

**Newsletter of the  
KENTUCKY  
PALEONTOLOGICAL  
SOCIETY  
“Paleozine”  
Vol. 21, No. 4 April 2013**

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**March Meeting:**

On Friday, March 29, 7:30 pm, Dr. Marie Nydam gave her talk titled "*Invertebrate Biology: A Concise Guide*". It was well attended with a contingent coming from as far as Indiana to see it. The editor doesn't remember any talks in past meetings given on taxonomy so it was nice to get a talk that hit the high points. Thank you Marie!

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**April Meeting**

Dr. Don Chesnut, Kentucky Geological Survey (emeritus) is the April speaker and his talk is titled "*Travels Along the Deccan Plateau of Southern India*". This area is one of the most interesting areas on the planet. All the lava that created the Deccan Traps could create an asteroid 60 miles in diameter. That is impressive!

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**April Field Trip**

On Saturday, April 27 at 10 am we will meet at the Dairy Queen located at 131 N. Keeneland Drive in Richmond near I-75 Exit 90. We will be collecting at road cuts between Richmond and Irvine, Kentucky on Route 52. Since the Bluegrass Gem and Mineral Club is having a show at the Mountain Mushroom Festival (see elsewhere in this newsletter for details), we will end the trip at the show. Bring a geology hammer and containers for specimens.

If you are coming on the trip we can send you an electronic copy of a field guide published last year when the Kentucky Society of Professional Geologists had a trip to this area. Send Editor, George Weems (George's email is [George.l.weems@gmail.com](mailto:George.l.weems@gmail.com)), or Dan Phelps ([edrioasteroid@msn.com](mailto:edrioasteroid@msn.com)) a message and they will send you a PDF of the guidebook.

**REMEMBER! PENN DIXIE WEEKEND 2013**

**Friday, June 7th**

Ridgemont Quarry (Fort Erie, Ontario Canada). Will probably be back in Hamburg around 4:30 p.m.

**Saturday, June 8th**

All day – digging

Afternoon – amateur radio station setup

Evening – astronomy night

**Sunday, June 9th**

Morning to early afternoon – collecting along 18-Mile Creek and Lake Erie

Directions: From the downtown Cincinnati area, it's approximately 440 miles to Hamburg, NY. The easiest route: I-71 to I-271 (which routes around Cleveland), then I-90 through NE Ohio, NW Pennsylvania, and Western NY. Our "base camp" will be the Denney's Restaurant on Camp Road / State Route 75 (Exit 57 on I-90; head West, and Denney's is about a mile on the left)-coordinates for Camp Rd entrance are: 42.74896 -78.85417.

Directions from there to the Penn Dixie site can be obtained on the Penn Dixie site or just enter the coordinates (42.77571 -78.83064) for the entrance connecting to North Street

Ridgemont Quarry-Canada: From "base camp" on Camp Road (State Route 75), head West until it changes to Lake Shore Road; it merges into State Route 5 North. Continue to Buffalo and watch for "Bridge to Canada" signs and the QEW. After crossing the border, continue on the QEW to Exit 21 (Bowen Road). Turn left, then left onto Ridgemont Road; the quarry entrance will be on your right. Note: we must all be there as a group, so getting there early won't get you in early!

The May newsletter will have additional information that couldn't be included in this one so SAVE this newsletter; only *changes or additions* will show up in the May *print* copy and it will be the last one prior to the field trip to NY and Canada. Email recipients will get the full updates as Bob sends them since I can forward them.

# Ancient Nursery Area for the Extinct Giant Shark Megalodon from the Miocene of Panama

## Abstract

### Background

As we know from modern species, nursery areas are essential shark habitats for vulnerable young. Nurseries are typically highly productive, shallow-water habitats that are characterized by the presence of juveniles and neonates. It has been suggested that in these areas, sharks can find ample food resources and protection from predators. Based on the fossil record, we know that the extinct *Carcharocles megalodon* was the biggest shark that ever lived. Previous proposed paleo-nursery areas for this species were based on the anecdotal presence of juvenile fossil teeth accompanied by fossil marine mammals. We now present the first definitive evidence of ancient nurseries for *C. megalodon* from the late Miocene of Panama, about 10 million years ago.

### Methodology/Principal Findings

We collected and measured fossil shark teeth of *C. megalodon*, within the highly productive, shallow marine Gatun Formation from the Miocene of Panama. Surprisingly, and in contrast to other fossil accumulations, the majority of the teeth from Gatun are very small. Here we compare the tooth sizes from the

Gatun with specimens from different, but analogous localities. In addition we calculate the total length of the individuals found in Gatun. These comparisons and estimates suggest that the small size of Gatun's *C. megalodon* is neither related to a small population of this species nor the tooth position within the jaw. Thus, the individuals from Gatun were mostly juveniles and neonates, with estimated body lengths between 2 and 10.5 meters.

### Conclusions/Significance

We propose that the Miocene Gatun Formation represents the first documented paleo-nursery area for *C. megalodon* from the Neotropics, and one of the few recorded in the fossil record for an extinct selachian. We therefore show that sharks have used nursery areas at least for 10 millions of years as an adaptive strategy during their life histories.

**Citation:** Pimiento C, Ehret DJ, MacFadden BJ, Hubbell G (2010) Ancient Nursery Area for the Extinct Giant Shark Megalodon from the Miocene of Panama. PLoS ONE 5(5): e10552. doi:10.1371/journal.pone.0010552

**Editor:** Anna Stepanova, Paleontological Institute, Russian Federation

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Photo from press release on page 4.

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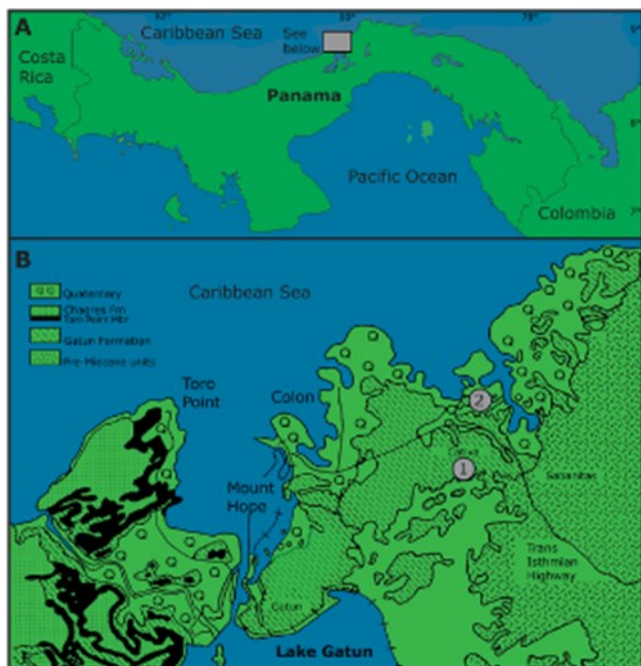
## GeoFair 2013

48th Annual Gem, Mineral, Fossil & Jewelry Show of Greater Cincinnati

[www.geofair.com](http://www.geofair.com)

Saturday May 4, 10 am - 6 pm; Sunday May 5, 11 am - 5 pm\$ 9/adult; \$3/child; uniformed scouts free. Go online to print dollar off coupon.

FREE PARKING!!!



## APRIL MEETING ANNOUNCEMENT

**WHO**- The Kentucky Paleontological Society (KPS).

**WHEN**- Friday, April 26, 2013, 7:30 pm

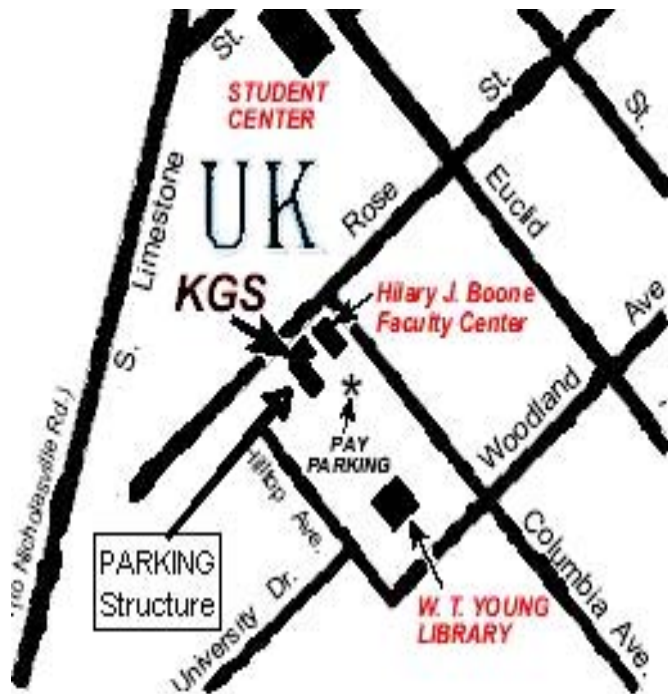
**WHERE**- Lexington, Kentucky, Mines and Minerals Resources Building, Room 101, Rose Street, UK Campus.

**SPEAKER** - Dr. Don Chesnut, Kentucky Geological Survey (emeritus)

**TOPIC** - "*Travels Along the Deccan Plateau of Southern India*"

**Bring your unidentified specimens for us to see!**

**NOTE THAT ROSE STREET NO LONGER CONNECTS WITH NICHOLASVILLE ROAD! FREE PARKING AT THE STRUCTURE ON HILLTOP AVENUE.**



## MEMBERSHIP

**MAIL TO: KENTUCKY PALEONTOLOGICAL SOCIETY, INC.**  
2004 Sawyer Ct.  
Lexington, KY 40514

### SOCIETY PURPOSE

The Kentucky Paleontological Society was founded in 1993 for the purpose of promoting interest in and knowledge of the science of paleontology. It is intended that the Society be a network for the exchange of data between professionals and serious amateurs in the field. A newsletter is published monthly, and several field trips are arranged annually.

Meetings of the Society are held once a month. Visitors are welcome.

[ ] **Family Membership.** For families. \$17 annually.

[ ] **Individual Membership.** \$12 annually.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE # \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

THE NEWSLETTER COMES VIA EMAIL. IF YOU DO NOT HAVE EMAIL AND NEED TO RECEIVE A COPY VIA US MAIL, CALL George Weems at 859 281-1662.

I hereby promise to support the ethical standards and purposes of this society-

(Signed) \_\_\_\_\_

### CODE OF ETHICS

I. Members shall not collect specimens where prohibited by federal, state or local laws.

II. Members shall not trespass on private property. All private property laws shall be respected by members.

III. Members agree to protect scientifically important sites. These sites will be made known to members by the Executive Committee.

IV. Members agree to make all specimens of scientific importance available to recognized scientific researchers or institutions for study and photography before final disposal. Sale of specimens of scientific importance should be done with respect towards their scientific value; donations to scientific institutions are encouraged.

V. Members agree not to over collect sites, thus allowing others to study and enjoy those sites.

VI. Members agree not to collect in advance of Society field trips.

The following (optional) information will be included in the society's membership directory:

**OCCUPATION, INTERESTS/COMMENTS** on back of form.

# KENTUCKY PALEONTOLOGICAL SOCIETY, INC.

[www.kyps.org](http://www.kyps.org)



QR Code for  
KPS Website

## EXECUTIVE COMMITTEE

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Dr. Don Chesnut

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Contributions to our newsletter are encouraged from all interested parties. Please send material to: George Weems, Editor, 220 Castlewood Dr., Lexington, KY 40505 or via email: [george.1.weems@gmail.com](mailto:george.1.weems@gmail.com).

**Photos are especially welcome! Please include in your email subject line in all caps: KPS NEWSLETTER.**

## KENTUCKY PALEONTOLOGICAL SOCIETY.

2004 Sawyer Ct  
Lexington, KY 40514



Meeting April 26