



JANUS

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

2010 Number 2

2010 Summer Calendar

July

- 18 NCFC Meeting** – Museum of Life and Science, Durham, NC, 1:30 PM. Speaker: Vince Schneider. (See below.)
- 27-8/1 Grassy Creek Mineral & Gem Show** – Grassy Creek NC. Contact Henry Crowley 843-899-3479 or e-mail Handfossils@homesc.com. There is also a show in nearby Spruce Pine during this same weekend. Henry will “offer and talk fossils”.

September

- 19 NCFC Meeting** – NCMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. .
- 25 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*.

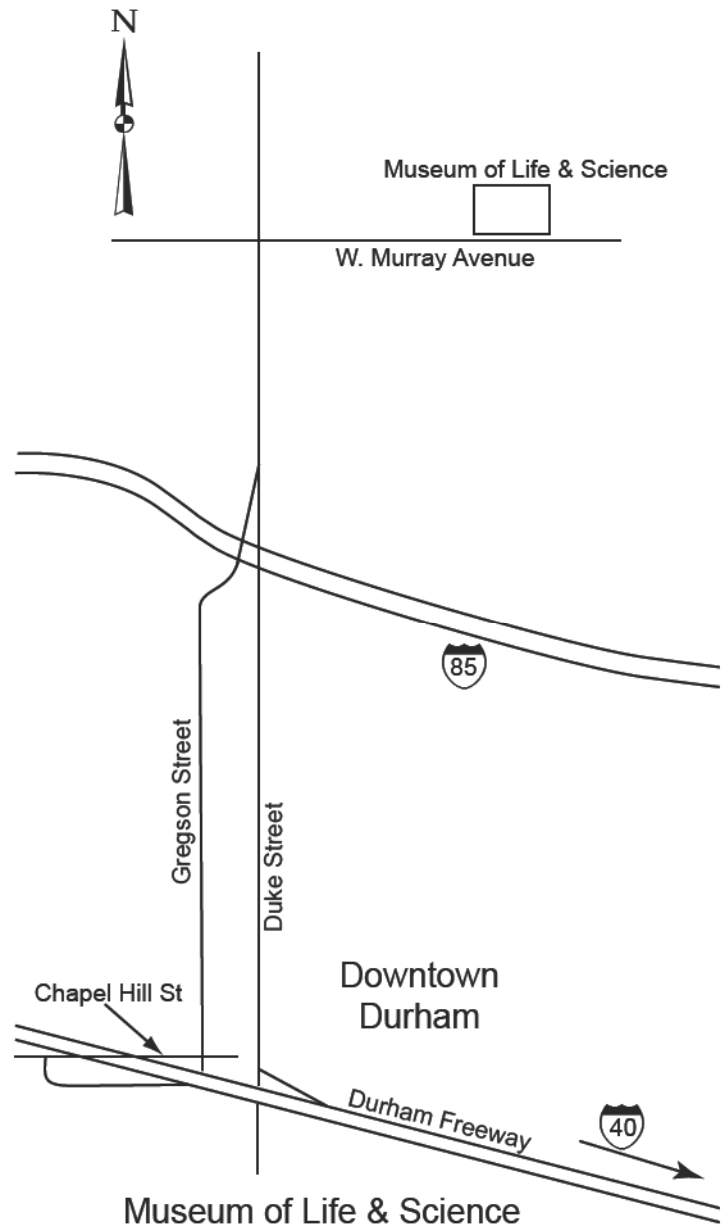
The July 18 NC Fossil Club meeting will be held in conjunction with the NC Museum of Life & Science's **Dino Days** (July 17-18) at the Museum in north Durham (see map). Several members will have exhibit tables on Saturday. A table outside at the Fossil Dig Pile (under an umbrella plus canopies over the fossil dirt area) will allow volunteers to interact with kids and their finds. There will be snacks, water, and lunch (as well as free admission to the Museum) on Saturday for the volunteers.

Museum Hours: 10:00 - 5:00 Saturday, 12:00 - 5:00 Sunday.

Vince Schneider will be the speaker at our club meeting at 1:30 on Sunday in the Mercury Meeting Room, immediately behind the admission table. Members and guests can get free admission by indicating at the ticket desk that they are there for the meeting. The Museum will generously provide us with snacks. James Bain has offered his lab for visitation after the meeting on Sunday.

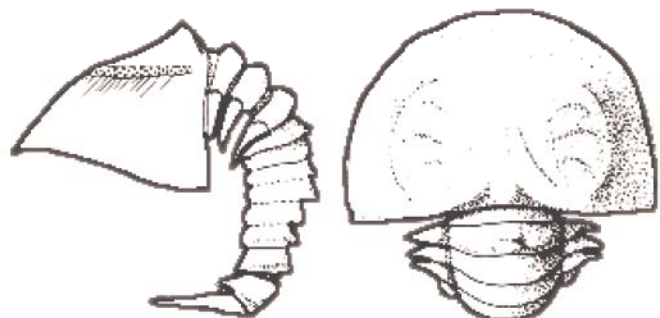
There is a need for more volunteers on Saturday to relieve exhibitors or help at the Fossil Dig Pile. You could also relieve your PCS withdrawal symptoms at the dig pile. Please contact me ASAP (trishk@nc.rr.com, or 919-383-6328) if you can help.

Trish Kohler



Book Available

Long-time member LeGrand Smith has written an electronic book, *Trilobites de Bolivia, Una Odisea (Trilobites of Bolivia, An Odyssey)* with text in both Spanish and English. He indicates that if you email a request to legrandella@main.nc.us, he will send a copy on a CD disk. Don't forget to include your mailing address. Our older members will remember that LeGrand is a now retired Methodist missionary to Bolivia who received the 1998 Harrell L. Strimple award from the American Paleontological Society. The Devonian “horseshoe crab” *LeGrandella lombardii* (right) is named in his honor.



Sweet Home Alabama

Thirteen members (open pit coal mining wannabes) of The Club traveled to Jasper, Alabama, April 8-11 to visit The Black Warrior Basin of Alabama. Walker County's coal mines reveal terrific Coal Age fossils of plants and animals. More specifically, footprints and trackways are found, in addition to a variety of fossil plants and insects, from this Early Pennsylvanian Age site. Friday, we started at Union Chapel Mine, a State protected site, "dedicated to the amateur collector". A variety of footprints and trackways were found, vertebrate and invertebrate, even a "swimming trace". The plant fossils included leaves, stems, roots, tree body sections from various plants - *Calamites*, *Lepidodendron*, *Medullosa*, *Sigillaria*. In the afternoon, we ventured to an active mine, Sugertown, and found an abundance of plant fossils of the same variety. I was fortunate to "bag" a stump cast of a lycopod! This mine is reaching its end as a coal producing mine, so our finds will take on a special uniqueness in the near future as that mine closes. That evening, at our dinner "Board meeting", it was decided that we would go back to Union Chapel Mine on Saturday. The weather for the entire trip was perfect for fossil collecting and the group enjoyed another day in the sun! More trackways and plants...! During the day, there were many comments of "beautiful", "gorgeous", "oooooh", and "is this something?" to go along with the sound of hammers and chisels working feverishly. At the end of the day I saw many tired smiles as our 310 million year old, new found friends were packed for the trip home. Sweet Home Alabama, indeed!!

Jim Mahoney



Top: Leader Jim Mahoney at the Sugartown Mine.
Middle: The Crew
Bottom: *Lepidodendron* (??) branches
Photos by Diane Willis

Artifact or Fossil?

Early in January of 2008 I went to the Aurora fossil museum where Rich Olsen showed me some new items they had: scraping tools made from shark's teeth. Rich said that he thought I might have some as I collect along the Neuse River. I have found several arrowheads, lots of pottery shards and clay pipes. When I got home I started looking through the buckets of broken teeth. In March of 2008 I was back up to Aurora with some possible tools. I had 3 that Rich agreed were scrapers. I donated 1 of them to the museum and went home with renewed enthusiasm. I have several 5 gal. buckets of broken teeth so it took some time. As the scrapers seem to be mostly from Meg teeth, I sorted them into a single bucket. I now have over 40 scrapers. In the process I found teeth that were used as arrowheads and spear heads. I now have over 100 of these items. The point is, don't throw away the broken teeth if they come from a river area.

You can identify the scrapers by the way they are broken. They were broken from the root end. One side is longer than the other. They fit nicely between the thumb and forefinger. These have been in the river several thousand yrs and are worn and dull. When they were made they probably used sharp ones. As they were in the water I assume they were used mostly for cleaning fish. The items I think are arrowheads were also broken from the root end to form a tab to fit them to an arrow. There are quite a few small ones that I think may have been used on darts. There are large ones that were probably spear heads. I also have one Meg that has a hole drilled in it to be worn as an amulet.

Then I found I had both halves of a large Meg. that I had probably found yrs apart as they were in separate buckets.

This has been exciting to me as we moved from Newport, NC to south Ga. to be near aging parents and I don't have a good hunting area available there yet. The bright side is I have more time to sort my collection.

If you have been hunting river banks you too probably have some of these items. When you go to Aurora (Mecca for fossil hunters) check out the items in the museum and then start hunting in your rejects. You may be pleasantly surprised. I was!

Richard Marshall



***Flemingostrea subspatulata* (Forbes) Collected From a Mammal Burrow**

While crappie (*Pomoxis nigromaculatis*) fishing on the North East Cape Fear River in Pender County, NC, my son Don discovered an unusually well preserved fossil oyster. *Flemingostrea* (originally *Ostrea*) *subspatulata* was formally described by Forbes in the mid 1800's from material collected at the mill on Lewis Creek by Sir Charles Lyell during his North American travels. The mill site on Lewis Creek is only a mile or two from Croom's Bridge where this oyster was found. *F. subspatulata* abound at many low water exposures along the Northeast Cape Fear River. The fossils are found in dark argillaceous (clayey) sand and in loose arenite (sand) of the Late Cretaceous Peedee Formation. As is usual with many fossils, specimens found loose on weathered exposures are often broken and disarticulated. This fossil oyster was fortunately excavated from far into the bank by a muskrat or otter and left at the entrance to the burrow. A shell midden left over from eaten freshwater mollusks was also at the burrow entrance. For most of the year this burrow would be underwater but was exposed due to low river levels. The quality and preservation of this fossil compares favorably to those found in the Rocky Point Member of the Peedee formation in quarries at Castle Hayne and Rocky Point.

Don Clements



EURYPTERIDS ILLUSTRATED

Chasing Sea Scorpions

Samuel J. Cieurca, Jr., Rochester, New York

<http://eurypterids.net/EurypteridMonth23.html>
for more information and an order form (cost: \$12 + \$2 shipping).

Eurypterids Illustrated

Chasing Sea Scorpions



Samuel J. Cieurca, Jr.

Reject Pile Surprises

Fall was just about over and we thought a visit to the Aurora Fossil Museum would take the edge off of our disappointment of not getting into the mine itself. The Museum had a very nice assortment of Lee Creek Mine fossils for sale. Its always great to see the museum displays also. We loaded up on a couple buckets of reject material to fossil hunt on our porch in between cold rains and snow storms this winter. I found several very rare shark teeth this year but that's not what I wanted to talk about.

For years we've come across some puzzling small shells and odd shapes in the reject material that were set aside for later study while searching for those tiny shark teeth. This looked like as good a time to try to figure out what they were as any. The first shell I looked at I thought might be a limpet but too many things wrong with that theory. It didn't quite look like any pictured in the shell books. The molluscs appeared to be preserved in calcium phosphate, as is the shell itself calcium phosphate. There are a lot of growth lines on the shell and while some specimens are elongate others are conical in shape. Could this be where growth lines broke off or are these two different types? I took the dog out and while she is doing her business and poking around the front yard I am going thru a tablespoon amount of reject material when I spot a "Brachiopod", figure B. A "Brachiopod" at Lee Creek Mine? I'd never heard of such a thing! Now I'm going thru a whole different set of manuals. The specimen isn't in the best of shape but I figure its a type of *Terebratula* specimen. While researching for the *Terebratula* species in the Fossils Eyewitness Handbook Series it turned out on page 92 my answer to the first shell I was looking for. It too is a Brachiopod, an inarticulate type named *Discinisca lugubris* (Conrad); Choptank Formation, Miocene from Maryland, U.S.A. I couldn't visualize shell in illustrations of Maryland Geological Survey, Miocene Manual, until I'd seen picture in Eyewitness Handbook. My specimen, figure A, are probably from the Pungo River Formation. Turns out this specimen has also been found in lower Pliocene beds in South Carolina but not by me. What fauna niche these Brachiopods filled must have been very minor since I could find no mention of Brachiopods in any Lee Creek Mine papers. What do they do? They attach themselves to a hard surface, rock or shell, and feed on minute organisms. I would like to hear from anyone that has found one on a Pungo River pecten!

Another novel shape was a cast of what looked like a tiny armor piercing bullet, or a slender evenly tapering pointed cylinder shape with a slightly compressed area anterolaterally, figure C, two views. When I got my answer I thought, "Why didn't I think of that?" All the information was just a manual away. It turned out to be a cast of a thin shelled Pteropod or Sea Butterfly. Now this was a bit more interesting then say discovering a Brachiopod. What does a Sea Butterfly do? How does it fall into a fauna niche? Sea Butterflies form the greater part of the planktonic hordes upon which most life in the seas depends, directly or indirectly. Using a pair of winglike flaps the mollusk swims and darts quite rapidly about descending to the depths in the daytime then swarming upwards at sight to feed on probably planktonic algae and protozoa. Pteropods then become a major food for oceanic fishes and even Baleen Whales. Our specimen appears to be from the genus *Vaginella*, only known in the fossil state. *Vaginella depressa* Daudis is found in the tertiary bed of Bordeaux, France of Miocene epoch. *Vaginella chipolana* Dall, figure D, is found in the Chipola Formation, location 2213, lower Miocene from Florida and is listed in Geological Survey Professional Paper 142, The Molluscan Fauna of the Alum Bluff Group of Florida. Sea Butterfly *Covolina* species, figure E, is still found in the seas today. This specimen was also found at location 2213 but is not listed in Geological Survey Professional Paper 142. I would think our specimen of *Vaginella*, figure C, came from the Pungo River Formation. This specimen is not quite as common as oral stingray teeth but three times more common than *Raja* skate teeth which I think is fairly numerous for a shell cast. Again I found no mention of this fossil in any of the Lee Creek Mine manuals. Apparently the Miocene seas were a rich food source with these Sea Butterflies being a major part of a "sea soup" that fed the giants of the oceans, directly or indirectly. Its a curious thing that the Giant White Sharks became extinct about the same time these Sea Butterflies disappeared! I'm sure its a more complicated senerio so I'll let the experts figure that one out.

I'd like to thank Adrian, my fossil trading friend from England, for his expert advise on the fossils. The only thing he doesn't know about mollusks are what hasn't been discovered yet! Good Hunting!

Dave Grabda



Tiny, Star-Shaped Jurassic Crinoid Columnals
Mount Carmel Junction, Kane County, Utah, USA
James R. Bain, Bahama, NC

Summary: Minuscule stars of stone, loved by children.

Difficulty: ⚡ on a scale of 5. Park, walk uphill a short distance.

Geology: Co-op Creek Member, Middle Jurassic Carmel Formation: This tidal deposit of *Isocrinus nicoleti*, at or near the southern terminus of the shallow, epicontinental Carmel Sea, is possibly “one of the youngest examples of dense accumulations of stalked crinoids in the fossil record” (Tang et al. 2000; also see Hunter and Zonneveld 2008).

Navigation: From the airport in Salt Lake City, the drive will take almost five hours. Proceed south on Interstate 15 more than 200 miles, past Beaver, take the Utah Highway 20 exit (exit 95), and then follow the signs toward US Highway 89, Panguitch, and Kanab. Highway 20 takes you southeast over the saddle between the Hurricane Cliffs to your south and the Tushar Mountains to your north. This summit is over 8,000 feet in elevation, and might be closed for snow in the colder months. After about 21 miles, you will arrive at the T junction with US Highway 89 at Bear Valley Junction. Turn right (south) and proceed upstream along the Sevier River (pronounced “severe”) on US 89. Be alert for a jog in Highway 89 in the little Mormon town of Panguitch. Proceed south on US 89 through Hatch. At Long Valley Junction (about milepost 104), notice that you are cresting the divide between the Sevier River (which flows north) and the East Fork of the Virgin River (which flows south and west toward Zion National Park). Proceed south-southwest downstream on US 89 through Glendale, Orderville, and Mount Carmel itself to Mount Carmel Junction. In the tiny village of Mount Carmel Junction, turn right on westbound Utah Highway 9 and immediately turn right into the dirt lot of the abandoned recreational vehicle (RV) park at 37° 13' 28" N, 112° 40' 51" W. Park, cross the dry wash, and walk a short distance up the slope to the north. Mount Carmel Junction has gas, food, and lodging, and it is a good base from which you can explore the nearby Zion National Park.

Fossicking for fossils: Please consider being restrained in what you take, since the site is small. As soon as you begin climbing the slope, scan the ground and anthills for star-shaped crinoid plates. The biggest ones are typically 5-6 millimeters in diameter. The collecting site is a promontory ledge, just above the parking area, in front of a utility pole (see photos). The fossiliferous layer is thin (a meter or so in thickness at most) and of limited lateral extent (Tang et al. 2000). Invertebrates other than crinoids are present, though rare. Consider taking some dirt home and picking out the tinier specimens later.



A single columnal of *Isocrinus nicoleti* with Alexander Hamilton's eye from a US \$10 banknote for scale.

As we have discussed, certain Harvester Ants (*Pogonomyrmex*) in this region pave the tops of their hills with small rocks (perhaps as weatherproofing; *Janus* 2003, No. 3), and many good Western studies of paleontology have been based on material stolen from the homes of these “Pogo” ants. Notice that the entrance hole is almost always on the south side of the hill. A dustpan and a whisk broom will help. “Pogos” pack a nasty sting—carrying an After Bite stick might be wise. Such ants are inactive on cold days and at night.

These ledges do have plenty of rodent droppings, including those of Deer Mice (*Peromyscus*) and Packrats (*Neotoma*). If you are going to generate dust, a dust mask might be prudent to help prevent contracting the local hantaviruses, which can be deadly.

In writing these columns, I usually obsess about land ownership, permits, and the like, but I am going to leave you on your own with this one. Here in the East, “most everything is private, and getting permission to collect can be difficult to impossible. Out West, collecting common invertebrate fossils is often allowed on public lands (but not on the Reservations of Native Americans or in National Parks). The maps I have at hand do not permit me to judge whether the small site described here is on private land or on public lands administered by the State of Utah (who require an inexpensive rockhounding permit), the Bureau of Land Management (which is generally permissive), or the Forest Service (where rockhounding policies vary widely by Ranger District), all of which have property in and near Mount Carmel Junction. So if legalities are important to you, please inquire locally.



The author's brother, Edward G. Bain, at the parking area in the old RV park at Mount Carmel Junction 07/01/09. North view. The collecting spot is in front of the utility pole.

The collecting site we first visited was a bit farther west, but that locale is gone now. Allow me to digress. This is how we found the site, and then lost it. As a single parent, I could not really afford it at the time, but when I was in graduate school at the medical school in Seattle, I would often make the epic, ~1,400-mile drive home to Flagstaff, Arizona, so that my son, Edward, could stay in touch with my family and his place of birth. Given sufficient caffeine, I could make this drive, just me and my little Montessori Preschool Screech Monkey, in two long days in my clunky old Ford F-150 pickup truck. The first day was always on a set route on interstate highways, from Seattle to Twin Falls, Idaho. But on the second day, once we were much south of Salt Lake City, a multitude of possible routes presented itself, many of them on wondrous and winding local highways, spanning some great American landscapes. The underlying topological problem is simple: “Way to the south, one needs to somehow get around that enormous obstacle, the Grand Canyon. A glance a highway atlas of the American Southwest

will convince you of what a barrier that is (and, I hope, will always remain). A westerly route, via Las Vegas, would take us home to Flagstaff on mostly interstate highways, but that is an excessively long and boring route, transiting much basin-and-range country on the eastern fringe of the Great Basin Desert. After being confined indoors and under stress in school in Seattle, I was emotionally hungry for the Colorado Plateau. So I opted for an easterly path 'round Grand Canyon via Kanab, Utah, and I varied our itinerary a bit each time, particularly in regard to how we would eventually get over the spine of high country that separates Interstate 15 (toward Las Vegas) from old US Highway 89 (toward Kanab). This high spine stretches from the Wasatch Front at Salt Lake City all the way to the Markagunt Plateau in southern Utah. But no matter how we crested that high divide, as we made our way south and a bit east, we were eventually compelled to pass through the tiny hamlet of Mount Carmel Junction. And it was there, while fueling, that Edward spotted a family parked at a roadcut immediately west of town, obviously collecting small rocks. Not being inclined to argue for long with a strong-willed four-year-old child, I did what I was told, and we drove to where that family was parked, immediately west of Mount Carmel Junction, just where Utah Highway 9 begins climbing up toward the high country east of Zion National Park, and we approached them. Their kids showed Edward the little stellar crinoid ossicles they were gathering, and he was hooked. Edward collected a small sample, and he later gave them all away to his preschool buddies back in Seattle. On a subsequent trip south, we stopped at Mount Carmel Junction to replenish our "starry crinoid" supply, and we were dismayed to find that the highway department had sloped the roadcut back, and we could not find a single crinoid plate. For about 15 years, we gave the site up for lost. So last summer, when I learned of the nearby exposure at the old RV park, I had to go see it for myself.



Mount Carmel, Utah, collecting site, looking south toward the parking lot and the little town.

Things to see and do nearby: I could rave about southern Utah as being "God's Country" and go on and on. But that would just annoy you and make me very homesick. So I will be uncharacteristically brief. If you have not yet been to Zion National Park, go there. Mount Carmel Junction is just 12 scenic miles from Zion's eastern entrance station.

Literature cited:

HUNTER, AARON W., AND JOHN-PAUL ZONNEVELD [2008]: Palaeoecology of Jurassic encrinites: Reconstructing crinoid communities from the Western Interior Seaway of North America. *Paleogeography, Palaeoclimatology, Palaeoecology* 263: 58-70.

TANG, CAROL M., DAVID J. BOTTJER, AND MICHAEL J. SIMMS [2000]: Stalked crinoids from a Jurassic tidal deposit in western North America. *Lethaia* 33: 45-54.

Recent Club Outings

Trish Kohler faithfully documents almost all our events, collecting trips, fossil fairs, etc., with her trusty digital (FINALLY!!) camera. On this page (as well as the upper left on the next page) are photos of the Club trip to Castle Hayne this spring. The rest on the following page are from Rocky Point and the Aurora Fossil Festival.

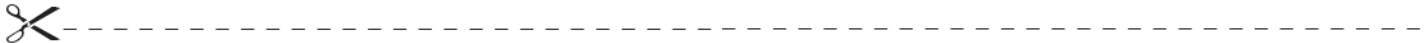




NORTH CAROLINA FOSSIL CLUB, INC.

(Founded 1977)

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ADDRESS _____

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PHONE(S) (INCLUDE AREA CODE) _____

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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.

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 13075, RESEARCH TRIANGLE PARK, NC 27709

North Carolina Fossil Club
P.O. Box 13075
Research Triangle Park, NC 27709

Our youngest member, Arianna Margaret Fair. Trish Kohler took her picture at our May meeting. As you can see, she is fascinated with all the fossils she saw, living and dead.

