

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!

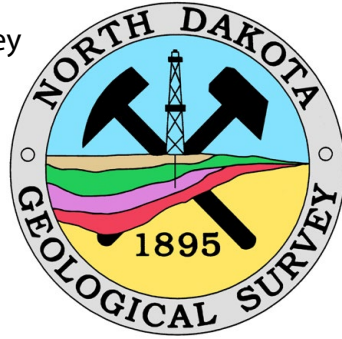
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Public Fossil Digs: 25th Anniversary Recap

It's fitting that the last dig of the 2024 season is at the same location, the Pembina Gorge Recreation Area, that our first dig occurred at 25 years ago. The Pembina Gorge was recently upgraded to a [State Park last May 2023](#), and with it comes new trails, cabins, camping, and hopefully a visitor center (phase 2 push). We're trying our best to make sure there's a small paleo lab or display in the center – so stay tuned for that.

Each day we drove into the gorge, we watched as construction progressed on the campground area. It's very exciting. I'll come back to the gorge in a little bit –



Above: Paleontologist Cathy Lash found the distal (lower) end of a humerus (upper arm bone) from a nimravid (a cat-cousin). Most likely an animal called *Dinictis*.

let's begin the recap with the first dig of the season.

We returned to the "Dickinson Area" (~32 million year old Oligocene rocks southwest of Dickinson), with Jeff and Cathy prospecting areas for small exposed bones ready to pick up, or new in-place fossils we would need to return to later on. Becky worked on a small quarry section filled with hornless rhino (*Subhyracodon*) and other mammal bones. It was convenient to stay in one place, but the going was slow. Days of hammer-and-chisel work through rock as hard as concrete, just to get a few bones plastered for transport.



Above left: a *Subhyracodon* ungual (hoof/nail).

Above right: participant Steven B. working on a *Subhyracodon* rib.

At the 55-60 million year old Paleocene "Medora" locality, we sadly lost a couple days to rain, but otherwise the weather seemed to cooperate. Cathy found some hilarious sinking pool toys that looked like the back half of a crocodile (below) – perfect for marking exposed fossils at a crocodile-rich site! On average we usually pull out about 30 small plaster coated fossils (jackets), but for whatever reason this year we only removed 11. There were plenty of Ziploc bags filled with carefully wrapped specimens, as well as buckets of the centimeter-thick fossil layer, rich in microfossils, awaiting their turn to be washed and sorted.





Above top: participants working along the front edge of the exposed fossil layer. The layer is only 1-2cm thick.

Above bottom: Erin B. carefully sweeps her area clean, to better see the tiny fossils.



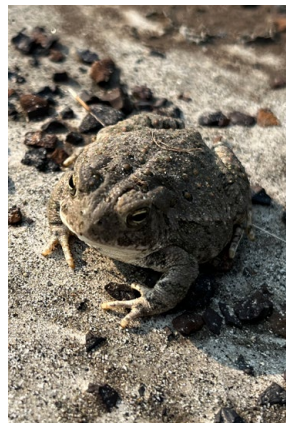
Above: Intern Kale Link tries his hand at “popping” a jacket – using a trowel to cut through the rock below the plaster and fossil, then flipping it over.

The 67 million year old Cretaceous “Bismarck Area” site was productive as usual – but it took its sweet time! The first few weeks were slow, with the odd bone here and there. The last week was absolute chaos as we made it down to the lower fossil layers. Jackets here, there, and everywhere. Each day was nearly non-stop mixing of plaster and digging around fossils.



Above: Paleontologist Mindy Householder and Intern Kale Link finish adding plaster to part of a *Triceratops* frill.

Below: Erin B. was ecstatic while attending on her birthday – she found an *Edmontosaurus* rib! Happy Birthday Erin!



Above left: The year wouldn’t be complete without a toad-ally awesome amphibian – Woodhouse’s Toad.

Above right: We ended up using the tailgate of the UTV as a table to save our backs a little from all the plastering.



Left: A wee tooth from a *Dromaeosaurus*.



Above: Trimming excess plaster from flipped fossils, removing some mudstone from each to help lighten the weight, and then adding a protective plaster cap to the open side.



Above composite: Towards the end, a beautiful *Edmontosaurus* jugal (cheekbone) was found by Jon and Reagan L.. It was lying upside down, but would have fit on the left side of the face. The darker bone in the skull silhouette of Natural History Museum (London) R8927 shows where the bone would fit in the face.

And finally, our time at the Pembina Gorge saw the flip and removal of Jimmothy, the 7-foot-long *Ichthyodectes* fish. After discovering and working on the specimen for 4 dig seasons, we were able to painstakingly ratchet and winch its way down the hill, onto a trailer, and drive it to Bismarck. We want to especially thank all the participants who helped work on this monster jacket year after year – it's finally out!



Above: Paleontologist Clint Boyd sits on top of the Jimmothy jacket, pre-flip, discussing how we're going to tackle the monstrous fish.

Below: Clint and Kale sit proudly on their conquered foe! The fish has flipped!



While we stayed in Walhalla, we also finished installation of a new fabric mural in the Walhalla Public Library. Previously we had brought up skull casts of an *Ichthyodectes* fish, and *Jormungandr* mosasaur, but the library was renovating their ceiling so we were unable to hang the mural. Now the whole thing is up, including the 3D ammonite sculpted to match the mural style. We may need to add a couple more 3D fish to the mix, but are pleased with the display.



Above: Clint and Kale installing the metal brackets on the wall that will hold the 2-part fabric mural banner.

Below: Success! The banner is now hung, and the 3D ammonite added with magnets to the fabric. Mural art by Karolina Twardosz.



It was an extremely bird-rich dig this year. I'm not sure what was going on, but we uncovered over 4 swimming bird feet – and an entire bird leg!



Above: Three of the swimming-bird feet found, most likely from a *Hesperornis* or *Baptornis*-like bird, similar to the top right of the mural above.



Above: Kale packed some props just for the digs – going through the camera at the end of the season, we had a few gems like this plesiosaur “swimming” through the Pierre shale.

We mentioned a few special participants in FIND #53, and we just have to in this issue too. We had two participants join us this year in Pembina, who also joined us as young children (before the age minimum even!). Mara B. started digging with us 12 years ago, and her enthusiasm hasn't waned a bit. Her joyful smile, artistic flair, and excitement were in full swing this year.



Above: Mara interviewed Becky Barnes for an art class project. Mara on one of her first digs at Pembina, and this year.

Our other spotlight participant is Logan E., who also joined us as a young child, and is now in college (gasp!). We remember the first year his family pulled up... and LOGAN was driving the car! We felt so old. We lovingly nicknamed him the walking encyclopedia of paleontology, and his brain has only soaked in more information as he's gotten older.



Above: Logan as a young child, and now an adult - here he's leaning next to a fish jaw he discovered this year.

Below is a graph showing how the digs have changed through time. You can see the huge jump after 2017 when the New York Times and Today Show. We lucked out, and had minimal rain days in '18 and '19, but we couldn't keep up with the massive numbers - our staff was exhausted, and too

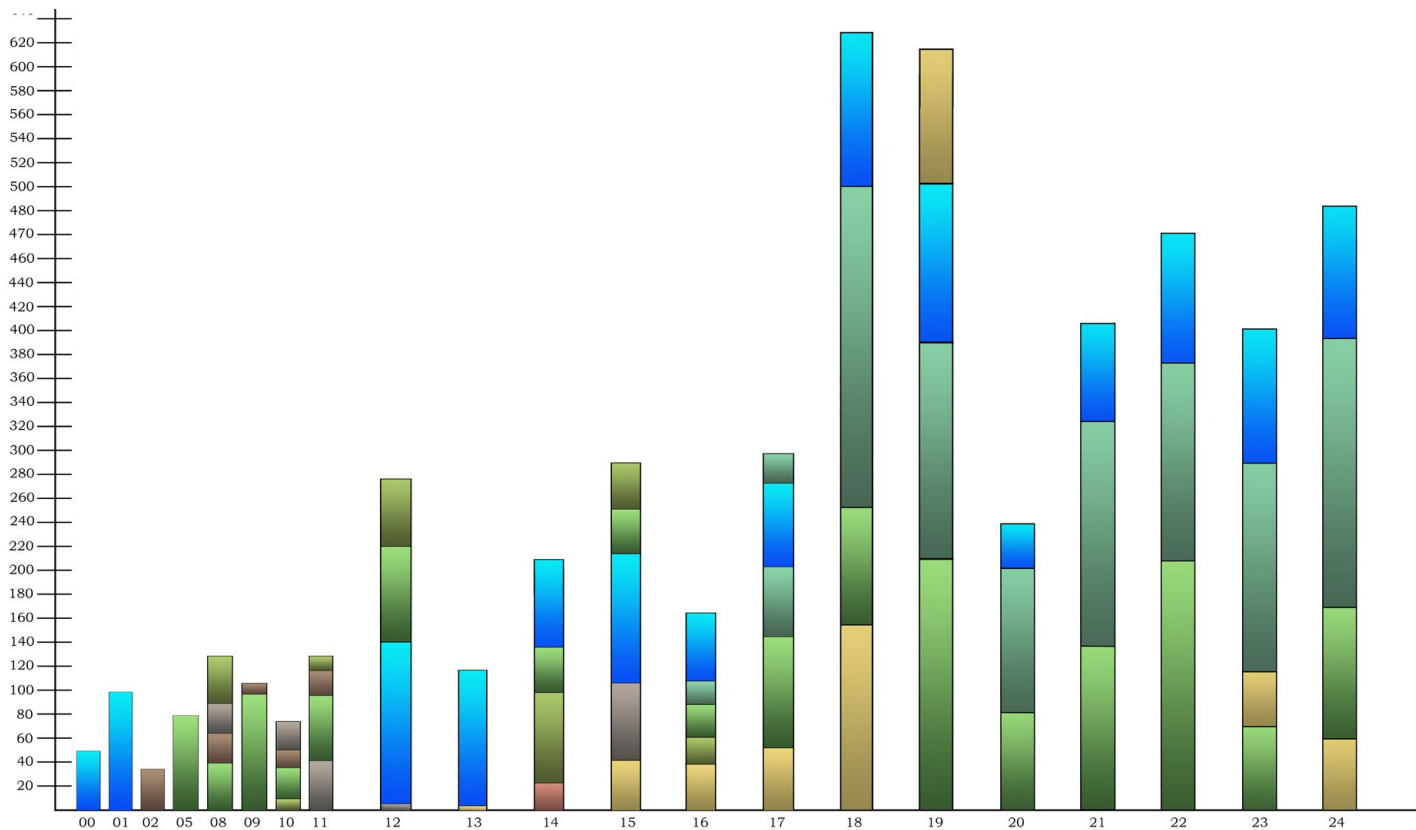
many people on site meant not enough one-on-one attention. Then there's a huge dip in 2020 from the start of the Covid Pandemic. 2013 was a low year because of the Heritage Center expansion - almost all of our time was devoted to getting new exhibits ready. 2008 was when Jeff Person and Becky Barnes were hired, which helped expand how many sites we visit each year - we went from one site, to four.

I didn't have exact numbers or sites for a few of the early years which is why they're not listed.

The colors represent different sites. Pembina (sea monsters) is blue, Medora and Bismarck are greenish (dinosaurs & swamps), Dickinson is yellow-tan (the rocks there are similar color), and Mud Buttes / Marmarth is a muddy brown.



Above: Becky and company take a break on their nice newly dug bench.





Becky was contacted about reviewing a new dinosaur book for children, called "Dinosaurs in Space" by Todd Sturgell - so here's the review!

What happens when a book narration gets hijacked by a bunch of overenthusiastic dinosaurs? Our poor narrator is simply trying to explain the extinction of the dinosaurs, when his tale suddenly takes a different route.

This book is charmingly illustrated with expressive dinosaurs, and contains a good helping of new terms for young readers. The glossary in the back of the book is not only useful for discovering new words, but also contains nods to pop culture to ensure that whatever adult is narrating this book also stays entertained.

A good book for young readers - closer to the 4-6 age range, which introduces just a taste of bird evolution, extinction, and paleontology, without getting too heavy. There are a couple of confusing pictures, which were probably done for art flow, but it puts the *Ceratosaurus* standing over the Triassic (when it lived during the Jurassic), and *Coelophysis* standing over the Jurassic (when it lived during the Triassic) - so if any precocious readers pick up on that - good for them!

Thank you Todd Sturgell and SourceBooks for allowing me to review this book. It will be a fabulous addition to our Kickoff to Summer Reading.

Do you have a dinosaur or paleontology book you'd like us to review? Please send them our way! Becky is amassing a selection of kids paleo books in her office, and likes to break them out on occasion.



Above: Clint pretends he's an archaeologist (not really), digging square holes. More material is found "below" where we dig.
Below: Alice P. hold a tyrannosaurus tooth she found.



Above: Poor Trissa Ford groans, and feigns death after uncovering a *Subhyracodon* hip. The last hip she found years ago took her two summers to dig out.