

NEWS

Florida Fossil Hunters

Volume 19, Number 5

May 2009



Prez Sez:

Hello again to all my fellow fossil hunters, paleo-enthusiasts and rock-hounds!

The month of May brings new spring life, new hopes for the future, and great opportunities in fossil collection! One major topic on the agenda for this upcoming meeting will be a discussion and vote on the changing hours of our meeting place, the Orlando Science Center. As of June 10th, the Science Center will resume Wednesday hours, and extend later on Friday and Saturday Nights. As you can imagine, several possibilities await your vote at our next meeting.

I've had the pleasure of finally bringing friends down to the Peace River, which was an eventful trip through Paynes' Creek and the surrounding estuaries. The catfish were definitely in season, and watched us curiously as we dug up lots of dugong ribs and bones, a few sharks teeth, (my sister's first *Megalodon* tooth!) and the prize of the day – a well beautiful tricuspid *Mastodon* tooth! Thanks to Dave Dunaway for organizing the weekend trips. In fact, as I write this, a number of our club members are making their way down to the campsite for this weekend's sleepover and fossil hunt. Good hunting to all, and be sure to bring your finds to this month's meeting!

We are honored to welcome Dr. Gordon Hubbell, world-renowned white shark expert, as the featured speaker for our May meeting. This is a great time to bring your friends and family to a meeting, as your guests will remember the experience for years to come! We want members to bring in some of their shark teeth for folks to look at as well as anything they've found recently...especially on the Peace River trips.

Good luck, and good hunting!

Jimmy Waldron
President of Florida Fossil Hunters
Good luck, and Happy Hunting!

Coming Events

**MEETINGS
SATURDAY**
at the Orlando Science Center

May 16th
3:00 pm Meeting

June
Meeting and Kids Blast tba

July
Summer Club picnic tba

For more info...
www.floridafossilhunter.com

Table of Contents

Fragments	2
Piece on the Peace	2
Kids FossilBlast	2
Preserved Shark Fossil, Adds Evidence to Great White Origins	3
The Helicoprion Enigma	4
Evidence of the Lost World, Did Dinosaurs Survive the end of the Cretaceous Extinctions	6
Megalodon Tooth for June Auction...	6
Time to Renew Membership Application	7

Fragments

Vulcan Mine Field Trips

There will be one more field trips to the Vulcan Mine on the 2nd Saturday of the month: **May 9th**, etc. Be there before 9 am to be escorted into the mine. Remember...only members of the fossil clubs that have made arrangements are allowed in. *Check our website for further information and directions and future trips.*

Piece on the Peace

Be sure to come to the meeting on May 16th to hear all the stories of fossil hunting on the Peace this past month and to see what everyone found on the annual camp-out/fossil hunt and other day trips.

The summer rains haven't started yet, so make sure you get your feet wet this season.



Gainesville Artifact and Fossil Show

The Sunshine State Archaeological Society will hold its 21st Annual Gainesville Artifact and Fossil Show at the Clarion Inn at I-75 and exit 387 (SR 26). On Friday, June 5th, at 7 pm, Dr. Barbara Purdy on "14,000 years of Florida Prehistory".

The fossil and artifact show will be on Saturday, June 6th, from 8 am to 4 pm. Children under 12 can get in free; adults pay \$2. For more information, call Hugh McKenzie at 407-647-3074.

Summer Days

Looking for something for the kids to do during summer break? There are camps and programs available at most museums and zoos. Day trips are a great way for parents and kids to spend some time together, too.

So check out the Brevard County Zoo, Daytona Beach Museum of Arts and Sciences, Florida Museum of Natural History in Gainesville and the Orlando Science Center.

Kids' Fossil Blast

Miranda Maio did a FANTASTIC job of making her presentation on sorting fact from fiction in the Jurassic Park movies. We were all entertained and informed at the same time. Kudos to Miranda for an excellent program.

Our next Kids' Fossil Blast will be in **June meeting, 2:00pm** and will cover the ancient oceans.

Fossil and Mineral Clubs



Some of the other clubs in Florida (in case you don't live in Orlando) are:

Imperial Bone Valley Gem, Mineral & Fossil Club
Auburndale-Bartow-Lakeland
www.bonevalley.net

Fossil Club of Lee County
Fort Myers
www.fcolc.com

Fossil Club of Miami
Miami
www.geocities.com/miamifossilclub

Southwest Florida Fossil Club
Punta Gorda
www.southwestfloridafossilclub.com

Manasota Fossil Club
Sarasota
<http://home.comcast.net/~ccopas/manasota>

Tampa Bay Fossil Club
Tampa Bay
www.ampabayfossilclub.com

Gulf Coast Mineral and Fossil Club
Venice
www.mineralfossilgemclubvenicefl.org

Tomoka Gem & Mineral Society
Daytona Beach
www.tomokagms.org

Florida Paleontological Society
Museum of Natural History
Gainesville
www.flmnh.ufl.edu/fps

Preserved Shark Fossil Adds Evidence to Great White's Origins

ScienceDaily (Mar. 13, 2009)

A new University of Florida study could help resolve a long-standing debate in shark paleontology: From which line of species did the modern great white shark evolve?

For the last 150 years, some paleontologists have concluded the great white shark, *Carcharodon carcharias*, is a smaller relative of the line that produced *Carcharodon megalodon*, the largest carnivorous fish known. Other paleontologists disagree, arguing the great white shark evolved instead from the broad-toothed mako shark. The second group contends megalodon, which grew to a length of 60 feet, should have its genus name switched to *Carcharocles* to reflect its different ancestry.

The study in the March 12 issue of the *Journal of Vertebrate Paleontology* falls squarely into the mako camp. It concludes megalodon and modern white sharks are much more distantly related than paleontologists initially believed.

"I think that this specimen will clarify things," said lead author Dana Ehret, a vertebrate paleontology graduate student at the Florida Museum of Natural History located on the UF campus. "When we only have isolated teeth to describe, it's very hard to come to a definitive conclusion."

The study is based on a remarkably well preserved



4- to 5-million-year-old fossil from Peru of an early white shark species: a complete jaw with 222 teeth intact and 45 vertebrae. Most ancient shark species are known only from isolated teeth. Based on tooth size and analysis of growth rings within the vertebrae, the shark was about 20 years old and 17 to 18 feet long, a size in the range of modern white sharks.

Having the teeth in place allows researchers to see important distinguishing characteristics that help determine a fossil's genus and species, such as whether a tooth curves toward the outside of the jaw or its midline, Ehret said. He believes the fossil belongs to a white shark species closely related to *Isurus hastalis*, a broad-toothed mako shark that probably grew to 27 feet long and lived 9 million to 10 million years ago.

An olive-grove farmer trained in fossil collection discovered it near his home in the desert of southern

Continued on page 6, Sharks

Evidence of the Lost World: Did Dinosaurs Survive the End Cretaceous Extinctions?

ScienceDaily (Apr. 30, 2009)

The Lost World, Sir Arthur Conan Doyle's account of an isolated community of dinosaurs that survived the catastrophic extinction event 65 million years ago, has no less appeal now than it did when it was written a century ago. Various Hollywood versions have tried to recreate the lost world of dinosaurs, but today the fiction seems just a little closer to reality.



New scientific evidence suggests that dinosaur bones from the Ojo Alamo Sandstone in the San Juan Basin, USA, date from after the extinction, and that dinosaurs may have survived in a remote area of what is now New Mexico and Colorado for up to half a million years. This controversial new research, published today in the journal *Palaeontologia Electronica*, is based on detailed chemical investigations of the dinosaur bones, and evidence for the age of the rocks in which they are found.

"The great difficulty with this hypothesis -- that these are the remains of dinosaurs that survived -- is ruling out the possibility that the bones date from before the extinction," says Jim Fassett, author of the research.

"After being killed and deposited in sands and muds, it is possible for bones to be exhumed by rivers and then incorporated into younger rocks" he explains. This is not the usual way in which fossil deposits of this kind form, but it has been shown to explain some other post-extinction dinosaur bones. Fassett has amassed a range of evidence that indicates that these fossils from the Ojo Alamo Sandstone were not exhumed and redeposited and that these dinosaurs really did live after the end Cretaceous extinction event.

The first step must be to demonstrate that the rocks con-

View eastward from divide between Ojo Alamo and Barrel Spring arroyos, Kirtland shale in foreground. Conical butte capped with lower part of Ojo Alamo sandstone. Butte at left consists of Kirtland shale at base, overlain by conglomeratic sandstone of Ojo Alamo, and that in turn by the middle or shale member of the same formation, with pebbles from the disintegrated upper conglomeratic member scattered over the top. San Juan County, New Mexico. Circa 1915. (Credit: Plate 71-A in U.S. Geological Survey / Bauer, C.M. 251)

taining the bones are younger than the extinction event. Fassett has analyzed the magnetic polarity of the rocks, and the pollen grains they contain, different approaches to finding the age of rocks which, he concludes "independently indicate that they do indeed post-date the extinction".

Fassett also found that "the dinosaur bones from the Ojo Alamo Sandstone have distinctly different concentrations of rare earth metal elements to the bones in the underlying Cretaceous rocks" and this, he argues, "makes it very unlikely that the post-extinction bones were exhumed from the underlying sediments." This is supported by a find of 34 hadrosaur bones together -- "these are not literally an articulated skeleton, but the bones are doubtless

Continued on page 6, Lost World

The Helicoprion Enigma

Helicoprion is a shark that swam in the Permian seas about 290 million years ago. It is an unusual shark in that it had a spiral dentition. These dentitions, other than some crushed cartilage, are the only remains of this shark found as yet.

Ever since it was discovered, scientists have tried to understand the biology of Helicoprion. How did the spiral tooth dentition fit into the shark's jaw? Several theories have been entertained...one has the tooth whorl hanging out of the center of the lower jaw, another has the whorl in the center on the inside of the lower jaw, still another shows a spiral dentition in both the upper and lower jaws.



In 2008, the National Museum of Natural History commissioned Mary Parrish, a scientific illustrator, to create a restoration of this shark for their new Ocean Hall. The scientists at the museum and Mary researched the existing data and theories. After much discussion of the pros and cons of each position for the tooth whorl, most of the theories were eliminated.

A possible position for this unique dentition is the throat cavity. It could accommodate the spiral form and the dentition would not be subject to the wear and breakage from biting prey that would occur in a jaw position. In the throat cavity, this dentition was probably supported by the cartilage between the basal margins of the right and left gill arches found in sharks. New teeth for the spiral dentition probably originated in the basal cartilage. The teeth may be modified pharyngeal denticles, which occur on the gill arches and basal cartilage of sharks and other fishes. As a throat dentition, when the shark opened its jaws, the teeth would be presented to grab prey entering the mouth cavity. Closing the jaws, the teeth would move the prey towards the esophagus. This type of dentition would work well for soft bodied prey.

Based on the information provided by the scientists, Mary Parrish reconstructed a Helicoprion with the dentition in the throat. She made rounded bars for the jaw teeth. These have not been found associated with Helicoprion fossils but other edestoid sharks have jaw teeth similar to these.

For further details visit <http://paleobiology.si.edu/helicoprion/index.html>





**Megalodon shark tooth,
Venice Beach
June 2009 auction item**

Sharks, Continued from page 3

Peru in 1988. It now belongs to a private collection and was only recently pledged to the Florida Museum of Natural History.

"It's the only fossilized partial skull of a white shark that's ever been found," said Gordon Hubbell, the fossil's owner and study co-author.

Hubbell purchased the fossil from the farmer during his first trip to Peru, which coincidentally occurred only a few days after the discovery.

The specimen came from an area known as the Pisco Formation, famous for its rich fossil beds dating from the late Miocene to Pleistocene, about 1 million to 9 million years ago. The region was once a sheltered, shallow marine environment ideal for preserving skeletons. The formation has produced articulated broad-toothed mako shark skeletons as well as fossils of whales, aquatic sloths and sea turtles.

The study strengthens the evolutionary link between the extinct mako and the modern white shark, said vertebrate paleontologist Kenshu Shimada, an associate professor at DePaul University in Chicago. Shimada said paleontologists now need fossil skeletons from megalodon and a shark from the extinct Otodontidae family such as Otodus, a large prehistoric mackerel shark that lived about 40 million to 60 million years ago.

Lost World, continued from page 4

from a single animal" -- if the bones had been exhumed by a river, they would have been scattered.

So does this provide conclusive proof that dinosaurs survived the Cretaceous extinctions? According to David Polly, one of the editors of the journal in which the research is published, "this is a controversial conclusion, and many palaeontologists will remain skeptical", but we already know that flying theropod dinosaurs (more generally referred to as birds) and crocodiles survived, so the possibility of pockets of survivors of other types of dinosaur is not quite as far fetched as it might sound.

Finding conclusive evidence, however, is a difficult matter when the crime scene is 65 million years old. "One thing is certain," continues Polly, "if dinosaurs did survive, they were not as widespread as they were before the end of the Cretaceous and did not persist for long." The 'Lost World scenario' of humans and dinosaurs existing at the same time, still belongs firmly in the realms of pure fantasy.

Adapted from materials provided by [The Palaeontological Association](#), via [EurekAlert!](#), a service of AAAS.

"If we can demonstrate the strong link between *Carcharocles* and *Otodus* from such skeletal remains," Shimada said, "we may be able to settle the evolutionary and taxonomic debates."

Megalodon was first classified in the same genus as the modern white shark in the 1840s based on the similarity of tooth shape and serrations specialized for eating marine mammals. Mako sharks have no serrations because they feed primarily on fish.

Ehret says the shark fossil's coarse serrations are evidence of a transition between broad-toothed mako sharks and modern white sharks.

"Here we have a shark that's gaining serrations," he said. "It's becoming a white shark, but it's not quite there yet."

The transition from megatooth sharks like megalodon to modern white sharks would require changes in body size and tooth serrations, thickness and enamel, Ehret said. By contrast, the transition from the broad-toothed mako shark to modern white sharks would require only the presence of serrations and a shift in the slant of a key tooth position.

Adapted from materials provided by University of Florida, via [EurekAlert!](#), a service of AAAS.

***For more information on sharks, visit:
<http://www.flmnh.ufl.edu/fish/sharks>***

Florida Fossil Hunters

is a fun and educational group whose goal is to further our understanding of the prehistory of Florida. We encourage family participation and welcome explorers of all ages.

Membership is \$17 per year. Other household members may be included at no charge.

Meetings are held the third Wednesday of each month at 7:00pm, check the website for the location.

Officers:

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Fossil Bucks	Dave Dunaway	(407) 786-8844
Fossil Lotto	Ed Metrin	(407) 321-7462
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Membership Application

Names: _____

Associate Members: _____

Address: _____

City: _____

State: Zip: _____

e-mail: _____

____ New ____ Renewal

Please list any interests, experience, talents or just plain enthusiasm, which you would like to offer to the club:

Membership is \$17 per year. Our membership year runs from January to December. All renewals are done in December and January.

Please make your checks payable to:

Florida Fossil Hunters
 Post Office Box 540404
 Orlando, Florida 32854-0404

Associate members are people in the same household, included at no extra charge, 2 adult votes per household.

Newsletter Policy

Articles must be submitted by the first of the month to be included in that month's newsletter. These can be mailed to the above Post Office Box or e-mailed to: elise@liseydreams.com. Articles can be sent as text in the e-mail or in Microsoft Word files (*.doc).

Florida Fossil Hunters Mark Your Calendar

May 9, 2009

Vulcan Mine Field Trip (see page 2 for more info)

May 16, 2009

3:00pm FFH Meeting

More information on these events on page 2

Newsletters Going Green

We are gearing up to *email* the newsletter each month. If you want to participate, just email Bonnie at bjrb48@netzero.com or sign up at the meeting. If you want to continue to receive a paper newsletter in the mail, you don't have to do anything.



Visit us online at www.floridafossilhunters.com

Articles and comments should be sent to: elise@liseydreams.com

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