



JANUS

The Newsletter
of the
North Carolina
Fossil Club
www.ncfossilclub.org

2013 Number 2

2013 Summer Calendar

June

29 NCFC Picnic, Cookout, Party – Aurora, NC in front of Museum. See below for details, RSVP.

July

21 NCFC Meeting – NCMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. Speaker: TBA

September

15 NCFC Meeting – NCMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. Speaker: TBA

21 Mini Fossil Fair – Rankin Museum, 131 W. Church St., Ellerbe, NC 10:00 - 4:00.
Contact: Ruffin Tucker (704) 784-1672 or fossiler77@msn.com

The Fall collecting calendar will be in the next issue of *Janus*.

NCFC Picnic, Cookout, Party

Come join other members of the NC Fossil Club for a day of fossil collecting, food and fun!

Date: Saturday June 29th

Start Time: Hunt starts whenever you get there, all piles are open year round.

Lunch: 1:00 pm, Cook out will be held by the picnic tables behind the Learning Center. Hot dogs (with condiments), chips, baked beans, potato salad, cake and drinks (tea, water and sodas).

Talks: Start at 2:00 pm. Speakers are George Oliver (talk about the Mine and processing the gravel) and Linda McCall (expanded Hunting Texas talk) in the back video room of the Museum.

End Time: You can leave whenever you want. The museum is open from 9:00 am to 4:30 pm for bathroom breaks, air conditioning breaks and to view and shop.

George also indicated that you bring buckets, you are welcome to take gravel home.

Come early, stay late and have fun!

If coming, please RSVP to Linda McCall at: ldmccall02@yahoo.com or 512-422-2322 so we can get a headcount for the food, or if you would like to help.

President's Message

Summer is here again and the heat is on! I hope many of you had a chance to go the Aurora Fossil Festival. Eric Sadorf did an excellent job of coordinating our club presence and deserves a round of applause. A big THANK-YOU also to our exhibitors and volunteers. There were piles of fossil dirt to hunt, wonderful displays at the Museum, interesting talks, a wide variety of dealers and items to buy – great auction items and no end to the food and fun. Speaking of food and fun – please plan on joining us for the First Annual Aurora Cookout on Saturday, June 29, 2013. Come and spend the day! We will be hunting the piles in the morning, munching on hot dogs, etc., at 1:00 pm and then over to the museum for one or two talks at 2:00 pm. The museum will be open from 9:00 am to 4:30 pm for touring, shopping, bathroom breaks and air conditioned time outs. You can come as early as you want and stay as late as you want. It's a great way to merge our fossil collecting and socializing together. Hope to see you all there.

Linda



For several weekends in April and May North Carolina Fossil Club volunteers helped identify finds in the dig pile at the Museum of Life and Science in Durham. In addition to the “usual suspects” commonly found in the Pungo River reject material, the Museum had buried several “gold” teeth which, if found, could be redeemed for a large *megalodon* tooth. This appeared to be a big inducement to the adult hunters, some of whom moved literally tons of dirt in the hope of finding one. Our indefatigable photographer, Trish Kohler, was on hand several of those times to record some of the finds (next page, first three). The bottom three photos are from the Aurora Fossil Festival and were provided by Linda McCall.



I'm not sure we are *all* enraptured with shark teeth.



Let's see. What do I want to find next?



That's a pretty darn good *Isurus oxyrhina* tooth!



AFF: Heather Power is ready to sell some books (and show off some fossils).



AFF: An enraptured audience (for the most part) at Linda McCall's talk.



AFF: Joanne Panek-Dubrock and Ruffin Tucker relax before the onslaught of eager exhibit lookers.

Dear Linda,

Congratulations! You have been selected to receive the Third Place Thomas A. Philpott Award for your paper, "An Undescribed Fauna from the Upper Cretaceous 'Pyroclastic Zone' of the Austin Group at Pilot Knob, Central," presented at the 2012 GCAGS Convention in Austin, Texas.

Primary authors will receive a plaque at the Opening Session and Awards Ceremony of the 2013 GCAGS Convention in New Orleans on October 6th. The exact location has not yet been determined.

It is important that you send a fairly high-resolution photo (600 dpi head shot is preferable) and short bio to Kate Kipper, gcags.mail@gmail.com, by April 26th for publication in the 2013 Transactions. Bios and photos are needed for both primary authors and secondary authors, so please inform your secondary authors of this request.

We look forward to seeing you in New Orleans!

Dallas Dunlap

2012 GCAGS Convention General Chair

Dallas.dunlap@beg.utexas.edu



Linda responds to a question during her talk to the Club at its May meeting: "North Carolina Hunts Texas".

Paleo Talk with Andy Heckert; Mike Bruff, Interviewer

I was born & raised in southwestern Ohio, adopted in infancy, growing up in Oxford Ohio. I went to Denison University as a geology major. After finishing there, I went out west to graduate school at the University of New Mexico, where I earned both a master's and a PhD. After graduating, I worked as the geoscience collections manager at the New Mexico Museum of Natural History from 2002-2005. Then I was hired at Appalachian State University as an assistant professor (2005), earning tenure (associate professor) in 2011.

<http://www.appstate.edu/~heckertab/bio.html>

1. *How did you become interested in science and, in particular, in geology and vertebrate paleontology?*

Growing up near Cincinnati meant that every outcrop, be it a road cut or stream bank, yielded lots of fossils—brachiopods, bryozoans, trilobites if you worked at it. My dad and grandfather were both rockhounds and fossil collectors, so I got my first exposure to fossil hunting there. While I was in kindergarten, my parents took me to the Field Museum of Natural History. They wanted to see the King Tut exhibit, so they promised me I could buy dinosaur books in the gift shop if I was a good kid in the King Tut exhibit. I still have one of those books.

2. *What is your daily life like as a paleontologist and a University Associate Professor? Where is your favorite classroom?*

College professors' lives are much more hectic than popularly believed. Day-to-day activities include intensive effort planning and delivering lectures, teaching, grading, updating course materials, writing letters of recommendation, applying for funding, providing formal and informal academic advice to students, coordinating school tours, serving on committees and going to meetings, and so on. Oh yeah, ideally, you get a little time to study fossils and maybe even read some articles. Without a question my favorite classroom is the field, preferably somewhere on the Colorado Plateau.

3. *You're Director of the McKinney Geology Teaching Museum at Appalachian State University. How is this museum different from other museums?*

A professor's job involves teaching, research, and service. For me, a large part of my service, both to the university and to the larger community, is to oversee our museum. We don't have a lot of exhibit space (~1200 ft²), but we do have an outstanding rock garden outside. Our museum's primary mission is to help the department teach geology, both to our students and to the larger community, including school groups. Consequently, we're small and we're free, but we aren't open on weekends or when school is out. We also have a workspace where students can study rocks, minerals, and fossils from their lab classes and, in the evening, ask any of our paid geology tutors (upper-level geology majors).

To visit these virtually, check out:

<http://mckinneymuseum.appstate.edu/>

and <http://mckinneymuseum.appstate.edu/rock-garden>

4. *Your current research is in Late Triassic micro-vertebrates. Why is the study of these fossils important and how are they relevant to today? How are they related to the early evolution of dinosaurs?*

When I talk to people about paleontology now, I try to get them to imagine a race---say the Olympic marathon. Modern biology can really only tell you what's happening on that last lap, when the runners enter the stadium. What paleontology does is let you see the whole race, from start to finish, and even other races that took place beforehand. Without paleontology we would never know how drastically different the planet has been. If you didn't have fossils, you'd never know about trilobites or thousands of other extinct animals, and you'd think that elephants

were the biggest land animals ever. Triassic microvertebrates are important to the study of dinosaurs and other animals because many lineages, such as dinosaurs, mammals, lizards, frogs, salamanders, pterosaurs, and others, are just getting their start during the Triassic. Many of these are evolving at small size, so microvertebrate provide the best way to accumulate fossils of these and other animals in their ecosystems.

5. You use a scanning electron microscopy (SEM) to investigate micro-vertebrate taxonomy and evolution throughout the Mesozoic. How is this microscope different from other paleontology tools?

The beauty of the scanning electron microscope is that, because it relies on bouncing electrons, not lightwaves, off a specimen, it has much more depth-of-field, so you can keep an entire specimen in focus. This is much more difficult to do with a light microscope. We also have a new “3-D” microscope, which basically takes dozens of images and compiles them automatically, resulting in an optical (light) microscope picture, but with the entire specimen in focus. These tools are critical because part of paleontology is producing images of fossils so that other scientists can repeat your observations. The availability of this technology makes this much more possible. Importantly, I train my students to use this expensive equipment, which makes them more attractive to graduate schools and/or future employers.

6. You get to go in the field hunting fossils. Can you describe some of the places you have worked and where has been the most interesting?

I’ve been able to work in a variety of extraordinary places. One perk of this is that I work in places that almost no one ever goes—as I like to tell people, the big national parks seem “too urban” for me when I’m in the field. Some of my favorite field locations have been the Petrified Forest National Park (out away from the people), the Blue Hills of Arizona, the landscape around Ghost Ranch in New Mexico, and badlands out near Tucumcari, New Mexico. I do a lot of stratigraphic work, too, and one of the greatest places I’ve ever worked is on the Navajo Reservation along the New Mexico-Arizona line. We weren’t collecting fossils, but that is some incredibly gorgeous country. I love the American West—there’s amazing views of enormous volumes of rock, it’s just an awe-inspiring landscape. The real beauty of it is that, the more geology you know, the more interesting it gets.

7. North Carolina isn’t typically thought of as a prime dinosaur stomping ground. What fascinates you about NC fossils and why are they important?

If you’re interested in Triassic vertebrates, any place you can find them is important. In the case of North Carolina, the fossil record is actually pretty good when you consider how few outcrops there really are. As our work amply demonstrates, there are both new species to be found in North Carolina and important pieces of the puzzle comparing these fossil assemblages to others around the world.

8. As you travel from NC’s mountains to its coast, what story does the fossil record tell?

So much of the mountains and Piedmont are igneous and metamorphic that it’s sort of a hard question to answer simply, so let’s pass on that one.

9. What has been your most interesting fossil find?

As I tell folks, I tend not to find much, as I am usually leading the dig, so I’m running around checking on what everyone else is finding, giving instructions, coaching people, etc. Some of my favorites that crews of mine recovered include the nearly complete *Typothorax* skeleton that got us on the cover of the *Journal of Vertebrate Paleontology*, North America’s oldest turtle, and others. Still, when I do get to prospect or dig, I do see lots of neat fossils. The little *Coelophys* specimens from the Snyder quarry in northern New Mexico that we excavated in the

late 1990’s and early 2000’s were especially fun to find. One of my favorite discoveries was a microvertebrate site in the Upper Cretaceous Menefee Formation of New Mexico. We still need to publish that one...

10. What does the future hold for the field of paleontology? Why should today’s students study science, and more particular, paleontology?

Paleontology just keeps getting more fascinating. Think about a movie like Jurassic Park—when it came out it blew everybody away with its portrayal of what dinosaurs might have been like. Now we know so much more. For example, how many of those dinosaurs should have been feathered? Every month we learn about more fossils, and learn new ways of looking at fossils that have never been tried before.

Students should study paleontology because they love it. Students should study science because the modern world requires people with scientific skills. Every great challenge facing our nation, and indeed the entire world, basically boils down to a scientific problem. Whether you’re worried about the climate, natural resources, biodiversity, overpopulation, energy, or whatever, the only solutions out there require scientific investigation and analysis.

11. Do you have any advice for young people considering a career in paleontology?

If you want to be a paleontologist, you better commit to being good. Young students should read—not just about paleontology, but about whatever they like to read. Better readers are better writers, and better writers get better opportunities. High school students should make sure that they take as much math and science as possible and get great grades. The same is true in college, with the added fact that college students need to make sure that they have opportunities to “do” paleontology—work with a paleontologist, go to the field, do student research, and so on. If you can learn to prepare fossils, illustrate fossils, photograph fossils, etc., those are all good things, too. The trick is that you must commit to excellence—if you work hard, write well, get good grades, and prove that you can do paleontology, you can make a career of it.

12. Is there anything else you’d like to add?

Just that it’s hard for me to get away from Boone to Raleigh as often as I’d like, but I hope to see the NC Fossil Club folks more often, and hope that people come visit when they’re in the High Country.



A Blast From the Past

Remembering discoveries of *Carcharocles megalodon* teeth at PCS (a.k.a. Aurora, Lee Creek)

I recently thought back to days of hunting for shark teeth and other fossils at PCS. I looked up photographs to remind me of those happy times. The pictures tell a story which bears a great deal of truth.

There were several challenges to making the images.

- I had to gain access to the mine, no small feat, even in the “good old days”.
- I had to carry a camera into a dusty, dirty, often wet place and protect it from the shock inherent to hiking on rough terrain.
- I actually had to find something exceptional to photograph.

There was never a shortage of subject material at PCS, but those fossils that created a real adrenaline rush were not a find I could count on every time. I carried a camera on many trips and never used it.

Upon discovering that exceptional photographic moment, I had to resist the immediate urge to learn if what I was seeing was indeed as good as I hoped it would be. Some teeth look respectable from the start, but the parts hidden from view could be significantly damaged, ruining the exceptional high of finding a truly awesome fossil.

An irrational fear occurred that in recording the moment of discovery I would be jinxing the chances that it would turn out as nice a fossil as I hoped it to be. It would start out as a nice tooth, but by recording the moment for eternity, the “Tooth God(s)” might decide to destroy the side not showing before I dug it out.

Taking the time to photograph something also cut into the always too brief time available to spend searching for more fossils.

I made the decision that a moment was worth saving in a tangible way. Digital technology revolutionized this as I quickly checked to be sure I had that perfect shot in the field before disturbing the fossil and forever erasing the original presentation.

My memory of hunting for and finding fossils remains vivid for each outstanding discovery. *Carcharocles megalodon* teeth were a major quest and always a special find. There are many other equally amazing fossils to be found, but the moment of discovery of a meg tooth, no matter the size and/or condition, produces a singular emotional high that is hard to beat. Recording a discovery with photographs would slow and even dull the adrenaline rush as I methodically approached making the record. Looking at the images later reminds me of that excitement, recreating the rush that memories alone have a hard time duplicating. I quickly forgot the bit of black bone, pebbles, shells or coral that was near the object of my focus, all aspects that completed the environment of the moment.

Finding a tooth in the “Pick Me Up” position to photograph removed some of the doubt about photo-documenting something like this. I have seen many a corner of a tooth root showing in the spoils and when I dug it out, I had only a little bit more than the corner of a root. It is as though the ultimate lesson from the Tooth Gods is “Be humble about this.” By sharing the images I may conclude they will never reward me with another *megalodon* tooth.

Finding shark teeth is like finding a jewel lying on the ground. This sensation is not exclusive to big ones. Remember the “Pungo Crawl?” Almost by magic, teeth would appear before my eyes. Every tooth discovered seemed like a unique moment was occurring.

I have been very fortunate to have opportunity to search for and find such prizes at PCS and other sites. Here's hoping one day soon we will have that opportunity at PCS to create new “Blasts From the Past” for ourselves.

John Timmerman





Bobbing for Barnacles in Block 26

We were stuck once again in the infamous Block 26 at PCS. It was the spring of 2004 and we had been in the same collecting locality for several seasons. To begin a new pit area, the draglines had cast up a narrow rim of (mostly) Yorktown dirt around the edge of the new hole, and that's where we had to collect for a couple of years. As I was a dedicated "Pungo Crawler", this was not my favorite place to collect. I had always liked the instant gratification that the nose-to-the-ground technique produced in most areas of Pungo River sediments. Besides, in the previous 15 years or so of collecting the mine, I had found several *meg* teeth in the 4" - 5½" range so that particular monkey was off my back (Isn't that the only reason people collect Yorktown? ☺).

So when Becky pulled the bus to a stop once more at Block 26, I was not a particularly happy camper. (What I would give now to be once more stopping anywhere in the mine!) The CD ROM project was off to a good start, but no one had volunteered to take care of most of the invertebrate sections. I had come to the conclusion that, if they were to be done, I would have to do barnacles (and corals, and bryozoa, and sponges, and . . .). So that early March morning I decided I would hunt barnacles. As I now recall, nine years later, it was a beautiful collecting day: cool with a light overcast that persisted the whole time we were in the mine. I have always thought bright cloudy days are the best for collecting since there is no sunlight to produce the obscuring chiaroscuro of bright white and dark black that my eyes find so challenging.

Which would I rather find: a 5" *meg* tooth or a 5" barnacle cluster? Duh! However, several collecting trips' experience in Block 26 had pretty near convinced me that finding any shark teeth larger than 1" was probably not going to happen that day. Everyone who collected the mine (maybe 1000 per season for several seasons) had hunted the same small area: a narrow strip no more than 100 yards wide and maybe a half mile long. Why not lower my goals to something possibly attainable and try to be happy with what I found?

I doubt if any one of you ever deliberately hunted barnacles in PCS. Since that first day I have noticed they are not particularly common in the mine, with one exception: the small black species that lives on the James City branching coral. In my later experiences I have found that the larger species are actually pretty scarce. Well, that was not the case in Block 26 that day. Large barnacles seemed to be everywhere and I had a blast. I was even able to find a complete set of associated opercular valves, the "drawbridge" with which the barnacle closes off its castle from the outside world (see back cover). *Richard Chandler*

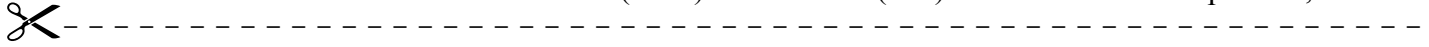


Large *Balanus concavus* cluster from Block 26 - 3¾" wide.

NORTH CAROLINA FOSSIL CLUB, INC.

(Founded 1977)

PRESIDENT	Linda McCall	(512) 422-2322	Colfax, NC
VICE PRESIDENT	Ruffin Tucker	(704) 784-1672	Concord, NC
IMMEDIATE PAST PRESIDENT	Rick Bennett	(919) 609-9205	Raleigh, NC
	Jonathan Fain	(919) 518-1591	Raleigh, NC
TREASURER	Trish Kohler	(919) 383-6328	Durham, NC
SECRETARY	Joanne Panek-Dubrock	(919) 362-6392	Raleigh, NC
MEMBERSHIP CHAIRPERSON	Mike Bruff	(919) 553-6925	Clayton, NC
EDITOR, <i>JANUS</i>	Richard Chandler	(919) 851-2153	Raleigh, NC
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2013 MEMBERSHIP APPLICATION - NORTH CAROLINA FOSSIL CLUB

NAME(s) _____

ADDRESS _____

CITY, STATE, ZIP _____

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E-MAIL ADDRESS _____

SELECT ONE TYPE OF MEMBERSHIP	<input type="checkbox"/> INDIVIDUAL (NEW)	\$20.00
(ENCLOSE CHECK OR MONEY ORDER	<input type="checkbox"/> INDIVIDUAL (RENEWAL)	\$15.00
FOR THE INDICATED AMOUNT.)	<input type="checkbox"/> HOUSEHOLD (NEW)	\$25.00
	<input type="checkbox"/> HOUSEHOLD (RENEWAL)	\$20.00

Children of NCFC members who are dependent minors and living at home may accompany parents on any trip *EXCEPT* PCS–Lee Creek or where otherwise noted.

Memberships are effective from January through December of the year (or portion of the year) of the date of application. For example, persons joining in August will need to renew their membership 5 months later in January.

The Fossil Club's newsletter, *JANUS*, is mailed out four times a year and is available online for members. Please let us know how you'd like to continue receiving *JANUS*. If you choose to download it from the website, you will receive an email when a new one is published.

☐ I will download *Janus* from website (www.NCFossilClub.org) ☐ please continue to send a paper copy via US Mail

NCFC Liability Statement

The Undersigned hereby acknowledges his/her understanding that fossil collecting is an inherently dangerous activity which can result in serious bodily injury or death, and/or property damage and hereby confirms his/her voluntary assumption of the risk of such injury, death or damage.

The Undersigned, in return for the privilege of attending field trips Related to the collection of and/or study of fossils, or any other event or activity conducted or hosted by the North Carolina Fossil Club (NCFC), hereinafter collectively and individually referred to as "NCFC Events", hereby releases the NCFC, NCFC Board members and officers, NCFC Event leaders or organizers and hosts, landowners and mine or quarry operators from any and all liability claims resulting from injury to or death of the undersigned or his/her minor children or damage to his/her property resulting from any cause whatsoever related to participation in NCFC Events.

The Undersigned agrees to comply with any and all rules and restrictions which may be communicated to the undersigned by the NCFC Event leader and/or landowner and mine or quarry operator and acknowledges that failure to comply will result in immediate expulsion from the premises.

The Undersigned acknowledges that this release covers all NCFC Events and will remain in effect at all times unless or until it is revoked by written notice to the current President of the NCFC and receipt of such revocation is acknowledged.

The Undersigned further attests to his/her intent to be legally bound by affixing his /her signature to this release.

Name _____ Signature _____ Date _____

Name _____ Signature _____ Date _____

MAIL To: NORTH CAROLINA FOSSIL CLUB, P.O. Box 25276, RALEIGH, NC 27611-5276

North Carolina Fossil Club
P.O. Box 25276
Raleigh, NC 27611-5276



Balanus concavus opercular valves (complete set) - 1"