Fossils In North Dakota

FIND is a newsletter dedicated to helping young readers (in age or spirit) express their love of fossils and paleontology, and to help them learn more about the world under their feet. Each issue will be broken up into sections including Feature Fossils, Travel Destinations, Reader Art, Ask Mr. Lizard, and more!

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Feature Fossil: Glasbius twitchelli

Not much is known about Glasbius twitchelli. It was a small **marsupial** (mammal with a pouch) that lived at the same time as the dinosaurs, during the Cretaceous 67 million years ago. Comparing it teeth, which have been the only part of this animal ever found, with living marsupials, it



seems to be similar to the Woolly Opossum which lives in Central and South America. The opossum eats mainly fruit, and occasionally nectar and **invertebrates** (insects or worms). They are about the size of a large mouse, or a small rat, with a long tail.

The teeth of *Glasbius* and other small mammals are generally the only part of the animal found as fossils, except in rare circumstances. This is because teeth are the hardest part of the body - the enamel that covers your teeth is a very tough mineral. So even if a small mammal gets eaten, the teeth might still survive intact.

This jaw is important to the State Fossil Collection because it is not only the first jaw of Glasbius to be found in ND, but it is also the most complete one ever found (six teeth still in place!). The next nearest complete jaw only has four teeth.

2015 Public Fossil Digs

We are done with our Public fossil digs for the year, but that doesn't mean our work is! This year we revisited five dig locations across the state. We really lucked out on weather; only a few rain days, and only a couple that neared 100F.

Bismarck Area: Our first week was spent south of Dickinson, driving to and from the site(s) each day. We had originally planned to visit a few localities, but our first site ended up being so chock full of bones and new material, we just kept going back. By the end of the week, we still had material waiting for us, so we may have to make another trip later this fall to pull the ones in the most danger of weathering away. Rhino bones were very prolific this year, with vertebrae, teeth, and even skulls littering the area. One small area we call "tooth town" was filled with small teeth and jaws of little mammals. Most of the big bones found were from mammals, but there were a few tortoise shells and crocodile bones in the mix as well.

Marmarth: We returned to the microsite that was found last year, lovingly called "Sean's Buffet," and found more gar scales and turtle shell pieces weathering out. Our day there was cut short after a microburst thunderstorm drenched us, and ran us off the site. You don't mess with lightning! The remaining week was spent **prospecting** (hiking) south of Bowman. There we worked on some dinosaur vertebrae and legs, and our intern Sean found the bone of the summer: a tiny jaw from a **marsupial** (pouched) mammal called *Glasbius*. Very neat.

Pembina Gorge: This is one of our established areas, great for beginners. Shade tent, breakfast, lunch, and plenty of water is provided. The public diggers uncovered a few partial fish skeletons on one half of the site – individual backbones the size of quarters! On the other half of the site, we dug and dug, looking for the rest of a mosasaur that has been worked on for the last few years, only to find yet another mosasaur. The three-foot-long skull was in pieces, but the neck bones were still all in the row. The last couple days in the Gorge were fairly toasty, with temperatures soaring, but people kept in good spirits.

Medora: Another established site, Medora continued producing crocodile teeth, coprolites (fossil feces), fish bones, and more. Turtle shells are made from the ribs of the animal, and when they die sometimes the ribs come apart – we found one "exploded" turtle, with ribs all over the place. Hopefully when everything is cleaned up, the ribs will fit back together again. We only lost a couple of mornings with rain, but everything was dry enough to continue work by the afternoon.



2015 Public Fossil Digs cont.

Whiskey Creek: Minus one day of rain, the weather during this dig week was glorious. Cool, breezy – easy to work in. We continued pushing back the hillside in search of our elusive crocodiles, and were not disappointed. No skulls this year, but there were a number of limb bones, many **osteoderms** ("skin bone" crocodile armor), teeth, and claws. Each year we put down markers, and map everything out on a grid. That way we know where each bone came from if we need to trace it back.

V.I.P. (Very Important Person) Sean Ternes, NDSU, Fargo, ND



My name is Sean Ternes. I am originally from Bismarck, ND. I am currently a senior at North Dakota State University in Fargo, ND pursuing a bachelor's degree in geology. During the school year I take classes, work as a teaching assistant for the introductory geology work labs, on undergraduate research projects, and also work as a tutor for the entry level geology classes at the on campus tutoring center.

For those that don't know, can you describe what an "intern" is?

ST: An intern is someone who works temporarily for a company or business in their prospective field. They perform a variety of tasks that help other people in the company complete projects or other jobs more efficiently while gaining real world, hands on experience in a job similar to one they may have in the future.

As part of being an intern, the Paleontology staff took you with on their summer Public Fossil Digs – can you tell us a little about that?

ST: I helped the paleontology staff with basic daily tasks such as distributing gear, overseeing the actual work done by the volunteers to make sure they were using the proper technique, doing some actual prospecting and quarry work of my own, along with a wide variety of many other jobs. I traveled to many different fossil sites throughout the state. Some of the areas I went were the Bowman and Marmarth area, south of Dickinson, south of Bismarck along the Missouri River, Medora for a couple different sites, and the Pembina Gorge near Walhalla. Assisting the paleontologists on their summer Public Fossil Digs was definitely one of the best parts of my job. Nothing can beat the learning you

experience from hands on experience in the field. That is the best way to take what you learn in the classroom and apply it to real world situations.

What was your favorite fossil location?

ST: My favorite fossil location was Mud Buttes. This was my favorite because it has such a wide variety of fossils that you have the potential to find, everything from turtles to dinosaurs to early mammals, and everything in between. This was also my favorite site because this is where I found my first and only T-Rex tooth, and the *Glasbius twitchelli* jaw bone which is the first find of that species in the state.



What types of rocks or fossils caught your eye?

ST: The gypsum crystals in the Pembina Gorge caught my eye because I was unaware that they were so abundant anywhere in the state, and there was such a vast amount of them just lying on the surface. I thought that was pretty cool. As for fossils, they all kind of caught my eye (that was part of my job). It is just a surreal feeling anytime you unearth a fossil because you are the first person to ever see that particular fossil. It's a feeling unlike any other.

You are a Senior in the Geology program – what is your eventual dream job?

ST: My eventual dream job is to work as an economic geologist. An economic geologist is someone who studies ore deposits. Their research is important for the mining industry. In order to have a profitable mine, one must first understand the distribution of ore deposits.

Any advice for future rockhounds and fossil fanatics?

ST: Never stop collecting, and never assume whatever you pick up is "just a rock". I started collecting rocks as soon as I could walk, and now that I know more about rocks and minerals, it is fun to look back and see exactly what I collected

all those years ago. A few of my favorite rocks in my collection are ones that I collected years ago that I do not even remember collecting. You never really know where rock hounding will take you. It may forever be a hobby like it is for so many, or it may turn in to a rewarding and fun career like it hopefully does for me.



2015 Public Fossil Dig Photos



Christopher K. posing with his rhino jaw.



Blaise W. found a rhino skull on the last hour of the last day.



Lew D. chiseling away at another rhino shoulder blade.



Trissa F. and paleontologist Becky Barnes work on a rhino skeleton.



Intern Sean Ternes and Mindy H. work on the rhino skull Blaise found.

2015 Public Fossil Dig Photos



Above: Norman G. uncovers part of a turtle shell in Marmarth.

Top Right: Lane A. poses with Tabitha the Tiny Time Traveling Triceratops.

Right: A disarticulated mosasaur skull



Above: Paleontologist Jeff Person and intern Sean Ternes chisel through some nasty concretions, trying to free a dinosaur vertebra.

Right: Edythe N. pauses digging to capture some memories.



Above: the whole team pitches in to shovel dirt off of the dig site in Medora.

Right: Paleontologist Becky Barnes excavates the mosasaur skull seen in the above photo, as the diggers look on.









2015 Public Fossil Dig Photos





Whiskey Creek lineup, everyone working the quarry.

Mountain short-horned lizards.



David and Trevor T. working on a combination turtle shell and rhino







Whiskey Creek lineup, opposite direction.