



# JANUS

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

2003 Number 1

Our sincere condolences to Kim Green, whose brother Scott is missing and presumed dead in the fire that swept The Station nightclub in West Warwick, RI on February 20 during a performance by Great White. Jack Russell, the band's lead singer, had been so impressed with Scott's work as a tattoo artist that he provided him with complimentary passes to the tragic concert.

## 2003 Spring Calendar

### March

- 15 PCS Trip** - see Rich Olsen's article elsewhere on this page.
- 16 NCFC Meeting** - NCSMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. James R. Bain, Ph.D. Topic: *Tall tails from the trails: A Decade of Collecting with Kids in the West.*
- 27 Castle Hayne** - Contact John Everette at: 919-847-4485 or ncjde@aol.com.

### April

- 5-6 Texas Trip** - Contact Carolynne Hertenstein at willhertenstein@earthlink.net. See related information on page 2.
- 24 Rocky Point** - Contact John Everette 919-847-4485 or ncjde@aol.com.
- 27 Green's Mill Run** - Contact Cindy Muston (910) 353-8897 (fossilgal@hotmail.com) for info and possible changes from past trips. Bobby Tant will lead the trip. We will meet at Elm Street Park but also work other areas downstream.

### May

- 3 Beachcombing-Liverpool Pt. Maryland** - Contact George Fonger 240-631-0116 (toxfong@starpower.net) for times, directions and instructions.
- 10 Boren Clay Pit Triassic trip** - Contact Mike O'Malley 919-332-1323 (omalley@businessonetech.com) for information. A filled-out permission slip is required (later in this issue); send to Mike O'Malley, 4302 Waterford Valley Drive #1913, Durham, NC 27713, no later than April 4.
- 18 NCFC Meeting** - NCSMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room.
- 24 Aurora Fossil Festival** - See Rich Olsen's article below. Note: Information on trips, which are scheduled too late for publication, will be dispersed via postcard.

### General Rules:

Trips, except Rocky Point and Castle Hayne, generally begin at 9AM at the site. Always contact the leader in advance of attending any trip. In advance of any new or out of state trips,

always maintain close contact with the leader for special instructions and last minute changes. Be certain that accurate phone and /or email addresses are given to the leader and updated as needed. Some trips may be limited in size at the option of the leader. Always arrive early. Be sure to fully understand the rules and instructions. Safety is our main concern. **NEVER do anything which might endanger you or other collectors. Children, where permitted, must always be under your direct control and supervision.**

Safety rule violations are a sure way to lose all fossil-collecting privileges at any site.

### Trip Information

#### Castle Hayne & Rocky Point-

##### **When to be there:**

Both trips begin at 11:15 am on their scheduled dates. It is to your advantage to try to arrive 15-20 minutes early. This will allow you the chance to mingle and quiz some of the more seasoned collectors about the trip, (where to go, what to look for, special pointers, etc.). For directions see map in this Janus.

##### **What to Bring:**

Hardhat (required and **NOT** supplied by the quarry)  
Sturdy boots/hiking boots- The terrain at these sites is rugged and can be somewhat dangerous and challenging for persons not used to climbing or physical exertion.

Walking stick/potato rake.

Water, light snack and, of course, your fossil collecting materials.

##### **Precautions:**

As you are aware, fossil collecting is a privilege bestowed upon us by the very kind and thoughtful management at Castle Hayne and Rocky Point. Please show your gratitude by following all rules and guidelines your guide (John Everette) will explain to you. It only takes one incident to end our opportunity, so please, have fun, but **think and be safe.**

#### Green's Mill Run (GMR)

**When to be there:** This trip normally begins promptly at 9:00 am. Collectors should try to be at the Elm Street Park parking lot between 8:30 and 8:45am to allow the leader to advise collectors of the GMR guidelines and address any questions. For directions, see map.

##### **What to bring:**

Chest waders/hip waders/rubber boots (suggested, but not required), Floatable screen, Long handled shovel, Insect repellent, Drinking water, light snack

##### **Precautions:**

Green's Mill Run involves wading in and digging gravel from the creek bottom. There is a possibility of pollution. Due to various debris that is found (i.e. Broken glass, metal fragments, sharp objects, etc.), this site is not appropriate for young children.

Also, the trip leader does not encourage digging in the banks; this only contributes to the possibility of closure to this site. So, please, when collecting at GMR, think of other collectors that share this wonderful site, and use common sense when digging.

#### **Liverpool Point, MD**

**When to be there:** George asks for members to call him with notice to attend as well as number of collectors in individual groups. Please meet George at the McDonalds at 9am on Saturday. He will be driving a green Honda crv with Maryland tags. He also urges collectors to arrive at McDonalds a bit before 9 due to the site being 20+ minutes away. For those of you that arrange to go on this trip and somehow need to cancel, please inform George so he's not holding up the group. For those who are late: obtain a map from the Charles County Sheriffs office and/or ask for directions to Purce State Park.

#### **What to bring:**

Waders (for those of you who think the water will be too cold), Sunscreen/insect repellent, Drinking water and lunch

#### **Boren Clay Pit**

**When to be there:** This trip normally begins at 9am. Please try to arrive between 8:30 and 9:00am so Mike can go over any guidelines or answer any questions. Directions to the site are located elsewhere in this Janus.

**\*\*\*\*\*A request for permission to enter Boren Clay Product's Shale Mine is required.\*\*\*\*\***

Please submit the request (included in this issue) to Mike no later than April 4<sup>th</sup>. What to bring: Rock hammer, chisel, and/or pick, Cardboard (soda flats work well) to carry your finds on, Drinking water and a light snack.

#### **Aurora Fossil Festival Exhibitor/Helper Sign-up**

Sign up for exhibitors and helpers at the May 24th Aurora Fossil Festival will begin at the March 16th meeting. Any unfilled slots will be available on Monday March 17 after 9:00 AM by calling Rich Olsen at 252-247 4762. Exhibits will be Saturday only, but set up may be done Friday. We will have 16 tables available and 10 helper slots. This year there will be a maximum of 2 exhibitors per table. Those on the official list will receive PCS trip priority only for the Fall 2003 season if it occurs. Reliable security for our exhibits during the auction has been guaranteed by the Aurora PD. More information will be furnished later to participants.

#### **Aurora Fossil Museum Developments and Festival Auction**

Friends of the Aurora Fossil Museum have been hard at work on museum improvements. The former auction building is now Museum property and is under renovation. Curtis Ormond Jr. is doing a great job as museum director and is hoping to make this auction, now a "Friends "event", the best ever! Please make a real effort to find items to donate. If you wish you can bring items to the March 16th or May 18th NCFC meetings and Rich Olsen will bring them to the Museum. For further information please contact Curtis Ormond at 252-322-4238 during Museum hours or Rich Olsen at 252-247-4762 after 9:00 AM. Rich Olsen

#### **Chesapeake Bay Trip**

Member Paul Murdoch has agreed to lead a small group to private and public fossil sites in the Calvert Cliffs in Maryland, south of the Washington DC area, on June 14th and 15th. On the way out on the 16th we will be given a private "Behind the Scenes" tour of the Calvert Maritime Museum and its fossil collection. Due to the size of the sites and wishes of the owners only

10 slots will be available (no young children). These slots will be offered at the March 16th meeting. NCFC officers, directors and trip leaders will be given priority. Any slots not filled at the meeting will be available by calling Rich Olsen at 252-247-4762 after 9:00 AM on 3/17. Rich Olsen

#### **President's Column**

We are once again entering the peak fossil season and plenty of rain bodes well for the various trips appearing on the schedule in this issue. The season began for some of us in Florida on February 7th. Our first NCFC "out of state" trip to Florida was a great success despite weather concerns and high water. Many thanks to Sharron Edwards, Mark Renz and all participants who contributed to the fun!

I have recently become aware that a Science Olympiad program which includes a Fossil section is occurring annually in our public schools. I am helping some students with preparation for state level competition. Please consider approaching your local schools to see if you can be of help.

Richard Tellekamp will host a Mini Fossil Fair at Camp Lejeune Base Library on Sat. April 12. If you can help or exhibit please contact Richard.

I have arranged for additional tables at the Aurora Festival this year in hopes of attracting exhibits from some of the newer members. If you would like to display but have some concerns, more experienced members will be happy to provide help and advice-just ask!

It appears that we will need volunteers to help out with various publication and tshirt sales duties on trips and at other events. If you can help, contact Joy Pierce.

Good luck on your spring trips-come share your finds at the May Meeting! Rich Olsen

#### **Texas Trip - April 4-7**

The final agenda has not been made at this time. We will be doing a full day on the North Sulphur River but the other days are not as yet set. If 10 people (or more) leave from RDU, I may be able to get a group rate. Carolynne Hertenstein

#### **Fossiling In Florida With Mark Renz**

Florida – "The Sunshine State". Just where was the sun on the morning of February 8, 2003, when 26 eager members of the NCFC met in the parking lot of Burger King in Wauchula, Florida and anxiously awaited the arrival of Mark Renz? We were all determined not to let a little drizzle and chill in the air dampen our spirits as we dreamed of mastodon teeth, giant sloth claw cores, dire wolf teeth, and mammoth tusks. At last Mark arrived in his van, flashing a giant 8" red, white and blue megalodon





tooth, and we knew our long-awaited adventure was about to begin. After introductions all around and a little show and tell, we all piled into our vehicles and followed Mark to a wayside park along the Peace River. After donning our gear, we trekked along the bank of the river until we found a spot to enter it. Alas, it was not meant to be!!!! The river was chest-high to some of us, and the current was very swift. By the time you were able to get your shovel out of the water, everything you had dug so hard for was 100 yards downstream. We gave it a valiant effort, but when the



river started rising, we knew we should switch to Plan B. Fortunately for us, Mark had a Plan B. He told us about a creek on private property, about an hour further south, near the town of Arcadia. We all hopped back in our vehicles and journeyed southward to Hawthorne Creek. We arrived in the middle of a cow pasture, and after re-donning gear, and being very careful where we walked, we made our way to the creek. It was about 3 feet high, very clear, and the current was slow-moving. With hopes renewed, we all jumped in and started digging our way to



China.

Some of the more notable finds for the trip were:

Roy and Linda Cook – Peccary jaw with 2 molars

Rich Olsen – Mastodon vertebra, Equus incisor, three toed horse molar, armadillo scutes

Bobby Tant and Cindy Muston – Three toed horse molar, large alligator scute

James Bain – Ray dermal thorn, Glyptodont osteoderm, Peccary molar

Robert and Roxada Story – Partial armadillo tooth, bird bone, three toed horse tooth

Ellie Bee – Equus astragulas, Armadillo rib, large peccary molar

Burt and Doris Speicher – Llama bone, Modern muskrat jaw with one tooth, Drum Fish mouthplate with emerging tooth

Ron and Sharron Edwards – 1 ½” pathological meg, Large Equus

molar, modern cow tooth, large alligator tooth

David Sanderson – Partial mammoth tooth

Tim Bennett – Numerous horse teeth

Rick Bennett – Tyrannosaurus rex claw (Actually, Mark identified it as a turtle leg spur.)

Although we didn't find that perfect mammoth tusk, or complete dire wolf jaw, we all found some wonderful fossils to add to our collections, and had a great time. And, we couldn't have asked for a more wonderful guide than Mark Renz. He spent one-on-one time with each and every one of us, and made the trip even more enjoyable. Thanks Mark!!!!

Sharron Edwards

## TREASURER'S REPORT - DECEMBER 31, 2002

Balance Brought Forward: December 31, 2001 \$5603.77

### Income:

Dues	3655.00
Neogene Fossils books (455)	2301.00
Paleogene Fossils books (298).	1514.00
Seal/Dolphin books (51)	534.00
Megalodon books (37)	629.00
Fossil Verts of Florida books (12)	348.00
Oligocene Sharks and Rays books (9)	275.00
London Clay Fossils books (1)	25.00
Fossil Vertebrates books (4)	20.00
T-Shirts and Sweatshirts (68)	695.00
Total Income	9996.00
<b>TOTAL</b>	<b>15,599.77</b>

### Expenses:

Club Meetings, Speakers, etc.	271.88
Fossil Fair	568.76
Miscellaneous (Supplies, PO Box, etc.)	225.58
Canopy for digs and displays	182.05
CD ROM expenses	468.55
Printing (Janus, Membership Lists, etc.)	850.06
Stamps, Postage	703.33
T-Shirts (120)	859.01
Neogene Fossils books (1000)	1515.60
Megalodon books (50)	786.00
Southeast Fed. Mineral Soc. dues	419.00
Southeast Fed. Mineral Soc. insurance	350.00
Aurora Fossil Festival donation	300.00
NC State Museum of Natural Sciences	300.00
Smithsonian Dept. of Paleobiology	300.00
NC State Museum-Fossil Lab	300.00
NC State Univ.-PAMS Foundation	300.00
NC State Univ.-PAMS Foundation	500.00
Onslow County Museum Foundation	300.00
Bank Service Charge	-.04
Total Expenses	9499.86

**Balance on Hand: December 31, 2002 \$6099.91**

**Trish Kohler, Treasurer**



## Tall Tales from the Trails, No. 1

Jurassic Petrified Wood at Hansen Creek,  
Garfield County, Southeastern Utah

James R. Bain, Durham, NC

**Author's note:** This series of articles will describe some of my favorite fossil sites, with emphasis on the American West. I will strive for a mixture of places with easy and difficult access.

**Summary:** Colorful Jurassic wood in remote high desert. This site is the source of the material that I gave away at our Richlands Fossil Fair, Onslow County Museum, on November 9<sup>th</sup>, 2002.

**Difficulty:** 🌟🌟🌟🌟🌟 Five on a scale of five. Bad clay roads. Remote area. Radiation hazards. Undrinkable creek water.

**Geology:** Brushy Basin Member (gray clay hills with crimson bands), upper Jurassic Morrison Formation, approximately 148 million years of age. Exposed at the surface over large areas of the American West, the Morrison Formation is the source of numerous fossils, including those of dinosaurs and trees. The Morrison has also been an important source of fossil fuels, uranium, vanadium, radium, and other minerals. To learn more about dinosaurs and plants of the Brushy Basin Member of the Morrison Formation, visit the quarries at Dinosaur National Monument (between Vernal, Utah, and Dinosaur, Colorado), the Mygatt-Moore Dinosaur Quarry (Rabbit Valley Research Natural Area, just north of the freeway at exit #2 on Interstate 70, west of Fruita and Grand Junction, Colorado), or the Cleveland-Lloyd Dinosaur Quarry (south of Price, Utah). Some sites are seasonally closed. All three are great places for kids.

**Fossicking for fossils:** Look for colorful silicified wood eroding out of the clay.

Petrified wood forms when silica and other minerals are deposited in buried wood. Occasionally, vascular anatomy is discernible in the fossils. Most of the Jurassic wood at Hansen Creek appears to have come from a large coniferous tree of the genus, *Araucarioxylon*.

*Araucarioxylon arizonicum* dominates the colorful Triassic wood in Petrified Forest National Park, east of Holbrook, Arizona. In the Piedmont of North Carolina, Triassic *Araucarioxylon* fossils have been found in the Deep River Basin Formation (Olsen *et al.* 1991: 151).

Anatomy of fossilized *Araucarioxylon* wood resembles that



Monkey Puzzle Tree, *Araucaria araucana*,  
from Lemaire *et al.*, circa 1860.

of the unusual *Araucaria* conifers that live today in the Southern Hemisphere. Several *Araucaria* species have been brought to the USA as houseplants and ornamental trees. Perhaps you have seen the Norfolk Island "Pine," *Araucaria excelsa*, native to Australia and Norfolk Island, or the bizarre Monkey Puzzle Tree, *Araucaria araucana*, native to Chile and Argentina. Where the climate is mild, exotic *Araucaria* trees are grown outdoors in the Pacific Northwest and here in the Southeast. Ash and Creber (2000) recently challenged the traditional view that Mesozoic *Araucarioxylon* probably resembled living *Araucaria*.

Examine, but do not collect, the abundant dinosaur coprolites. "Coprolite" is fossil dung. The term comes from the Greek for "dung stone." Contrary to popular belief, the term was *not* coined by the pioneer American dinosaur scientist, Othniel C. Marsh, as a jab at his rival, Edward Drinker Cope. Are the colorful, lumpy fragments of chalcedony at Hansen Creek really petrified dinosaur droppings? We cannot say for certain. Large, intact specimens often resemble giant "cow pies," with a cauliflower-like surface texture.

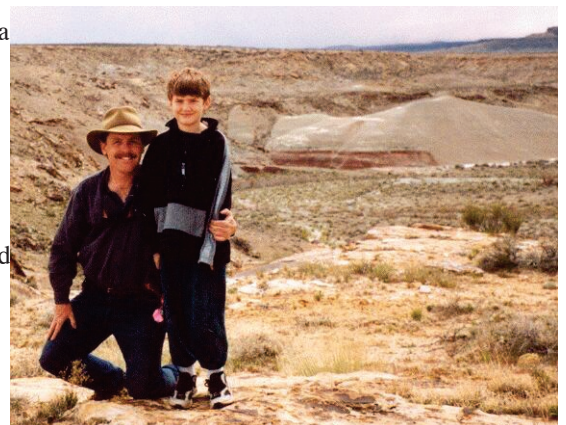
Irregular, spheroidal masses with the same cauliflower-like surface are common here. Sizes vary from those of a large

orange to a small watermelon. Before trekking to Hansen Creek, you might wish to study the many illustrations of "dinosaur coprolite" on the Internet to familiarize yourself with their appearance.

Even more problematic than coprolites are the apparent gastroliths or "dinosaur gizzard stones." You will find highly polished cobbles associated with coprolite and dinosaur bone at Hansen Creek, but the true origin of these stones is anyone's guess. Note that the bright polish extends deep into concavities in the surfaces of these enigmatic rocks. As trace fossils of vertebrates, gastroliths should not be collected.

Some wood and dung specimens bear drusy surfaces and pockets from layers of silica (or calcite?) crystals. Silicified material from this site is often suitable for cutting and polishing.

Do not be alarmed by the following spiel on radiation hazards facing fossil collectors.



View southwest into the Hansen Creek site from a distance of ½ mile.

Author & son Edward, April 15<sup>th</sup>, 1998.  
Note reddish stripes at the base of clay hills.



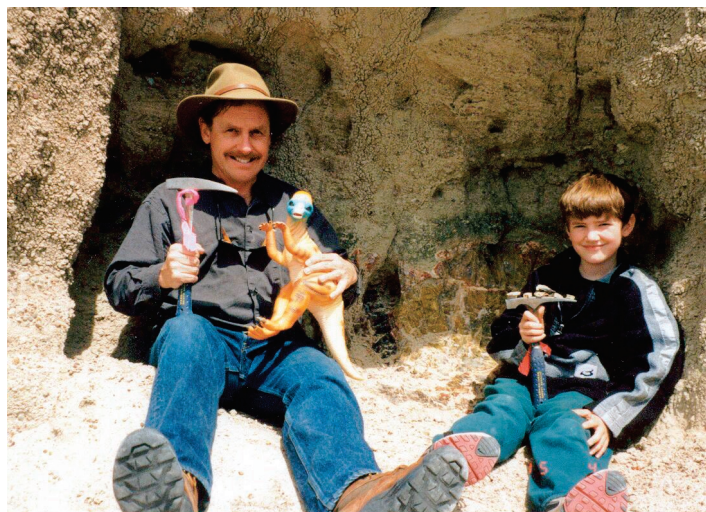
I mention this issue only because when uranium mineralizes organic matter, it can result in the occasional specimen that is *highly* radioactive.

Anywhere in the American Southwest, Mesozoic and Cenozoic fossils potentially contain minerals of uranium, radium, and other radioactive metals. One and a half miles east of the Hansen Creek collecting site, you can see the ventilation stacks and adits of uranium diggings in the Salt Wash Member of the Morrison, which lies directly beneath the Brushy Basin Member (Jackson and Noller 1991: 21-22). At some mines in this region, early in the Cold War, miners intentionally sought “hot” logs and bones to feed into their crushers. Carnotite,  $K_2(UO_2)_2(VO_4)_2 \cdot 1-3 H_2O$ , a hydrous potassium uranyl vanadate, sometimes colors petrified wood a brilliant canary yellow. But non-toxic minerals, such as iron oxides, can also give yellow wood, and uranium-mineralized fossils can be of many colors, including black and dark brown (e.g., from coffinite). Invest in a Geiger-Müller counter, or have a friend meter your samples before storing or exhibiting them indoors. I am always happy to meter specimens for collectors. I use a Radiation Alert Monitor 4/4EC (SE International, Inc., Summertown, TN). Avoid inhaling dust when collecting or cutting fossils.

In addition to the gamma rays from uranium, radon gas should be considered when prospecting and caring for fossils from the Morrison Formation. In a long series of radioactive decays, uranium yields solid radium and gaseous radon, among many other radionuclides. If you ignore my advice, and venture inside old mines in search of fossils and minerals, be alert for the sulfurous smells that often occur in the same poorly ventilated areas where one finds high concentrations of radon, which has no smell. Radon is especially hazardous to people who smoke.

If you find yourself at Hansen Creek at night, and you scout for fluorescent specimens with an ultraviolet light, as I do, please be aware that some fluorescent minerals are also radioactive. Many prospectors now rely more on fluorescence than on gamma meters for spotting “hot” minerals at a distance. And look well before you touch—certain Southwestern scorpions are fluorescent.

**Ethics and laws:** Do not disturb or collect dinosaur bone or coprolites or other vertebrate fossils. For plant and invertebrate fossils, regulations differ for federal and state lands. A state permit is available if you wish to collect on the isolated tracts of state land in the Henry Mountains region (State Trust Lands Office, 675 East 500 South, Suite 500, Salt Lake City, UT 84102). For unrestricted Bureau of Land Management public lands, including the specific site described here, no permit is required for collecting small amounts of invertebrate fossils, leaves, or petrified wood for a personal collection. Each person may take up to 25 pounds of petrified wood, plus one larger piece, each day, but you may collect no more than 250 pounds in any calendar year without a museum permit. You may not sell or barter material collected on federal lands. These regulations are of course subject to change without warning. The whole region could become a National Monument at any time, with permanent closure to collectors. Check with local land-management authorities for timely information. Fossick gently. And please use restraint. How much petrified wood do you really need? Note that rapacious collectors have made crude excavations at Hansen Creek with heavy machinery. On April 15<sup>th</sup>, 1998, a bulldozer track led to a partially unearthed silicified log (see photo).



Someone had attempted to excavate an *Araucarioxylon* log with heavy equipment, but apparently gave up when the log proved too crumbly. Log, roughly 2 feet in diameter, is partially visible in cross section to the left of Edward’s geologic hammer.

Collectors have known the Hansen Creek region for decades, and the location has been widely published (Stowe and Perry 1979: 21-22, Mitchell 1987: 78-79, Kappeler 1996: 148-154, Wilson 1995: 79). Dinosaur bone fragments have been (illegally) picked clean over much of the area. Scout the slopes and side drainages for wood, chert, and agate. Once you learn to recognize the Brushy Basin Member, you will be prepared to explore for wood in nearby drainages.

**Where to camp: Three choices:** As a first choice, I recommend Starr Springs Campground, a spring-fed oasis, approximately 6 miles northeast of the collecting site (see map). The Bureau of Land Management, Hanksville, cares for the campground. Elevation in the camp is 6,160 feet. The campground has 12 sites and vault toilets. To be on the safe side, spring water here should be treated before consumption. (I prefer ceramic filtration, followed by iodination.) A steep, primitive trail up to the 10,723-foot summit of Mount Hillers starts at the campground and passes Bristlecone Pines on the approach to the summit (Kelsey 1990: 80-81, 85). This camp sits at the southeastern end of the Henry Mountains, the last major mountain range to be mapped in the lower 48 states. Starr campground is generally open April to October. Since this is an oasis in an arid woodland of Pinyon Pine and Juniper, be prepared for flies and mosquitoes in camp. For an update on conditions at the camp, contact the **Henry Mountain Field Station**, Bureau of Land Management, P.O. Box 99, Hanksville, UT 84734; phone (435) 542-3461.

Privacy is enhanced by the thick vegetation at Starr Springs, including Arroyo Willow, Cottonwood, thorny Wild Rose, and the gnarly little Gambel’s Oak, *Quercus gambelii*. Birdwatchers will love this spot. On the night of August 23<sup>rd</sup>, 1996, my son Edward, then 8, was delighted when we were the only humans at Starr Springs, and we shared the campground with Black-tailed Jackrabbits, Mule Deer, and a family of inquisitive and melodious Coyotes. The juvenile Coyotes sang off key. Kelsey (1990) has written a guide to driving and hiking the Henry Mountains. If you venture north of camp into the Henry’s, be alert for wild Bison. View them at a distance. It is not uncommon for free-ranging Bison to gore people who approach them—ask the



When the clay roads are dry, experienced campers might prefer to car-camp at the collecting site. Water in the Hansen, Copper, and Shootering (=Shitamaring) Creek drainages, when it occurs at all, is unsuitable for drinking (cattle, high mineral load). Even if you treat this water for biohazards, the dissolved minerals will probably upset your intestines. Ponds in a tributary of Shootering Canyon, one mile east of the collecting site, hold uranium tailings.

**Navigation:** If you have been meaning to buy a global-positioning system (GPS), this might be the excuse you've been waiting for. Stock up well on gas, food, water, and survival gear. Secure the relevant maps (US Geological Survey 1980, 1987, Jackson and Noller 1991), and keep them at hand in the field. Roughly fifty miles south of Hanksville on Utah 276, between mileposts 17 and 18, turn right (northwest) on Clay Point Road. The turnoff and spur road leading to Starr Springs Campground were well marked when last I looked. In dry weather, you could drive a Cadillac the four miles from the pavement to the campground. South of here, to the collecting site, you should have a high-clearance vehicle. Four-wheel drive or a come-along will be helpful in a pinch. To reach the collecting site, as you leave camp, turn right (west) on Clay Point Road. At this junction, where the sign says "Clay Point 13," set your odometer to zero. Approximately 4.2 miles later, at the sign that says "Clay Point 9," take the right fork (see map) and continue southwest on Clay Point Road. About 2.5 miles southwest of that sign, Clay Point Road drops down into the Hansen Creek drainage and crosses the (normally dry) creek. Do not attempt to cross if the creek is flooding. At the creek bed, turn left off of Clay Point Road onto the Jeep trail leading downstream along Hansen Creek (arrow on map). About one mile down Hansen Creek, look for gray-beige clay slopes with red-brown horizontal stripes (Brushy Basin Member). Park on the level area on your left, near spot elevation 4725T on the 7.5-minute map (USGS 1987). GPS users are looking for latitude ~37° 46' 40" north, longitude ~110° 44' 20" west.

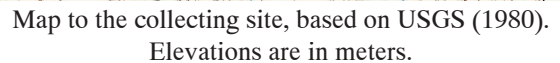
Ash, Sidney R., and Geoffrey T. Creber. "The Late Triassic *Araucarioxylon arizonicum* trees of the Petrified Forest National Park, Arizona, USA." *Palaeontology* 43, 15-28, 2000.

Jackson, Marie D., and Jay S. Noller. "Geologic map of the Copper Creek Benches Quadrangle, Garfield County, Utah." *Open-File Report* 209, Utah Geological and Mineral Survey, Utah Department of Natural Resources, Salt Lake City, 33 pages + 2 plates, 1991. [Available from [www.maps.state.ut.us](http://www.maps.state.ut.us).]

Kappele, William A. *Rockhounding Utah*. Falcon Press Publishing Co., Inc., xii + 180 pages, 1996.

Kelsey, Michael R. *Hiking and Exploring Utah's Henry Mountains and Robbers Roost*. Kelsey Publishing, Provo, Utah, revised edition, 224 pages, 1990.

Lemaire, Charles, M. Scheidweiler, and Louis Van Houtte. *Flore des Serres et des Jardins de l'Europe*. Series of loose-leaf



Wilson, James R. "A collector's guide to rock, mineral, and fossil localities of Utah." *Miscellaneous Publication* 95-4, Utah Geological and Mineral Survey, Utah Department of Natural Resources, Salt Lake City, vi + 148 pages, 1995.

## Predator Skulls

By now, some of you may be wondering, “What is the deal with John illustrating predator skulls on the back of every *Janus* issue? Because they are cool? The back page needs something?” Good reasons, both, but there is more.

By illustrating skulls and their teeth I become familiar with random teeth, often the only fossil from a skull. Skulls are fragile, rarely surviving to be fossilized, or once so being, broken up by geologic forces. Teeth, however, are very durable, they are the most likely part of the skull, much less the entire skeleton, to survive and be fossilized.

By learning about skulls and associated dentitions I have increased my knowledge and ability to begin the process of identifying random fossil teeth. There are specific characteristics of teeth from animals that ate meat compared to those that ate plants. There are exceptions to the rule that complicate matters such as the canine teeth in some horses and deer. However, those teeth are different from those found in a lion, who uses its teeth for killing prey.

The designs of the skulls of meat eaters are frequently similar regardless of Genus. Similar evolutionary pressures result in a design or solution that is common for the function required. The process is called convergent evolution. An obvious example of this is the shell of a mollusk compared to that of a turtle.

This month’s skull, wolverine, drove home for me the concept of convergent evolution. Though it is much smaller than the previous issue’s skull, the spotted hyena, the similarities in design are striking. At first glance, the skulls look like a larger or smaller example of the same animal.

Do wolverine fossils occur in North Carolina? I do not know. If their teeth (not to mention skulls) turn up I will have at least a start at narrowing the search for identity. The modern species, depicted here, is a species different from most found in the fossil record; however, its dentition is similar.

By sharing these illustrations with the fossil community I aim to share the knowledge I gain through studying modern specimens and comparing them to fossils.

**John Timmerman**

(Editor’s Note: There was enough room in this issue to reprint the Hyena skull John drew for the last issue of *Janus*. See next page.)

## Whale skull stolen from Calvert Marine Museum dig site

The following was written by Dr. Stephen Godfrey, curator of Paleontology at the CMM for the CMMFC’s winter edition of it’s newsletter *The Ecphora*. Dr. Godfrey can be contacted at 410-326-2042; ext.28.

“And now for a little paleontological intrigue...In early October, **Paul Murdoch** had reported on a baleen whale skull in the cliffs south of Plum Point. In early November, I received a call from him informing me that someone had quarried around the skull with the intent to jacket and remove it. Only two days before his warning call, I had sent a letter to the landowner requesting permission to quarry this skull. The Saturday evening of Paul’s phone call; I was able to reach a representative of the landowner. They had not given permission to this third party to quarry on their land, so permission was granted to the museum to remove the skull before it was stolen. The next day, Sunday, I quarried and jacketed the skull but could not remove it for want of logistical support. The following morning when my assistant and I returned, the skull was gone...taken out on the back of an all-terrain vehicle. I filed a police report and expect that sooner or later, the skull will come to light. If anyone has information that would lead us to the individual or individuals who stole this specimen, I would love to know.”

What’s not mentioned in Stephen’s original request was that not only was the specimen stolen but what could best be described as mocking “graffiti” was scrawled into the cliff face by the thieves after the skull was stolen. The CMM’s excavation sign was taken as well.

Also, many sets of initials were originally carved into the cliff “marking” this illegal dig, as well as other sets of initials at other spots where finds were taken out along these cliffs. It’s the author’s guess that this was to let other passerby’s/collectors know that these spots were marked and were not to be disturbed. Therefore it is the author’s belief that these people who marked these spots:

- 1) Somehow came to an expectation that others would leave the site alone if others somehow realized that it theirs.
- 2) That the “regular” collectors to this spot would know who made these marks and would respect them and leave things alone.

If my two points are correct then a conspiracy seems to be occurring at this site. My only hope is that the several people who know these individuals are willing to do the right thing and resolve this situation. I urge them to come forth and do so.

If, as a group, fossil hunters do not police themselves, sooner or later a law or group will be entrusted to do so. Please remember that the “finds” we seek are all little treasures and those on private property are off-limits no matter how tempting. If you want to see a “find” excavated, contact a museum and odds are greatly in your favor that you will have an opportunity to be included in its recovery.

In short – GET INVOLVED AND DON’T STAND IDLY BY!!  
Paul Murdoch



# Request for Permission to Enter Boren Clay Product's Shale Mine at Gulf. NC

Date: \_\_\_\_\_

To: Pamela Fields  
Boren Clay Products  
P.O. Box 368  
Pleasant Garden, NC 27313

RE: Permission to enter Boren Clay Products Property at Gulf, NC

The individuals listed below request the permission of Boren Clay Products to enter property belonging to Boren Clay Products located at Gulf, North Carolina. The property is used as a shale mine. The purpose of the visit is to study geological formations and fossils.

Permission to enter the property is requested for the time between 8:00 a.m. and 5:00 p.m. on \_\_\_\_\_ (Month, Day, Year)\*.

The individuals listed below, by affixing their signature opposite their name, acknowledge that they enter the property at their own risk, and Boren Clay assumes no responsibility for their safety.

Name (Print) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

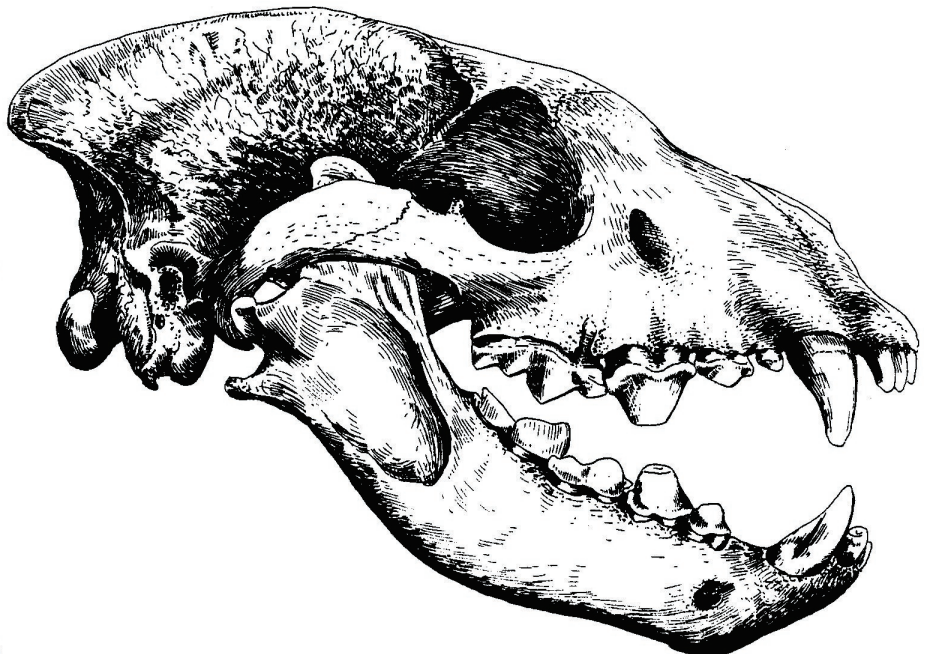
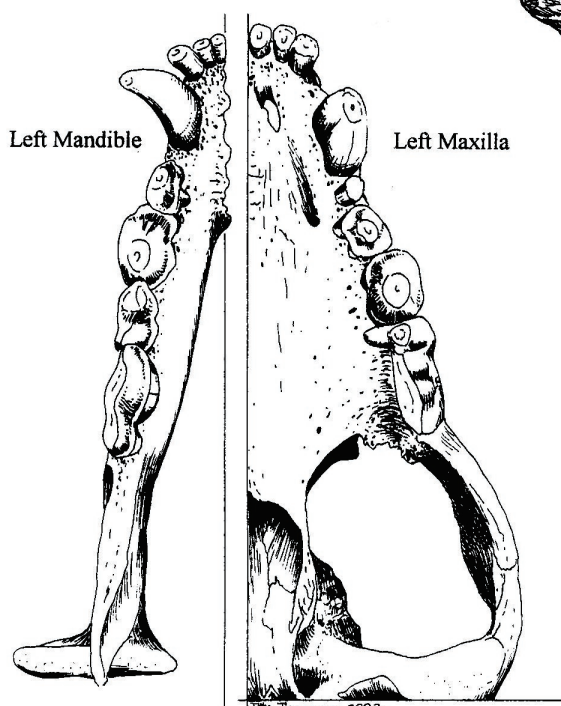
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Name (Print) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Name (Print) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

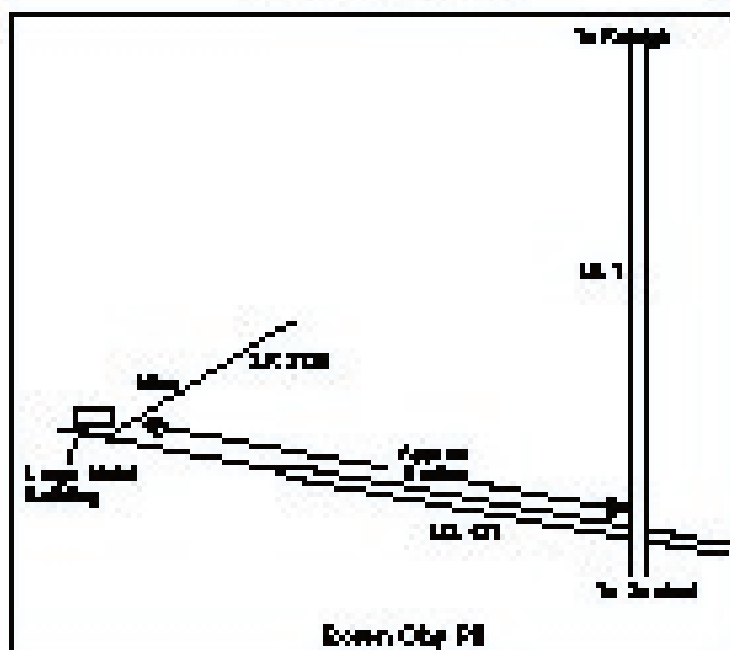
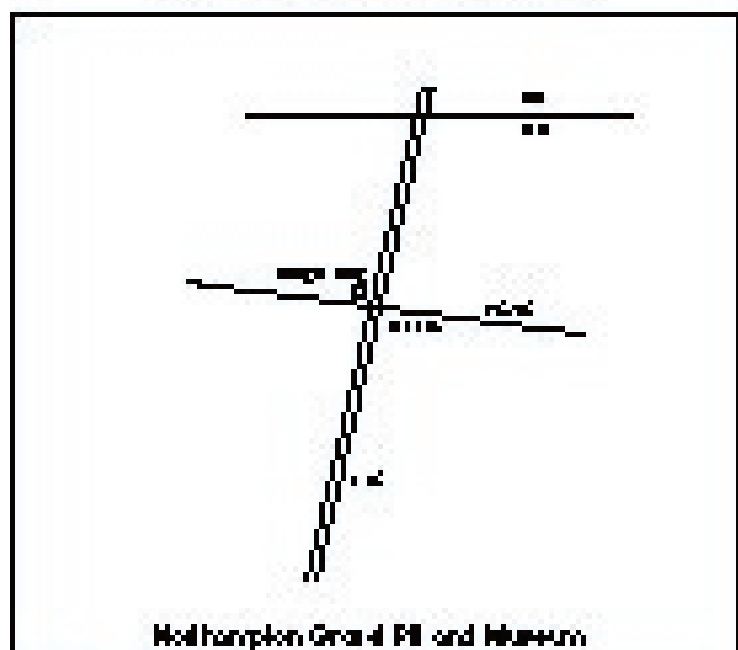
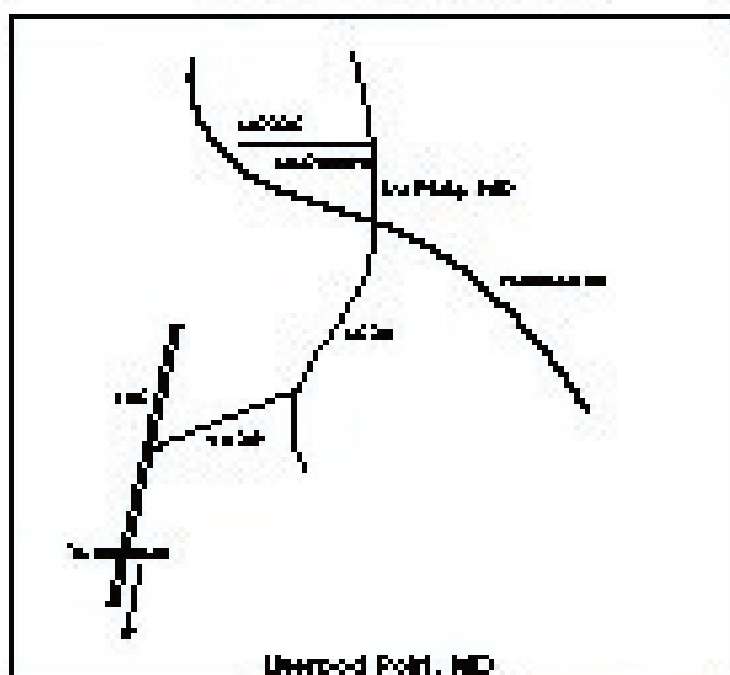
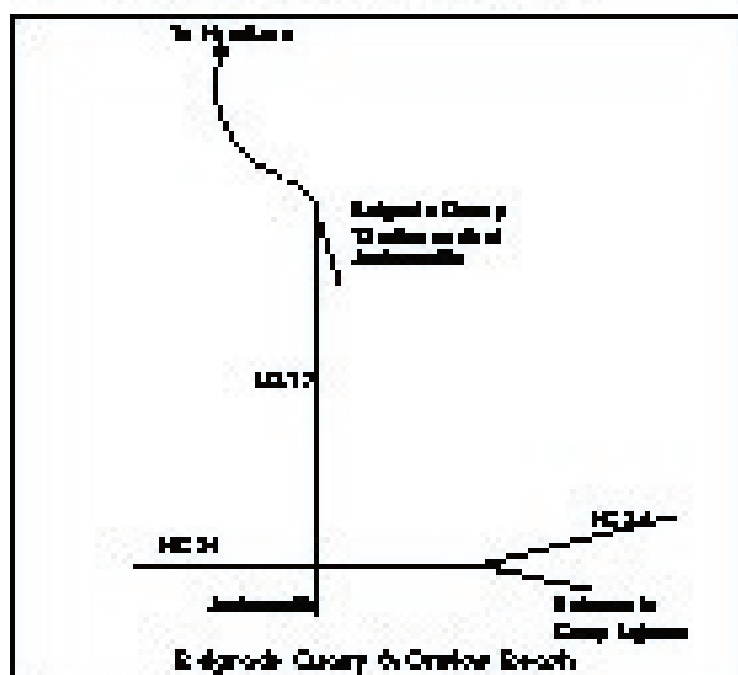
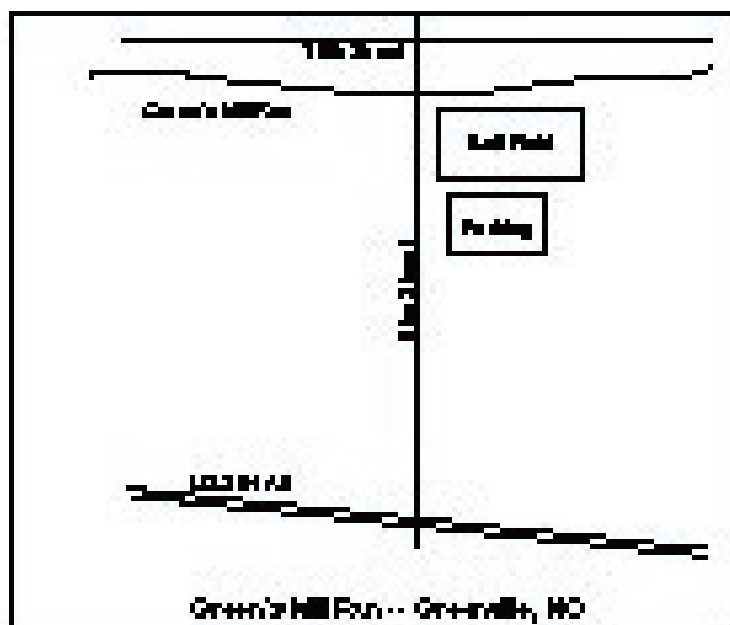
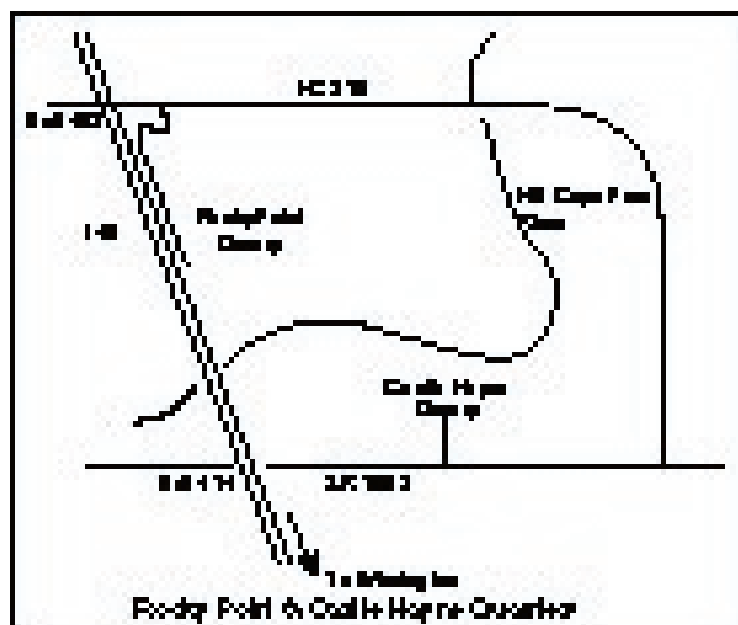
\*If granted, permission will be given for a specific day. Only non-working days (Saturday, Sunday or Holidays) will be considered, if company work is not scheduled on that day.

## Dentition



Female, Spotted Hyena, Skull and Mandible  
*Crocuta crocuta*  
Africa  
Length 28 cm (11")





**NORTH CAROLINA FOSSIL CLUB, INC.**  
(Founded 1977)

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**2003 MEMBERSHIP APPLICATION - NORTH CAROLINA FOSSIL CLUB**

**NAME(S)** \_\_\_\_\_

**ADDRESS** \_\_\_\_\_

**CITY, STATE, ZIP** \_\_\_\_\_

**PHONE(S) (INCLUDE AREA CODE)** \_\_\_\_\_

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

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

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. Only 15 positions on the PCS-Lee Creek trip are available to members who reside outside of North Carolina.

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 \_\_\_\_\_

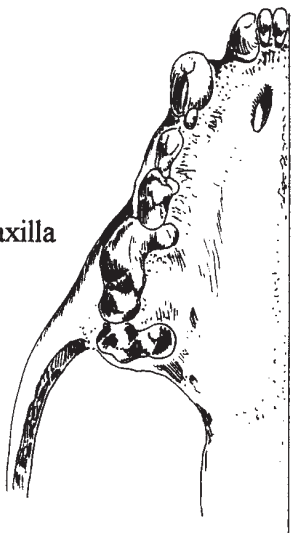
**MAIL To: NORTH CAROLINA FOSSIL CLUB, P.O. Box 13075, RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709**



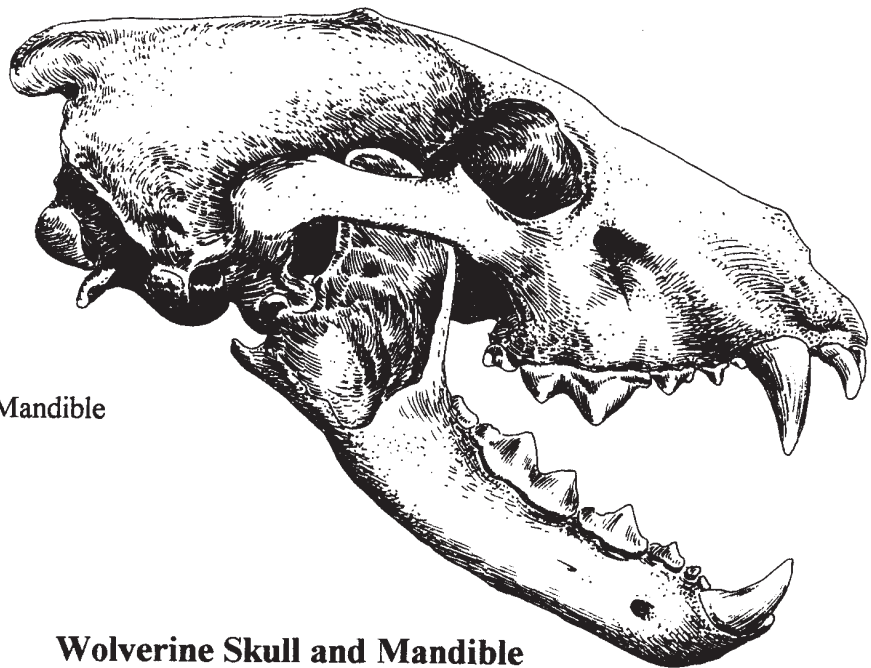
North Carolina Fossil Club  
P.O. Box 13075  
Research Triangle Park, NC 27709

### Dentition

Maxilla



Mandible



### Wolverine Skull and Mandible

*Gulo gulo*

North America

Length 17 cm (6.75")

John Timmerman 2003