



# **FOSSIL CLUB OF LEE COUNTY**

**MAY 2015**

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## **Letter from the President**

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SPRING IS IN THE AIR!! Yes, springtime is here--for the rest of the country. But, for us lucky folks, it's been here for months! In fact it has felt, lately, a lot like summer! We have had unseasonal rains throughout the "winter" months, contributing to high water levels in our local rivers and creeks. The fossil hunting season for us has been cut down drastically. We have had to cancel three different Peace River club trips! Finally, however, it seems that we can get in the rivers---but we must not wait too long! June is usually the start of our rainy season, and if that holds true this year, we only have a few short weeks left! So, go do it! And send pictures and stories about your trips to me for the newsletter!

My computer has decided to not behave. Of course, this happens when it's time to create the newsletter!! Unfortunately, the folders I use to store newsletter content cannot be accessed, so whatever I have been sent and any pictures from members that are locked up in my folder will not be in this month's edition. I apologize to anyone who sent content, but at this time there is nothing I can do about it.

Since last month's meeting the Venice Shark Tooth Festival was held. This huge festival is always a good time. I know many of you went. Plan on going next year if you missed it this year!

Chuck Ferrera, president of the Southwest Florida Fossil Society, in Punta Gorda, (along with Lee Cone, of the Aurora Club) has written about the loss of fossil hunting places. I found it very interesting and Chuck gave his permission to re-print it in this edition of our newsletter. I hope you find it as interesting as I did.

Last month our annual elections took place. I want to congratulate and thank all who has stepped up to help the FCOLC, and look forward to working with everyone throughout the year. A complete list of officers and directors is included in this newsletter.

An issue that has been brought up several times by members is the refreshments at meetings. It was promised to be, (and was), addressed at our board meeting, which was held the week after the elections. The request was to increase the amount of money the club will spend on refreshments. At present we allocate up to \$40. After much discussion of all the pros and cons the board decided to increase this amount to \$80, but only for the busiest months of attendance. And the board strongly recommends that members who volunteer to do the refreshments at meetings to try and keep it fairly simple. Our tradition has been to always have some light refreshments at the meetings, at the break, but lately it has been progressing to the point of a meal. Light snacks is all that is needed, as most members have eaten before the 8 o'clock mid-meeting break, so a full meal is not warranted. The deeper commitment to provide a meal has also taken it's toll on acquiring volunteers to provide refreshments.

Most of our seasonal residents have left to go back up north. We enjoyed their company and their contributions. Now, we re-group and have smaller meetings and less activity, but we still want to enjoy the meetings. Please bring in your show and tell items to share with everyone. And try to attend the meetings if you are not on vacation. When we have a speaker it is good that our attendance is as full as possible. Besides, we just want to see your pretty faces!

See you at the meeting!!

Louis Stieffel  
President  
Fossil Club of Lee County



**MARCH 19, 2015**  
**MEETING MINUTES**

Louis Stieffel called meeting to order.

This is a early, abbreviated meeting because of the annual club auction.

There will be elections at the next meeting, in April. Anyone wishing to run for office feel free to contact any of the existing officers. It is imperative that all officers and board members attend the next meeting because of the elections, and the need to sign the incorporation paperwork as a board member.

There were 78 members in attendance.

A river walk-in trip is planned for April 23, 2015, conditions permitting, at Arcadia, on the old girl scout camp grounds. More info at the meeting.

The annual fossil auction of the FCOLC was held. Approximately 140 lots, both regular bidding as well as silent auction, was held.

A preliminary accounting at the end of the auction indicated revenue of approximately \$3,900.00 less expenses.

Minutes: by Al Govin Secretary

**OFFICERS**

Louis Stieffel, President  
239-851-7499,  
[cape187@earthlink.net](mailto:cape187@earthlink.net)  
Michael Siciliano, Vice President  
239-980-1406  
Al Govin, Secretary, Treasurer  
239-910-2339

**DIRECTORS**

Charles O'Connor....239-246-5526  
Dean Hart.....941-979-8217  
Dave Seehaver  
Jeanne Seehaver  
Don Lindsey  
Jim Manderfield

**COMMITTEES**

Al Govin, Club Trips Director  
Curt Klug, Web Master  
Cherie Neat, Newsletter Developer  
Al Govin, Badges, Membership  
Dave and Jeanne Seehaver,  
Merchandise  
Dean Hart, Refreshment  
Michael Siciliano, Raffle and Dive  
Trips  
Charles O'Connor, Speakers  
Louis Stieffel, Auctioneer,  
Vertebrate Education, Newsletter  
editor, FOSSIL project  
representative

**Meetings are held on the third Thursday of the month, at Zion Lutheran Church Fellowship Hall.**

## Websites & Locations of Interest

**Fossil Club of Lee County:** [www.fcolc.com](http://www.fcolc.com)

**FCOLC, c/o Sandra Schwartz, 1821 SE 5<sup>th</sup> Terrace, Cape Coral, FL, 33990**

The FCOLC website is a source for links to Fossil websites of interest, archived monthly club newsletters, details on club meetings and officers.

Museum of Natural History @ Gainesville [www.flmnh.ufl.edu/](http://www.flmnh.ufl.edu/)

The Fossil Project [www.myFOSSIL.org](http://www.myFOSSIL.org)

Randell Research Center PO Box 608, Pineland, FL [www.flmnh.ufl.edu/RRC/](http://www.flmnh.ufl.edu/RRC/)

Smithsonian Natural History Museum [www.mnh.si.edu](http://www.mnh.si.edu)

Southwest Florida Museum of History 2031 Jackson St., Fort Myers [www.MUSEUMofHISTORY.org](http://www.MUSEUMofHISTORY.org)

The Bailey-Matthews Shell Museum, 3075 Sanibel-Captiva Rd, Sanibel, FL [www.shellmuseum.org](http://www.shellmuseum.org)

Cracker Museum at Pioneer Park in Zolfo Springs, FL Tel 863.735.0119

[www.hardeecounty.net/crackertrailmuseum/about.html](http://www.hardeecounty.net/crackertrailmuseum/about.html)

Cape Coral Friends of Wildlife Burrowing Owls

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

Calusa Nature Center and Planetarium 3450 Ortiz Av, Fort Myers Tel 239-275-3435

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

Imaginarium 2000 Cranford Ave, Fort Myers

[www.i-sci.org](http://www.i-sci.org)

Florida Fossil Clubs

Southwest Florida Fossil Club

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

Tampa Bay Fossil Club

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

Orlando Fossil Club

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

The Fossil Forum

[www.thefossilforum.com/index.php](http://www.thefossilforum.com/index.php)

Fossil Treasures of Florida

[www.fossil-treasures-of-florida.com](http://www.fossil-treasures-of-florida.com)

Florida Paleontological Society

<http://floridapaleosociety.com/>

Collecting Vertebrate Fossils on Florida state lands **requires** a permit. A fossil hunting permit is also part of being an ethical Florida fossil hunter.

Florida Vertebrate **Fossil Permit** <http://flmnh.ufl.edu/natsci/vertpaleo/vpppermit.htm>

Peace River Water Levels

<http://waterdata.usgs.gov/fl/nwis/rt>

Picking Up Isolated Native American Artifacts [www.flheritage.com/news/faq.cfm](http://www.flheritage.com/news/faq.cfm)

***If you find an Indian artifact, such as an arrowhead, on Florida state lands or river bottom, be aware that possession of an Indian artifact found on state lands after 2004 is a Class 3 Felony.***

**Upcoming speaker!!**

**Bryan Roberts presents to our club in May**

**His topic will be "Collecting in the Green River Formation of Wyoming"**

Second First Floridians First Americans Conference will be in the Monticello, Florida Opera House on October 1, 2, 3, 2015. We will present 22 speakers and an Exhibit hall will include displays of pre-Clovis artifacts and an artifact identification booth where private collectors can learn the age of their finds. Because of the stature of the Page-Ladson site, our speakers include Dennis Stanford of the Smithsonian, Michael Waters of TAMU and others, some of the foremost Paleolithic scholars in the Western Hemisphere. The Conference is free to the public.

Registration is open at <http://www.firstfloridiansconference.com>.

Contact: Anne H. Holt, Coordinator, [ahholt@ahholt.com](mailto:ahholt@ahholt.com), 850-576-0721

### **May fossil club meeting speaker**

Bryan Roberts grew up in the Shenandoah Valley of Virginia and began collecting fossils in 7th grade. Being in central Virginia gave him a chance to collect from both Paleozoic and Cenozoic formations, including the Yorktown and Calvert Formations along the Chesapeake Bay. Bryan later received both a BS and MS in Geology from Virginia Tech and spent 10 years working as a petroleum geologist in New Orleans.

In 1989, Bryan left the oil industry to start his own business in the fine art field. At the same time, he moved to Chicago where he and his wife Linda were married. After two years in Chicago, Bryan and Linda moved to Columbus, OH where they lived up until last year. In 2006 he and his wife made a collecting trip to Wyoming's Eocene-age Green River Formation and that has since become a prime focus of his collecting efforts. In 2014, he sold his interest in the fine art gallery he co-owned in Columbus, OH and moved to Sarasota, where he and Linda now live full-time.

## **FOSSIL IDENTIFICATION**

The regular scheduled meeting of the FCOLC was held without a speaker. Since the speaker cancelled I decided to do something different and this month was a fossil identification contest! The rules were simple. Form a team of three, with varying degrees of experience. Then each team would try to id the fossils I brought. One point was awarded for each correct ID, and the team, at the end, with the highest number of points was awarded a gift card to Perkins Restaurant, for each team member.

I had the fossils arranged on a couple of tables, with the easiest first (all complete fossils, mostly vertebrate), and progressing through into harder to ID partial fossils, and ending with difficult to ID partial fossils.

I thought I had it figured out, but once we started I realized it was going to take longer than I thought. So, we only got through the first group of fossils. Most teams had some difficulty to ID the fossils, so, the time taken was longer than I had assumed it would take, and we never got to the second and third groups. (I have some ideas on speeding up the process if we do this again.) I hope that those who participated learned a few things, because the more knowledge gained, the better experience you will enjoy when hunting.

Observing the process many of our members used, I want to say that I plan on focusing more on fossil id in the future, and hope you let me share my knowledge with you. I used to ID a few featured fossils every month in the newsletter, and may try doing that again. (Those newsletters are all archived on our web site: [www.fcolc.com](http://www.fcolc.com) and most are in our library, also.)

Oh! By the way, the winning team was Pam Plummer, Aimee Hankel and Joe Larkin. Congratulations! Enjoy the meal!

## FCOLC BOARD MEETING DECISION

Recently the newly elected board met and discussed many topics of interest of the club. Among other things, as promised to the membership the issue of general meeting refreshments was actively discussed and decided upon. Here is an excerpt from the meeting overview sent to the board:

The elephant in the room, as we all knew, was the refreshment issue. The board, after a very lively discussion, decided to continue to allow \$40 for refreshments for all meeting---**except for the seasonal months where our membership is doubled---and then it rises to \$80.** Those seasonal months will be November, January and February. December is Christmas pot-luck and March is traditionally done by the Bonita Beachcombers. This money is to be reimbursed back to the volunteer who does the refreshments at the meetings. Receipts are needed. If that member spends more, then only the amount allocated will be paid. And, if the member wants to donate their contribution, then that is always a big thank you from the club. We, also, **again as a unanimous group**, decided to stress to the members that refreshments are more towards the snack area rather than a meal. So, chips and cookies and light snacks, along with water and sodas are all that is needed. If a member wants to do more, that is fine, but it cannot impact the meeting.

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## ANNUAL ELECTIONS 2015

The annual FCOLC officer and board of director elections were held at the April meeting. All nominees were voted in, and will serve a one year term.

The officers are:

President-**Louis Stieffel**

Vice-president-**Michael Siciliano**

Secretary/Treasurer-**Al Govin**

Directors:

**Dean Hart**

**Charles OConnor**

**Dave Seehaver**

**Don Lindsey**

**Jeanne Seehaver**

**Jim Manderfield** (seasonal)

Congratulations to all and good wishes for a great year!

Dear Partners of National Fossil Day,

Your National Fossil Day team is as excited as ever for this year's celebration of fossils and the science of paleontology! The sixth annual celebration of National Fossil Day will take place on October 14th, 2015. For more information about National Fossil Day, please visit our website: <http://nature.nps.gov/geology/nationalfossilday/index.cfm>.

The 2015 logo features the chalicothere, a large herbivorous mammal, standing in a prehistoric prairie grassland. To compliment this year's logo, the theme of the Monthly Feature Article is Cenozoic Era Life and Landscapes. For more information about this year's logo and Monthly Features, please visit the 2015 Artwork page at: [http://nature.nps.gov/geology/nationalfossilday/nfd\\_2015\\_artwork\\_fossils.cfm](http://nature.nps.gov/geology/nationalfossilday/nfd_2015_artwork_fossils.cfm).

As always, we encourage you to use the National Fossil Day logo to promote your NFD events and activities. Our logos are free, but please do read the terms of use. You can download them from the National Fossil Day logos page: [http://nature.nps.gov/geology/nationalfossilday/nfd\\_logo\\_intro.cfm](http://nature.nps.gov/geology/nationalfossilday/nfd_logo_intro.cfm).

The 2015 Art and Photo Contest theme is Postcards from the Past. To read more about this year's theme and for full entry guidelines and downloadable forms, you can check out the contest webpage at: [http://nature.nps.gov/geology/nationalfossilday/art\\_contest.cfm](http://nature.nps.gov/geology/nationalfossilday/art_contest.cfm).

Lastly, it is never too early to send us your event information! Get the news out early by using our event information form to send us your schedule of events: [http://nature.nps.gov/geology/nationalfossilday/add\\_event.cfm](http://nature.nps.gov/geology/nationalfossilday/add_event.cfm).

Check out last year's listing of events for ideas of how to celebrate National Fossil Day: [http://nature.nps.gov/geology/nationalfossilday/events\\_2012.cfm](http://nature.nps.gov/geology/nationalfossilday/events_2012.cfm). Our activities page has additional fun and educational things to do: <http://nature.nps.gov/geology/nationalfossilday/activities.cfm>. Our get involved page has all the information you need to plan an event: <http://nature.nps.gov/geology/nationalfossilday/overview.cfm>.

We look forwards to celebrating with you again this year!

-your National Fossil Day team

P.S. – Please keep us honest! We encourage you to check and make sure your information posted on our Partners page is correct. <http://nature.nps.gov/geology/nationalfossilday/partners.cfm>

Here is a link to help you with spotting fake Trilobites.  
Other fossils are sometimes faked as well, especially ones purported to be from China, and also Morocco.

Link provided from Joe Larkin:

<http://www.fossilmuseum.net/collect/faketrilobites3.htm>





This is my display at the Pine Island Library. I also gave a talk to a dozen people earlier in the month. This is a real small part of my collection. This display is to get people interest in our club. Also the hobby gets my butt outdoors and active. Al

## River water levels!!

As I sit here this morning on the first day of May and look at the water levels on the Peace River I am still surprised that it is so high--so late in the fossil hunting season! The river gauge at Zolfo Springs, [http://waterdata.usgs.gov/fl/nwis/uv?site\\_no=02295637](http://waterdata.usgs.gov/fl/nwis/uv?site_no=02295637), which is the one many of us use as a guide to hunt-able water levels, needs to be around 5 feet, It has just crept below that mark. However, it is one of the few times that has happened in the last several months. As soon as it gets right, more rains come and raise the river again! We had to cancel, **for the third time**, our club sponsored trip to the Peace at the Girl Scout Camp location. The river gauge at Arcadia needs to be about 1.25 ft, but presently it is double that! The water has just been too high. [http://waterdata.usgs.gov/fl/nwis/uv?site\\_no=02296750](http://waterdata.usgs.gov/fl/nwis/uv?site_no=02296750)  
We may try again, soon, but only if we feel we can actually do this trip.  
I have hunted the creeks mostly this year, as they seem to be lower water levels than the river. However, when I checked the gauges today, the creeks are higher than the river! First time like so far this year! It has been a wild and crazy year for fossil hunting in our rivers and creeks! You have to be determined or else you may as well just stay home!

Good luck to each of you. There is still another month (traditionally) for hunting, so, don't give up yet!  
Louis

## **INTRODUCTION      SPEAKING MY MIND      chuck ferrara**

We have seen over the past five years a number of sites close to fossil hunters ,and accessibility being denied . this is happening at a faster rate .

The piece of the pie is getting smaller and we all want the same piece .this is just not unique to Florida but is happening all over the country. one aspect of the Omnibus public land management act 2009 concerning paleontological preservation ,goes into effect may 18,2015 it closes of fossil hunting to the public on all national forest land ,and states that "paleontological resources are scientific resources" and that management must be made using scientific principles and expertise . what this means is only the professionals can collect on national forest lands with permission and permits . this is one part of the national fossil law BLM lands are next . I have been talking about this issue and the changes coming for a while the day is coming soon we will all have to speak up with one voice or we will loose this activity we love so much . only two states have a fossil permit Florida and S. Carolina that's not enough to stop or have a voice to slow the encroachment of our finite activity .the Fossil Project is creating the Fossil website, testing of the website is happening now it will be a forum for all the fossil organizations to show our value to the professionals and contributions we make to the science of paleontology . the Fossil community is also going to set minimum standards that not just members must follow but also fossil organizations must be doing to be included .if we want the professionals to take us seriously. we all must be working together with the same voice and have ethics and standards that we all follow . we are seeing also a tipping point where fossil , mineral , lapidary organizations are loosing members do to lack of interest and accessibility ,no trips ,no young people getting involved to keep the organization going . the Miami fossil club just dissolved last year and some are coming to our meetings now ,this is just the beginning .as the encroachment, restrictions continues we will see more of this we will loose more organizations. we have nothing to loose that we haven't already . this Fossil website has to be done right the first time ,be thorough and well thought out if we are to sway the professionals that may be on the fence and get them to work with us . and see our passion for knowledge .this is why we SFFS transitioned to a not for profit and are creating partnerships in the fossil community and locally to keep ahead of the changes that have come and are coming . below is an article Lee cone wrote in the friends of the aurora museum newsletter i agree with all of what he wrote and more please read and take notice .      quote - how do you boil a frog - real slow were getting cooked .



## Speaking My Mind

It is interesting and worrisome to see what is happening ever so slowly to our hobby. Chuck Ferarra and I were talking a month ago about some events that have occurred recently that have involved fossil hunters in several states around the country. It appears that we may be seeing a slow encroachment of legal maneuvering directed toward limiting or controlling our hobby and passion for the ancient. We are all aware and we have all been affected by the reduced availability of fossil collecting sites in the southeastern United States and elsewhere. We have seen the progressive and systematic closure of more and more mines that do not allow collecting any more. This is not simply limited to amateur collectors, but extends to professionals as well, both directly and indirectly. Amateur collectors have donated and provided massive quantities of fossil material to museums and universities throughout the world. Based on information provided at last year's NAPC Symposium in Gainesville, FL. as much as 80% of museum material may linked in one way or another to amateur discoveries, donations, and a working relationship between both professionals and amateur collectors. It is true that the legal climate in the United States does not lend itself to the exposure that collecting poses to industry, but a few mines still see that intrinsic value and public relations benefit for allowing controlled and supervised collecting. These companies provide such an important and educational value that always extends beyond the amateur to the professional. In the long term it always benefits the universities, museums, and research students who are devoting their lives to the quest of knowledge and furthering our understanding of the natural history of this earth. It is the science that is being lost, the education that does not progress, and the knowledge that fails to be understood. But this is not an article about industry. We are, in fact, indebted to those companies for the wonderful years of collecting experiences that we have had in the past. Though we wish it were different, we must realize that the government, both state and federal, have forced industry to make many of the decisions that have devastated our passion. Fines, penalties, and legal issues make it such a slippery slope for industry, that it makes us appreciate even more the mines that still do continue to allow collecting.

If you believe that the government decisions are logical and well thought out, I ask you to go to the following link:

<http://www.smithsonianmag.com/history/kennewick-man-finally-freed-share-his-secrets-180952462/?no-ist=&no-cache=&page=1>

and read the entire (three pages) published article in the Smithsonian Magazine about Kennewick Man. If you are like me, you will be horrified at the decisions that were made in that case, which involves one of the most important discoveries ever made relating to the history of mankind in North America. You will share feelings of shock over some of the decisions made, anger over the mishandling of these treasured bones, and a wonder as to how seemingly intelligent individuals could possibly move in the direction, or better said, the lack of direction that they took. You will also be amazed at the incredible scientific discoveries forensic anthropologists and archeologists were able to reach with only miniscule time to study the bones. You will also be disappointed at how much more could have been revealed, if only.....

When you look at individual states, legislation governing fossil collecting varies widely. Fossil collecting in South Carolina and Florida require a license for fossils and antiquities and each state has their own restrictions and limitations on what you may or may not take and where you may collect. Fortunately for me in South Carolina, fossils collected are all keepers, though the museum, rightly so, would like to be notified of unique fossil finds. Because of the rich colonial history of the low country, the hobby license requires filling out two quarterly forms. One (for fossils) goes to the State Museum in Columbia, while a second (of archeological finds) goes to the Maritime Research Division in Charleston. Even local municipalities have cre-

ated laws restricting the collector. Summerville, SC has an ordinance prohibiting collecting with any digging implement in the drainage ditches. They are serious about fines and enforcing that law. Florida does not allow removal of any Native American artifacts of any kind from its rivers, while South Carolina does. South Carolina requires quarterly reports filed for each and every dive that is made, and failure to complete the reports results in the suspension of the Hobby License. I read yesterday about a man in Port Royal, SC who is facing disciplinary action over non-compliance with the SC Hobby License Division. In Georgia, especially in certain counties, any collector found in creeks or streams collecting any type of Native American artifact, will be escorted to jail and fined.

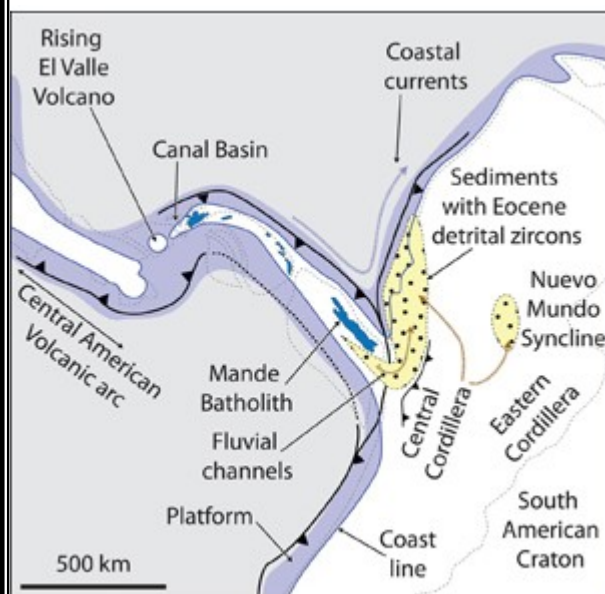
Collecting problems are not limited to the southeast. Bruce Hargreaves sent me an article citing Maryland legislators attempts to curb fossil shark teeth collecting. Based on my understanding of the e-mail forwarded by the President of the Maryland Gem Society, this legislative attempt is in committee, but the fact that Maryland Bill 713 has even been brought up is disturbing. Apparently by the definition assigned to "ivory", sharks teeth would qualify, as well as mastodon and mammoth material, and there is no distinction in fossil and new. Many of our legislators lack even a basic fundamental understanding of science, yet are writing laws which criminalize the sale or purchase of such fossils. Any members from the Maryland region may contact me for more information and addresses to respond to their legislators. In the far west an Oregon man, a collector of Native American artifacts from childhood, had his entire collection confiscated by agents. I do not know the details but he apparently obtained all of it legally, prior to any of the existing laws. He has never been charged, but he also does not have his collection back. In another case a 91 year old Indiana man had his entire museum quality collection confiscated by the FBI and Bureau of Land Management. Granted he had some amazing specimens, some of which might be considered controversial, but they were obtained by him over a lifetime, before it was illegal to collect them.

Often times, though, the changes in policy are the result of collector abuse of the area, and the disregard of rules established by the land owner. Closure of a mine in Harleyville, SC was the direct result of several collectors who undermined walls creating dangerous and unstable conditions. The Summerville fines were enacted due to collector damage to the drainage ditches. Problems caused by a few can produce devastating affects for many collectors who do respect the sites. Then there is the political fallout levied by lobbyist pressure from environmentalists and special interest groups. Politicians, who spend their career measuring the pulse of the voter, legislate to appease a voting block, such as what is happening in Maryland. The consequences of these laws strip away at the available places where fossils exist and can be collected.

We, also, do have an obligation to ourselves, if we wish to continue collecting, to keep an eye on the pulse of our government officials. Many of our officials are easily swayed by vocal groups speaking out for or against certain movements, often without really understanding the science and educational aspect of their actions. We also have a voice and there may be a time in which our collective voices may need to be heard. When PCS had trouble extending their mining permits 7-8 years ago due to environmentalist concerns, it was the Friends members that wrote hundreds letters in support of PCS to NC senators and congressmen. Our collective voices were strong and may have been the reason that PCS received their expanded mining rights and continue to operate today. We as individuals need to keep abreast of what is going on in government at all levels: Federal, State, and local in order to preserve the future of fossil collecting. We can not remain "the silent majority" and simply watch as we lose more and more ground. We must police ourselves, use common sense, and follow all rules, when we do have access to collecting sites. We must use our voice, as we did for PCS, when we see political anti-fossil bills introduced at the governmental level. Our collective voices will be needed again in the future, and it will likely be needed to raise awareness in support and protection of our passion.

# Shifting the date of the rise of the Isthmus of Panama

Dawn Mitchell | PCP PIRE Project Assistant



A figure showing what the land connection between the Panama arc and northwestern South America might have looked like during the Middle Miocene. (Excerpted from Montes et al. 2015)

PCP PIRE Principal Investigator Carlos Jaramillo, PCP PIRE affiliate Camilo Montes and colleagues published a groundbreaking paper in *Science* this month that challenges previous thought on the date of the closure of the Central American Seaway. The study, with Montes as first author, found that the Isthmus of Panama must have had a land connection with South America by the Middle Miocene, 13-15 million years ago instead of the widely held date of 3 million years ago. The team came to this conclusion because detrital zircons of Eocene age were found in middle Miocene fluvial and shallow marine sediments of northwestern South America. A large part of the Panama arc formed from the latest Cretaceous to the Eocene, with magmatic activity occurring again in some parts as late as 19 Ma and 10 Ma. Northwestern South America, on the other hand, was formed from the accretion of rocks ranging from late Precambrian to Cretaceous in age. The presence of Eocene detrital zircons in fluvial and shallow marine sediments of northwestern South America during the middle Miocene and the absence of such zircons in Oligocene and early Miocene

sediments suggest that some part of the Panama arc had docked to South America, allowing rivers originating in Panama to flow into northern South America. This docking would also mean that the Central American Seaway had already closed, and events that occur 10 million years later such as the Great American Biotic Interchange may have a more complex history than originally thought.

Another paper published this month by Christine Bacon and colleagues (including PCP PIRE's Carlos Jaramillo and Alexandre Antonelli) in the *Proceedings of the National Academy of Sciences* supports an early rise of the isthmus and a complex history of dispersal between the North and South American landmasses. Fossil data shows an increasing number of migration events from 10 million years ago onwards, with a drastic increase in North American taxa migrating to South America at around 3 million years ago. Molecular genetic data indicates that the migration of plant and animal species across the isthmus might have happened in multiple episodes rather than one large migration. Major changes in the rate of migration occurred at 23 million years ago and within the last 10 million years, and the number of migrants during a particular time may be related to dropping global temperatures that led to glaciation and vegetation changes in the northern hemisphere as well as a drop in global sea levels.

New findings are continuously coming out of Panama through the work of PCP PIRE researchers and others, as the geology of Panama continues to reveal its dynamic secrets.

## References:

Montes, C., Cardona, A., Jaramillo, C., Pardo, A., Silva, J. C., Valencia, V., Ayala, C., Pérez-Angel, L. C., Rodríguez-Parra, L. A., Ramirez, V., Niño, H. 2015. Middle Miocene closure of the Central American Seaway. *Science* 348 (6231), 226-229. [DOI:10.1126/science.aaa2815](https://doi.org/10.1126/science.aaa2815).

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# Massive Lava Flows Linked to Dinosaur-Killing Impact

by Becky Oskin, Senior Writer, Live Science | May 05, 2015 10:40am ET

Remember the terrible earthquakes and fiery volcanoes that killed off the dinosaurs in Disney's original "Fantasia"? Those scenes weren't far from the truth, a new study suggests.

According to an international research team, the Chicxulub meteor impact 66 million years ago may have triggered a magnitude-11 earthquake that shook loose massive amounts of lava in India. The findings were published April 30 in the journal Geological Society of America Bulletin.

The mega-eruptions formed the Deccan Traps, a series of massive lava flows that once covered most of India. The lava erupted from many different fractures over a span of several million years. The molten rock emerged from a mantle plume, a giant blob of magma underneath the Earth's crust. The eruptions began well before the Chicxulub impact and ended long after the meteor hit Earth. [Big Blasts: History's 10 Most Destructive Volcanoes]

But about 70 percent of the Deccan Traps lava spewed forth starting within 100,000 years of the impact, said lead study author Mark Richards, a geophysicist at the University of California, Berkeley. "The eruptions may have been kicked into high gear by the Chicxulub impact," Richards told Live Science.

The new model's results differ from those of earlier studies that had suggested the Chicxulub impact melted rock halfway around the Earth. (The impact crater is located offshore Mexico's Yucatán Peninsula.) That's simply not possible, the study's authors concluded. Instead, the researchers say that powerful seismic waves triggered an immense outpouring of existing lava. The eruptions then lasted several hundred thousand years, burying India under molten rock. They estimate the meteor impact was as strong as a magnitude-11 earthquake.

"The evidence is circumstantial, but all the arrows keep pointing in the same direction," Richards said.

Because of the rocks' age and the difficulty of dating lava rocks, scientists disagree about when some of the lava flows emerged. However, soils buried between some lava flows suggest the Deccan Traps were on a break before the impact.

Scientists have also seen modern earthquakes spark eruptions at dormant volcanoes and also raise mud volcanoes through liquefaction, when water shakes loose from wet sand and mud. For instance, in September 2013, a mud island appeared offshore Pakistan after a major earthquake.

The researchers now plan to search for other volcanic eruptions triggered by the impact, such as massive lava outpourings on the ocean floor.

Last year, the research team also traveled to India and collected rock samples that can be used to precisely date the lava flows. The new ages, which are being readied for publication, may help marshal geologic evidence that the impact and the Deccan Traps are closely linked in time, Richards said.

Because the age of the rocks is not well constrained, there is lively debate over whether the Deccan Traps contributed to the Cretaceous mass extinction. The lava flows likely spewed massive amounts of toxic gases and ash into the atmosphere, but scientists can't say for sure whether the effects helped kill off the dinosaurs and other creatures. Studies have dated the mass extinction to within 40,000 years of the meteor impact.

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**This is a picture of Ray Seguin, the oldest member of a fossil club in Florida, celebrating his 91st birthday!  
Ray sure likes his hot wings!!**





The Venice Shark Tooth Festival, April 10, 11 and 12th, was a huge success, and a fun time enjoyed by all! Estimated crowds of 30-40,000 people attended in the three days. With three large tents of fossil dealers and many rows of tents of craft vendors and lots of food and entertainment, it is always a fun festival!

I was again this year set up as a fossil dealer and enjoyed meeting and talking to so many folks about fossils! I personally saw close to 30 members of our FCOLC club attend. I am including a picture of my Friday helper, Dan Sheley, which was taken by a reporter and published in the local Venice paper! I also include a picture of the Beautiful Venice sunset, taken from my booth. It shows the setting sun over the port-a-potties! (SO romantic!) This is a great festival, and it was good to see so many members show up and enjoy themselves!

Louis



## JOE FINDS A GOOD ONE!!

Ok so this is how it all went down: while hunting in the Peace River, I had just moved to the opposite bank in hopes of changing my luck and getting into a new pocket of some fossiliferous goodies . So I fill up my first screen with some gravelly goodness and give it a good healthy shaking, raking through the gravel with my fingers not seeing much until WOW ! what is this? there it is lying in the screen just at first glance I knew it was something special at that point before I even touched it I let fly an OH S\_\_T, that was to let my hunting partner, the one and only Mr Jack Boyce, know I was on-to something special. So we both looked it over. It looked like a 2 inch canine with cusps and serrations on it !!?? WTH ?? As it turns out it was actually an incisor. Never saw anything like it! Well as it turns out very few other people in the world have either. I mean Louis didn't even know what it was !? So after posting it up on the fossil forum to learn of its identity, but to no avail. Louis sent photos Dr. Richard Hulbert at the Florida Museum of Natural History. Turns out it is most likely from a saber toothed cat called Dinobastis. And it is only the second one ever officially recorded in the state. The first ever in south Florida. There is one other possibility Richard gave xenosmilus but someone posted a complete casting of a xenosmilus lower jaw complete with teeth on the fossil forum and it is clearly very different. What a thrill finding it and then the mystery of trying to learn what it is, lots of fun, the highlight of my fossil hunting so far... well except for my meg hole.

Joe Larkin



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