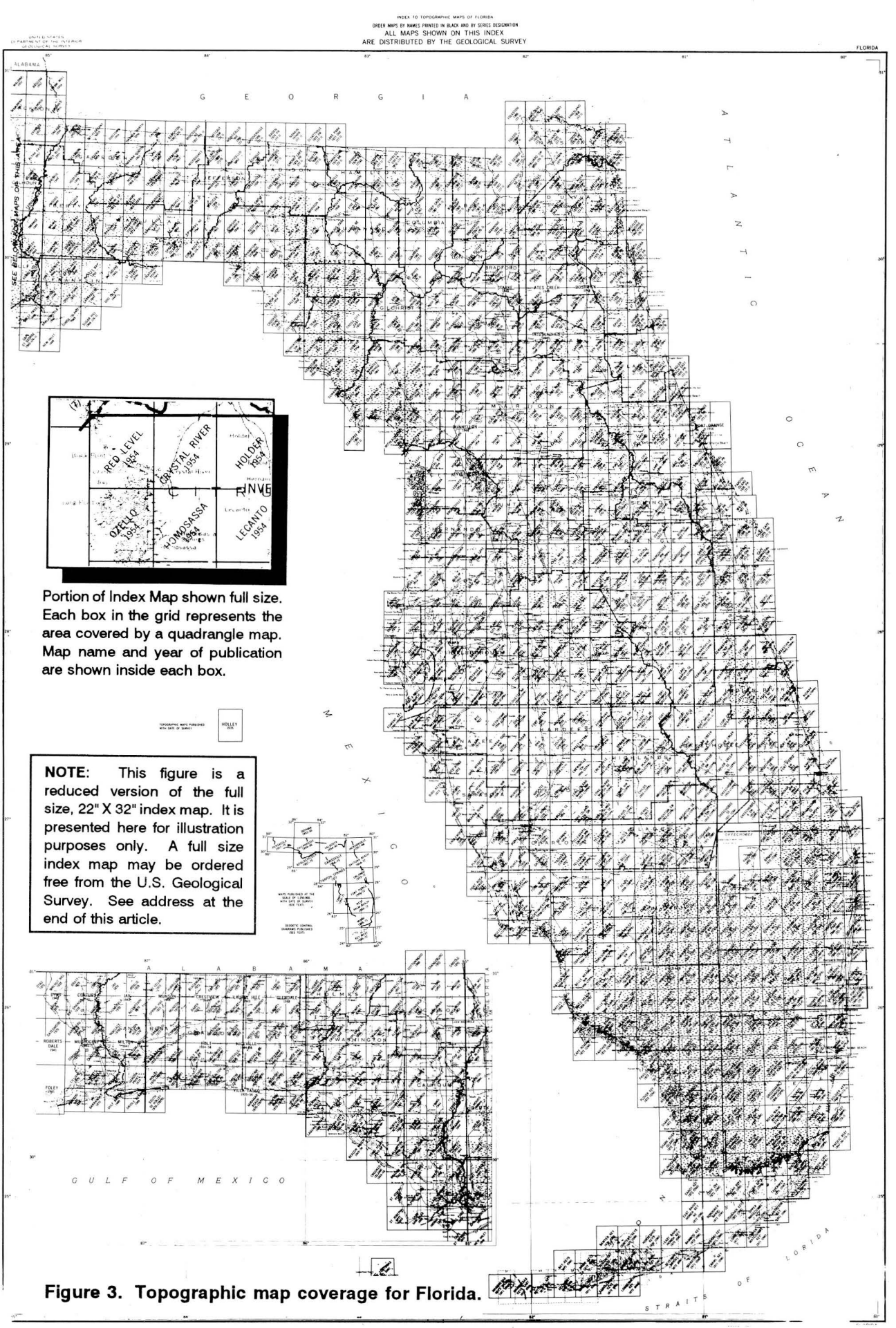


Figure 2. Some topographic map symbols



Portion of Index Map shown full size. Each box in the grid represents the area covered by a quadrangle map. Map name and year of publication are shown inside each box.

NOTE: This figure is a reduced version of the full size, 22" X 32" index map. It is presented here for illustration purposes only. A full size index map may be ordered free from the U.S. Geological Survey. See address at the end of this article.

Figure 3. Topographic map coverage for Florida.

Florida. We will discuss these maps and the information they contain for the fossil hunter. Hopefully, the reader can apply some of these ideas to his or her own unique collecting areas.

Alum Bluff - *Florida's classic geologic exposure*

Alum Bluff is a 120 feet high bluff on the east bank of the Apalachicola River, about two and a half miles north of Bristol in Liberty County. The actively-eroding bluff was cut by the eastward advance of the river, and exposes Middle Miocene to Recent sediments. It is by far the most spectacular geologic exposure in Florida, and the area is also treasured by botanists for its unique living plant communities. The bluff and associated land is presently owned and managed by the Nature Conservancy.

Alum Bluff is illustrated on the Bristol topographic quadrangle map (see Figure 4). Its steepness is readily apparent by the very closely spaced, 10-foot contour lines which represent the bluff face. On this map, the contour lines representing multiples of 50 feet of elevation are thicker in width and selected lines are labeled with the appropriate elevation. The finer lines between labeled lines represent successive 10-foot elevation lines. As an example, the second fine contour line above the 50 feet line would represent 70 feet in elevation.

Alum Bluff rises from the edge of the river, which lies at approximately 50 feet above mean sea level (MSL), to 170 feet above MSL at its crest. The land surface plateau above the bluff is rolling, sandy terrain reaching a maximum elevation of nearly 200 feet above MSL. Note the 195 feet spot elevation, just southeast of the bluff, near the junction of the two dirt roads shown by parallel dashed lines. Immediately north and south of Alum Bluff are more bluffs, with less-steep faces, bordering the flat, swampy floodplain of the Apalachicola River. Extending eastward from the bluffs are several deeply incised creeks, such as Little Sweetwater Creek and Kelly Branch. Each is fed by smaller streams branching off the main creek. These feeder streams originate at the base of rounded, amphitheater-like features called *steepheads.* Steepheads form when the small spring seeps feeding the creeks undercut overlying strata, causing slumping of the overburden into the stream. The steepheads migrate laterally by on-going undercutting and slumping, thus lengthening the streams in some preferential directions. These spectacular features are impressively deep, and may also contain unique floral and faunal communities.

Alum Bluff has been a premiere fossil collecting site in the Florida panhandle because of its unique geologic position and because it is actively being cut in an eastward direction by a meander loop of the Apalachicola River. It exposes a variety of sediments, including Middle Miocene Chipola Formation, containing abundant fossil mollusks and corals, and Alum Bluff Group equivalent strata, containing both vertebrate and plant fossils. Fresh strata is generally exposed by each flood stage of the river, and vegetation has little opportunity to become established. The bluffs both north and south of Alum Bluff are of nearly equivalent elevations, but are not actively eroded, are less steep (as indicated by the wider-spaced contour lines), and are more heavily vegetated as a result. However, fossiliferous strata could be found by the ambitious collector at elevations similar to those in Alum Bluff in the nearby bluffs and steephead streams. It would likely require digging, as slumped sediment and organic debris commonly cover the adjacent bluffs and stream valley walls.

The Haile quarries - *works of man in typical limestone terrain*

The small "hamlet" of Haile, Florida, is situated about 3 miles northeast of Newberry, in western Alachua County. Eocene limestone lies close to the surface in this region, where it is covered only by variably thick quartz sands and clayey sands. Mining of this high purity limerock has occurred throughout this region for years.

The Haile area is shown on the Newberry topographic quadrangle map, a portion of which is illustrated in Figure 5. The surrounding terrain shows a typical contour line pattern of numerous closed loops of various sizes and shapes. Some have short perpendicular lines or ticks extending from the contour line inward towards the center of the loop. These tick marks are called ***hachures***, and are used to indicate depressions in the land surface. They form a visual method of differentiating contour lines which designate decreasing elevation from nearby lines of increasing elevation. In effect, they allow the viewer to tell whether a feature comprised of a series of unlabeled, concentric contour lines is a hill or a bowl-shaped depression.

The terrain around Haile is underlain by shallow limestone bedrock. Dissolution by slightly acidic ground water has produced a highly irregular bedrock surface pocked with sinkholes, solution pipes, and intervening pinnacles. This terrain type is known as ***karst.*** Much of the limestone surface roughness is masked by the thin blanket of relict marine sands covering the region. These sands tend to smooth and in-fill the karst depressions. Even so, many of the karst features are expressed at the surface as

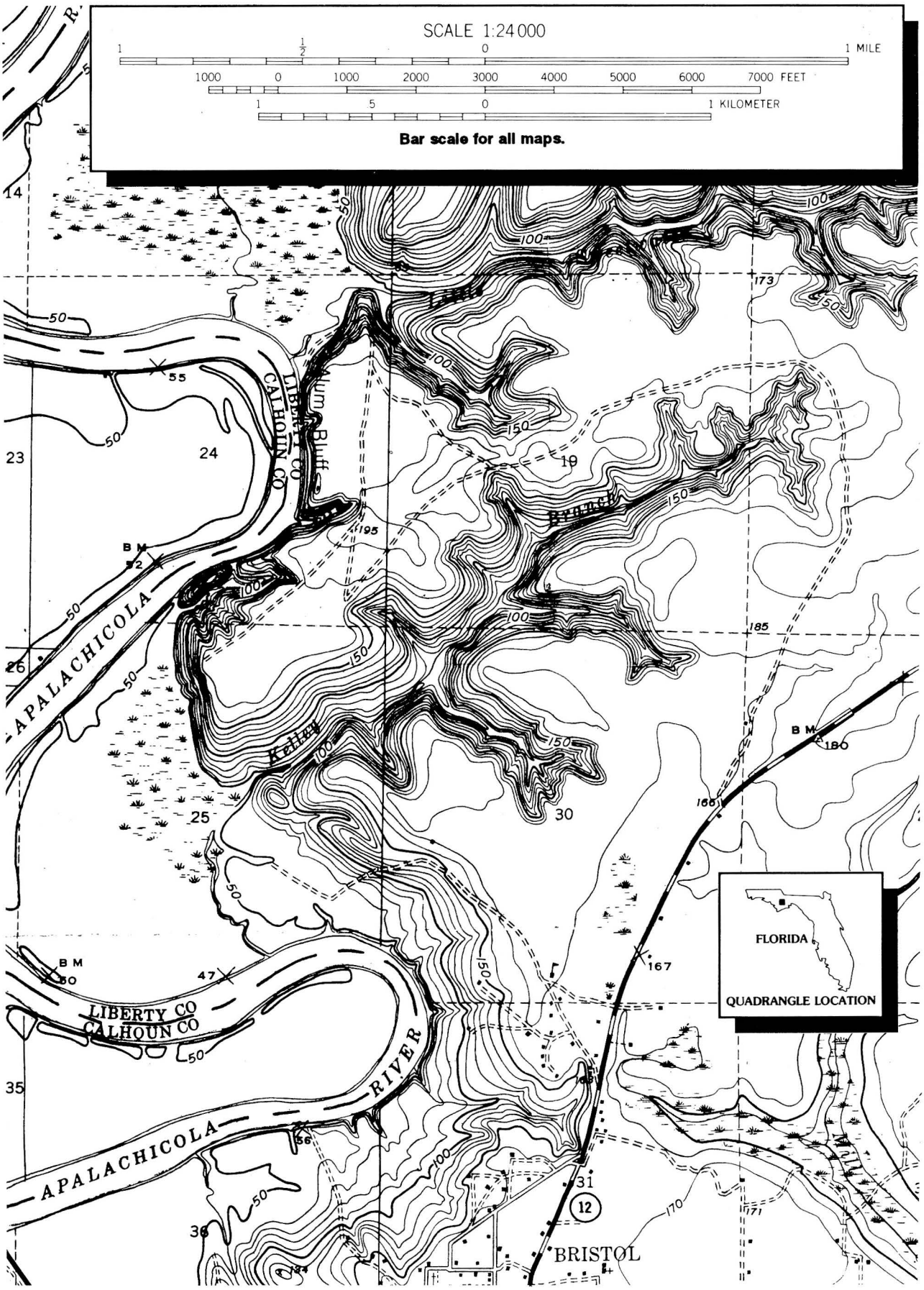


Figure 4. Portion of the Bristol Quadrangle map (Liberty County) showing Alum Bluff

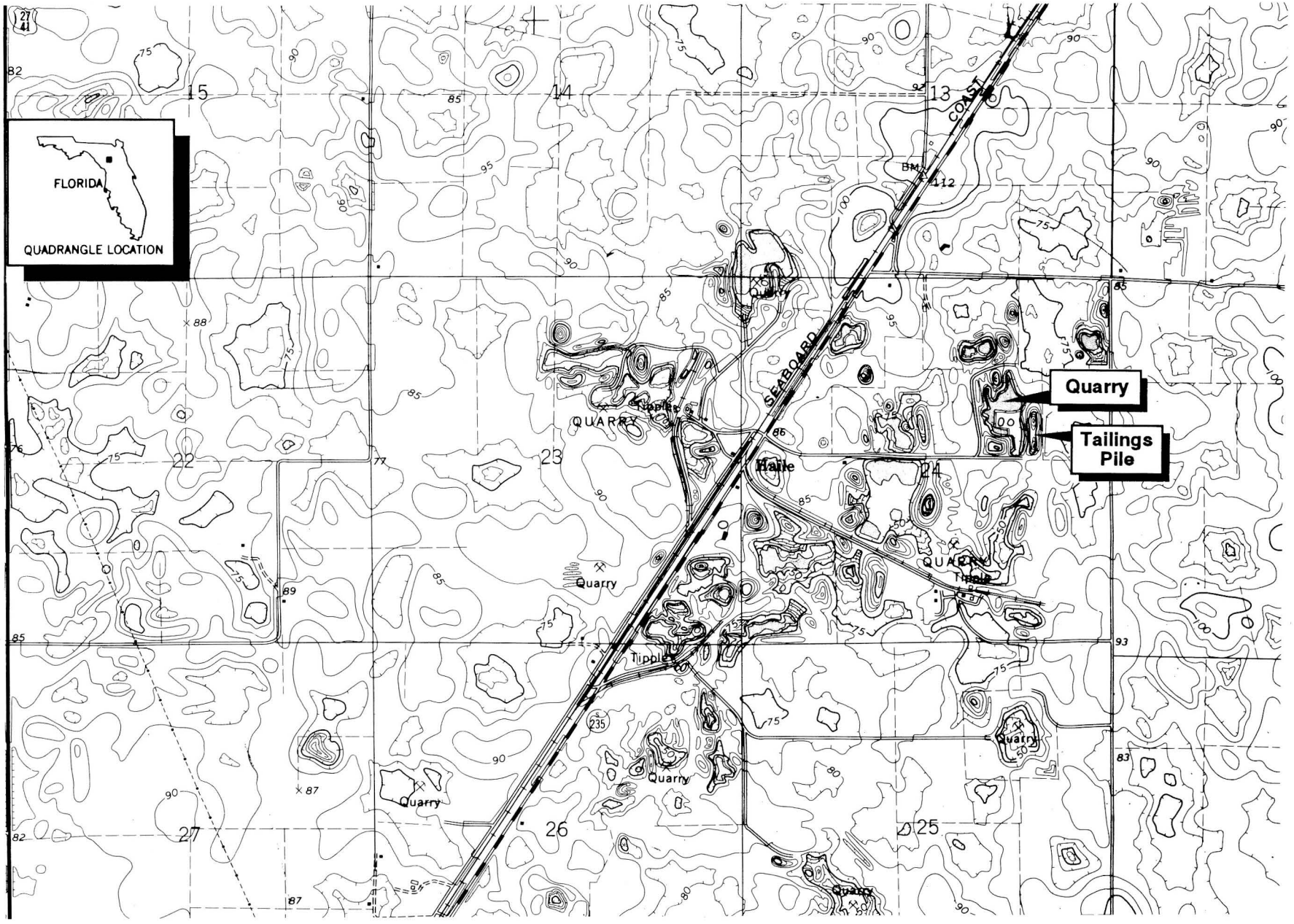


Figure 5. Portion of the Newberry Quadrangle (Alachua County) showing the Haile area

variably-shaped depressions, caused by settling of the overburden sands as the uderlying limestone collapses or dissolves.

The proximity of high-purity limestone to the surface in this area has historically made limestone mining economically feasible near Haile. Quarries are open pit mines, generally excavated to some practical depth determined by the capabilities of the excavating equipment as well as the ability of mechanical pumps to keep the pit free of encroaching ground water. The large inactive quarries in the Haile area appear on the topographic map as water filled pits of various unnatural shapes. Mining areas are commonly denoted by the crossed pick symbol. Quarries active at the date of mapping may appear dry on the map. But once abandoned, they typically re-fill with ground water unless they are fortuitously perched above the local water table. Lying near the pits are small, steep, oval hills (see Figure 5). These represent man made piles of overburden and mine tailings. Some of those illustrated may attain heights of thirty feet.

Quarries provide the fossil hunter access to numerous invertebrate fossils and occasional vertebrate remains. The Eocene Ocala Limestone, which is mined locally for roadbase material, contains large foraminifera as well as abundant mollusks and echinoids. The limestone may rarely contain Eocene whale material as well. More commonly, younger vertebrate fossils are found in the undifferentiated sinkhole fill sediments, which are exposed in cross-section in the mine walls. Most active mines turn amateur collectors away for liability reasons, but the above-water portions and spoil piles of abandoned mines can provide excellent hunting sites. Old mines, as well as deep sinks which may potentially expose limestone may easily be located on topographic maps. Many are located near roads, allowing easy access. Today, more than ever, it is important to remember our fossil hunting ethics. Be sure to obtain current landowner permission before entering any mines, old or new. It is also wise to use caution around potentially unstable sheer mine walls, rock piles, and water-filled pits.

Gainesville - *There's Miocene in those ditches*

In contrast to the karst plain terrain near Haile, the city of Gainesville is largely situated atop stream-dissected clayey sand hills at the southwestern edge of the Northern Highlands geomorphic zone. Figure 6 is a portion of the Gainesville East topographic map. The extent of the city is indicated by the gray shading, and many of the streets are labeled on the map for reference. Clayey fossiliferous sediments of the Miocene Hawthorn Group form the core of the hilly terrain, which attains elevations of about 185 feet above mean sea level, and which is punctuated by deeply incised creek channels. Because the clayey sands form a protective layer over the underlying limestone in much of eastern Gainesville, ground water has not had the opportunity to form the extensive karst features seen at Haile. Occasional sinks do occur here however, and generally form deep, circular depressions as they perforate the Hawthorn sediments. The Devil's Millhopper, a large, deep sinkhole located in northern Gainesville, is a classic example. West of the University of Florida campus, the Hawthorn sediments thin, and numerous karst features are more evident.

The Hawthorn Group sediments lie near or at the surface in the Gainesville area. As a result, the sinkholes, road cuts, and stream channels which cut down into the Hawthorn offer the fossil hunter the best local collecting opportunities. Among the more common finds are shark teeth and dugong rib pieces, but more exotic finds, such as Miocene long-beaked dolphin are also known from Gainesville proper. The topographic map allows the aspiring collector to accurately locate the deeper stream ravines which likely expose fossiliferous sediments. Potential sites are indicated by the closely-spaced contour lines along Hogtown Creek and its tributaries, just northwest of the U of F campus. Although it is sometimes difficult in urban settings to find access to such creeks, it may be possible to enter the streambed at a road crossing. In doing so, remember to be cognizant of other's property rights.

Shell Creek - *a southern Florida invertebrate site*

As a final example of topographic map usefulness, we will look at a typical area in southwestern Florida. Brown (1988) describes a fossil shell site in western Charlotte County along the appropriately named Shell Creek. The stretch of stream he mentions is illustrated on the Cleveland Quadrangle, a portion of which is shown in Figure 7. Most southern Florida streams are sluggish, winding bodies with low banks. The terrain around shell creek is comprised of low, gently-rolling sandy sediments attaining maximum elevations of about 20 to 25 feet above mean sea level. At the western end of Shell

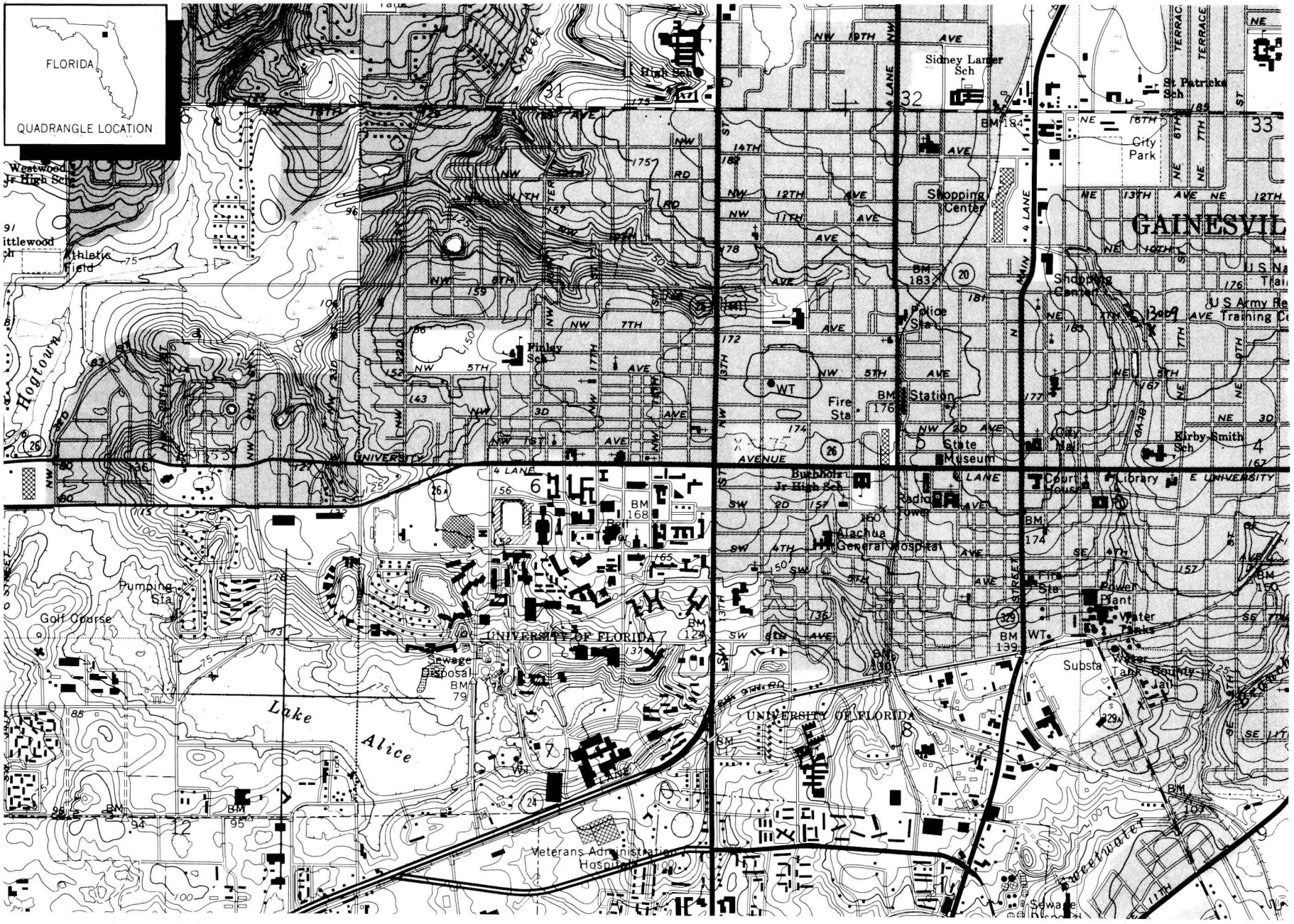


Figure 6. Portion of the Gainesville East Quadrangle (Alachua County) showing southwestern Gainesville

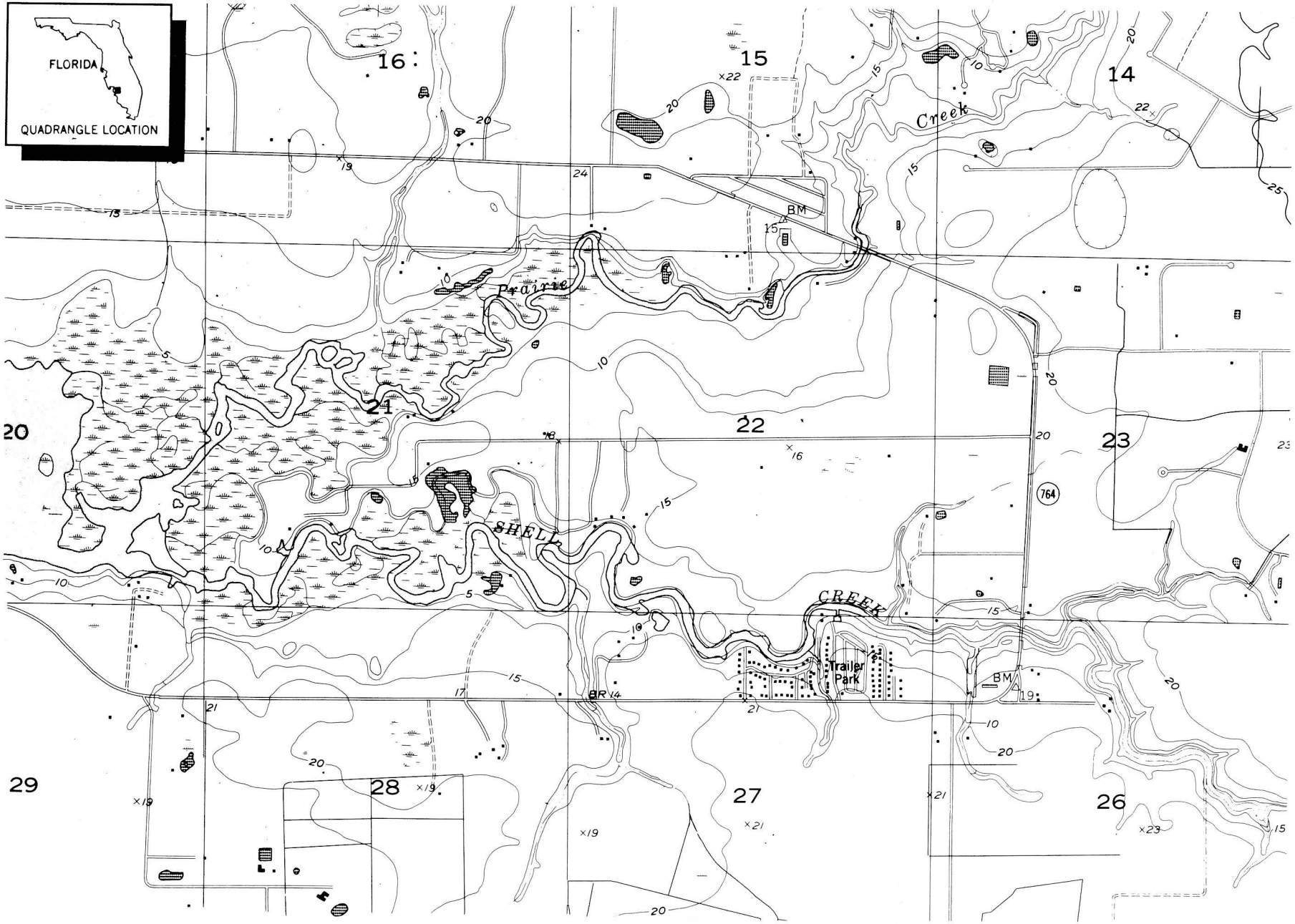


Figure 7. Portion of the Cleveland Quadrangle (Charlotte County) showing Shell Creek

Creek in Figure 7, the stream flows into a low, swampy flood plain as it merges with Prairie Creek entering from the north. Any fossiliferous strata here are likely covered by flood plain sands and vegetation. To the east, however, especially east of the trailer park (Figure 7), the stream is well-incised in slightly higher terrain. Elevation rises from about 5 feet at the stream edge up to nearly twenty feet immediately adjacent to the creek. The closely-spaced contour lines suggest reasonably steep banks, and as such, possible exposure of otherwise buried subsurface strata. As it turns out, Shell Creek does cut into shelly undifferentiated Plio-Pleistocene units in this area, and collecting along its banks may be carried out from a boat or canoe. In many cases, the bottoms of streams such as this may also contain pockets of vertebrate fossil material, derived from sediments the stream has cut through.

The examples given above represent a small portion of the terrain statewide. Some areas of Florida, such as the Everglades for example, offer little potential for the fossil collector regardless of how many maps one studies. As shown here, however, many other areas may be scouted for collecting sites using the accurate land form representation provided by the topographic quadrangle map.

A note about geology and the pitfalls of topographic maps:

It is important to remember that the local geology plays an important part in fossil occurrence. Fossiliferous strata is not always present at shallow enough depth to be intersected by surface features. There are, for instance, many areas in Florida with incised streams, roadcuts, canals, and karst features which *do not* cut into fossiliferous sediments. This is true for *most* of Florida. Successful fossil site locating requires combining a knowledge of local stratigraphy with the shape of the land surface. The ideal method would entail using a geological map to locate areas with known shallow fossiliferous strata, then overlaying the corresponding topographic maps to locate potential hunting sites. We can explore this technique in a future article.

Obtaining Topographic Maps for your area:

Many public and university libraries statewide have topographic maps available as reference materials. Topographic quadrangles may be purchased by mail from the U.S. Geological Survey at the following address:

Map Distribution Section
U.S. Geological Survey
Federal Center, Box 25286
Denver, CO 80225
phone (800) 872-6277
Price is $2.50 each.

Maps for your particular area may also be available at local sporting good stores, engineering or survey equipment stores, some marinas, and outdoors or trail shops. Information regarding local (Florida) distributors of U.S. Geological Survey maps may be obtained from the Florida Geological Survey librarian at (904) 488-9380.

Orders for Florida quadrangles as well as questions concerning the status of mapping, map reference libraries, and commercial dealers may also be directed to:

Florida Resources and Environmental
Analysis Center (FREAC)
Room 361, Bellamy Building
Attn. Jim Anderson or Peter Krafft
Florida State University
Tallahassee, FL 32306-4015
phone (904) 644-2007

Prices at FREAC are also $2.50 per map plus $4.00 shipping for orders up to $20, $6.00 for orders of $20-$40, or $8.00 shipping for orders in excess of $40. Pre-payment is not necessary, and FREAC will forward an invoice for your order.

The Index to Topographic Maps of Florida, which shows the names and coverage areas for 7.5 minute quadrangle maps in Florida, may be ordered free of charge from FREAC or from the U.S. Geological Survey.

References

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

Yon, J.W., (Project Coordinator), 1972, Environmental Geology and Hydrology, Tallahassee Area, Florida: Florida Bureau of Geology Special Publication 16, p. 6.

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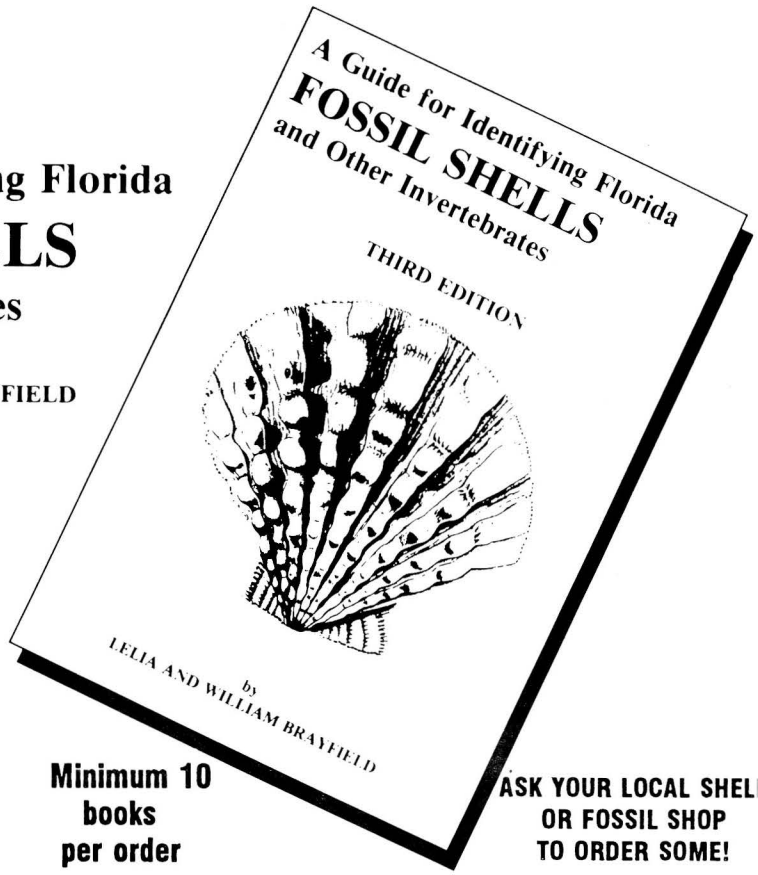

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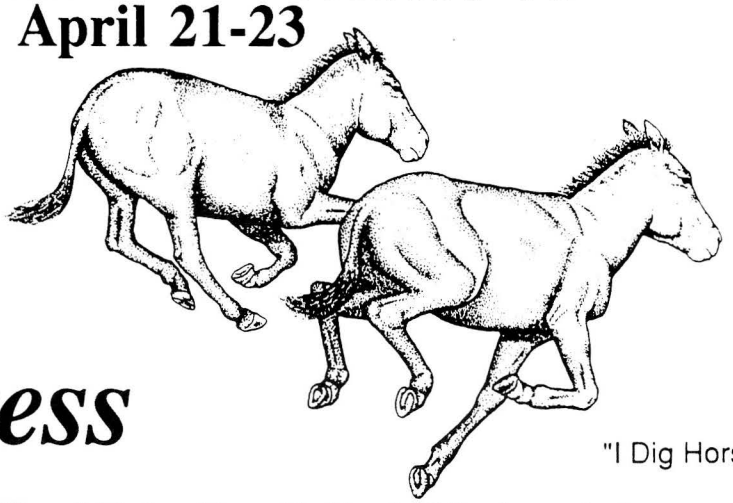

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Carcharodon megalodon

Miocene -Pliocene age
(15,000,000 - 5,000,000 years old)

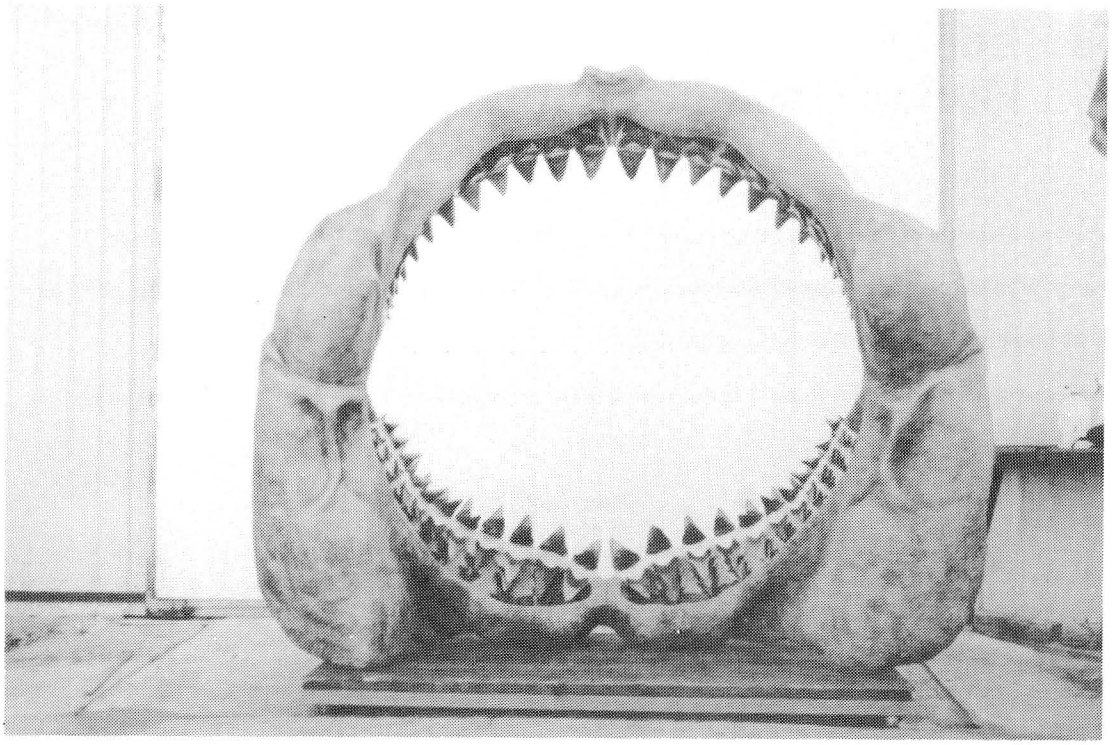
Submitted by
John Babiarz
Babiarz Institute of Paleontological Studies, Inc.
2558 E. Lehi Road, Mesa, AZ 85213

This fossil jaw reconstruction is of a shark which is estimated to have been between **45 and 50 feet in length weighing over 50 tons.** It is presumed to have been the **second largest predator that ever lived** (land or sea). The modern sperm whale is the largest. The jaw is modeled after that of the modern great white shark *Carcharodon carcharias* as its teeth are virtually identical except for their size.

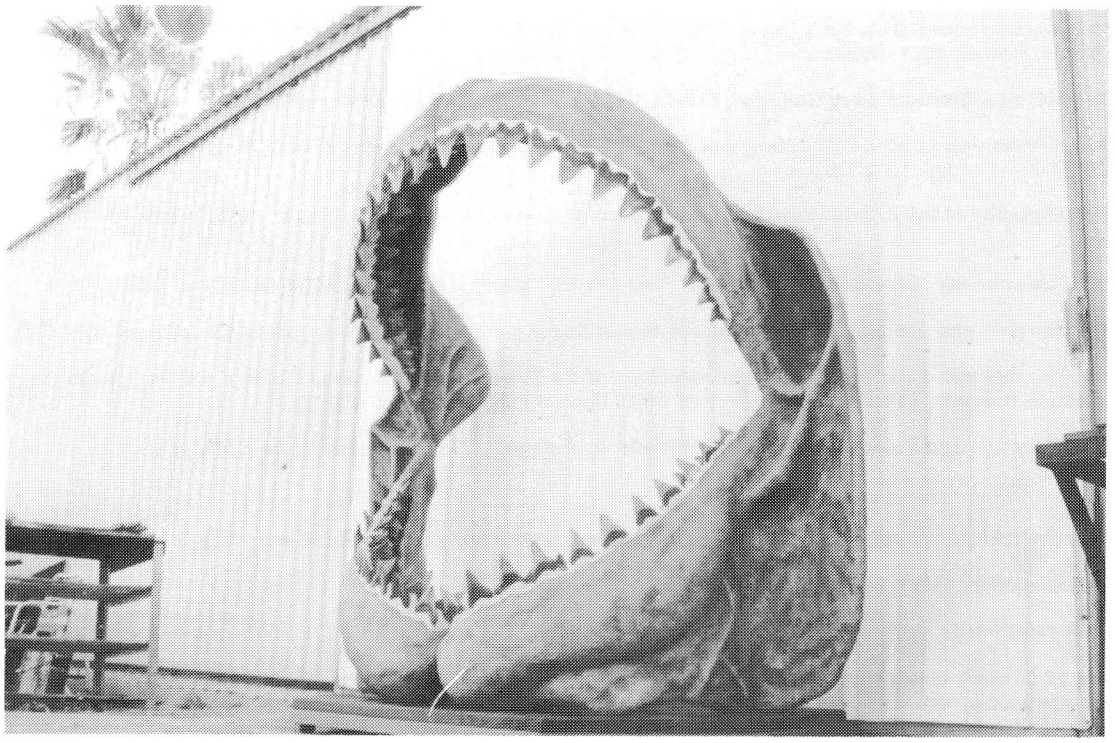
This particular reconstruction is believed to have used more **real shark teeth** than any other previously attempted; with most of the **275 authentic fossil sharks teeth** collected from the Cooper, Ashapoo and Morgan rivers in South Carolina.

Shark skeletons are composed of cartilage which rarely fossilizes leaving only its teeth as a record of its existence. Estimates are that an average-lived adult shark will produced over 30,000 teeth during its lifetime, continually shedding and replacing teeth to keep them sharp for feeding.

Notice the difference in size and shape between the upper and lower teeth in the jaw. There is also variation in shape between left and right side teeth. The lower teeth are designed more for grasping and holding onto prey while the larger upper teeth are used for biting down and cutting.



Reconstructed *Carcharodon megalodon* jaw, 89.1" in height, 99" wide, 38" deep, with an opening of 65". It contains 275 authenic teeth. Photos by J. Babiarz, 1994.



Popular Geology and Paleontology Publications from the Florida Geological Survey

Geology

Guide to Rocks and Minerals of Florida, by Ed Lane, Special Publication 8 (revised), 1987, 61 p., 23 fig., 13 maps.

Florida's Geological History and Geological Resources, by Ed Lane, Special Publication 35, 1994, 64 p., 40 fig., 2 tables.

A Geological Overview of Florida, by T.M. Scott, 1992, 78 p.

County geologic maps, various authors, Scale: 1 inch equals 2 miles (order by County and Open File Map Series number):

COUNTY	OFMS#										
Alachua	12	Dixie	35	Hillsborough	45	Martin	56	Santa Rosa	15
Baker	38	Duval	4	Holmes	24	Monroe	66	Sarasota	57
Bay	19	Escambia	14	Indian River	55	Nassau	3	Seminole	43
Bradford	39	Flagler	7	Jackson	25	Okaloosa	16	Sumter	40
Brevard	49	Franklin	21	Jefferson	31	Okeechobee	54	Suwannee	33
Broward	64	Gadsden	22	Lafayette	34	Orange	47	Taylor	29
Calhoun	20	Gilchrist	36	Lake	9	Osceola	48	Union	39
Charlotte	59	Glades	60	Lee	61	Palm Beach	65	Volusia	8
Citrus	10	Gulf	23	Leon	28	Pasco	42	Wakulla	30
Clay	5	Hamilton	32	Levy	11	Pinellas	44	Walton	17
Collier	63	Hardee	51	Liberty	26	Polk	46	Washington	18
Columbia	37	Hendry	62	Madison	27	Putnam	6		
Dade	67	Hernando	41	Manatee	50	St. Johns	68		
DeSoto	58	Highlands	52	Marion	13	St. Lucie	53		

Paleontology

New Tertiary Ostracode Fauna from Levy County, by H.V. Howe; Part II - **The Echinoid Fauna of the Inglis Member, Moodys Branch Formation**, by A.G. Fischer, 1951, Bulletin 34, 112 p., 12 pl., 18 fig., 3 tables.

Eocene Mollusks from Citrus and Levy Counties, Florida, by H.G. Richards and K. Palmer, 1953, Bulletin 35, 96 p., 13 pl.

Stratigraphy and Paleontology of the Late Neogene Strata of the Caloosahatchee River Area of Southern Florida, by J.R. DuBar, 1958, Bulletin 40, 267 p., 4 pl., 49 fig., 10 tables.

Neogene Biostratigraphy of the Charlotte Harbor Area in Southwestern Florida, by J.R. DuBar, 1962, Bulletin 43, 83 p., 8 fig., 2 pl., 8 tables.

Osteology and Paleontology of the Passerine Birds or Reddick, Florida, by J.H. Hamon, 1964, Bulletin 44, 209 p., 13 fig., 3 tables.

Corals from the Chipola and Jackson Bluff Formations of Florida, by N.E. Weisbord, 1971, Bulletin 53, 100 p., 8 fig., 15 pl.

The Neogene of Florida and Adjacent Regions: Proceedings of the Third Bald Head Island Conference on Coastal Plains Geology, edited by V. Zullo, W.B. Harris, T.M. Scott, and R. Portell, 1993, Special Publication 37, 112 p.

A Guide Map to Geologic and Paleontologic Sites in Florida, by F. Rupert, 1989, black and white, Scale: approx. 1 inch equals 20 miles.

Posters

Common Cenozoic Echinoids from Florida, by R. Portell, C. Oyen, and F. Rupert, 1993, Black and White, 22 illustrations, 22.5 X 35".

Florida's Fossil Mammals, 18.5 X 24", black and white.

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2. WHICH BEST DESCRIBES YOUR STATUS: COLLECTOR__ OCCASIONAL DEALER __
   FULL TIME DEALER __ PROFESSIONAL POSITION __ JUST STARTING __
3. PRIMARY AREAS OF INTEREST:

	VERTEBRATE	INVERTEBRATE	BOTANY	MICRO
PLEISTOCENE	__	__	__	__
PLIOCENE	__	__	__	__
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EOCENE	__	__	__	__
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4. LIST ANY PREFERRED TYPES (Horses, Sloths, Echinoids etc.)_____

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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.)

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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.

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