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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Editor: Becky Barnes
North Dakota Geological Survey
600 East Boulevard
Bismarck, ND 58505

becbarnes@nd.gov

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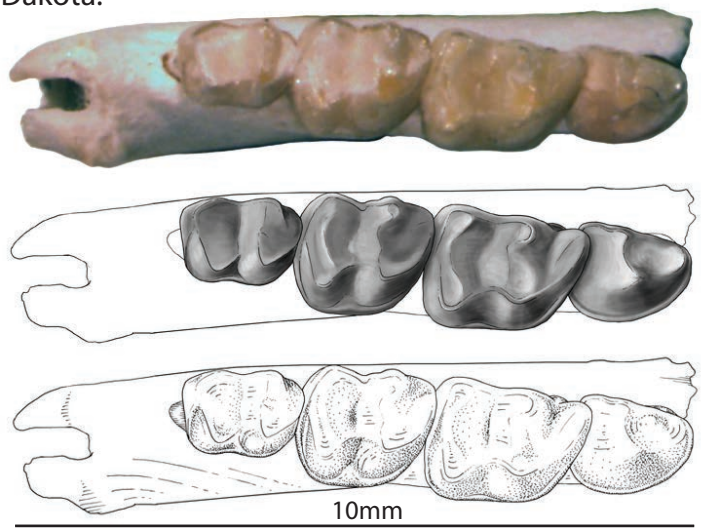
https://www.dmr.nd.gov/ndfossil/kids/

Feature Fossil: Hedgehog

Sometimes fossil animals have living descendants, while other times they are a "dead" end. Or, you can hit a strange middle ground where the animal may have descendants, but they have gone extinct in that location. Horses are a common example; they originated in North America, spread across the globe, and then went extinct where they began. Another, less known example – albeit an adorable one – are hedgehogs. You may see them at zoos, or as someone's pet – but you won't find them naturally in the wild in North America. Today they are native to Europe, Asia, and Africa, but fossils *have* been found in North America – not only that, but in North Dakota!



Hidden amidst the collections, a tiny jaw with four teeth was rediscovered. Upon closer examination, the jaw turned out to be a hedgehog. Sadly, so far the jaw is the only part that has been found. This bias towards finding teeth over other bones is fairly common. In general, hard things fossilize easier than soft squishy things (bones vs. skin). Of the hard things, teeth are already partially mineralized with enamel. So, even if a small animal gets eaten, the teeth have a better chance of surviving the end results better than the rest of the skeleton.

The jaw was found at a site south of Dickinson, from rocks that are ~32 million years old. That means the hedgehog was living at the same time as one of the first horses, *Mesohippus*, small herbivores called oreodonts, dodging around the hornless rhino *Subhyracodon*, and avoiding being eaten by the nimravid *Dinictis* or dog-like *Daphoenus*. If it was nocturnal like modern hedgehogs, then perhaps it competed with another insectivore, *Leptictis*.

Often a fossil raises just as many questions as it answers. Did the hedgehog have well developed quills? Would it have eaten the same thing as modern hedgehogs? What color was it? What was their lifespan?

Even though a hedgehog has quills, it is not related to the similar looking porcupine (a rodent) or echidna (a **monotreme**, or egg-laying mammal). Those stiff hairs showing up in all three groups is a phenomenon called **convergent evolution**. Much like how we see spines on a cactus as well – yet they are obviously not related to animal spines. A hedgehog is actually (though distantly) related to shrews, and eat a variety of foods from mushrooms and insects, to bird eggs and fruit.

In the wild, depending on the species, a hedgehog can live between 2-7 years. In captivity, away from natural predators such as badgers and owls, they can live longer.

The jaw at left, our mysterious hedgehog, most likely comes from the genus *Proterix*. The section recovered is about 1cm long. The top image is a photo, and the bottom two are different reconstructive drawings of the jaw. Sometimes viewing the jaw in a different way can help answer questions, or explain parts that may be difficult to view in a photograph.

2018 Summer Dig Update

We took a survey from past diggers, and had a phenomenal percentage of responses. Some items are out of our control, but we hear you, and will be making some adjustments to our future digs; little changes here and there, where we can:

One update is a dig notification list. If you are interested in joining us on a fossil dig, and want to be reminded when our signup goes live, you can e-mail or call Mindy Austin at mindyaustin@nd.gov 701-328-8015. Just let her know you would like to be added to the list, and she'll get your name and contact information recorded.

Another change that may affect our readers is an age change to the Full-Day digs. To register for a whole day, you must now be a minimum of 13 years old (prior age was 12). Don't worry though! If you're 12, you can still attend our Family Half-Days, which have an age minimum of 10. Another change for our Half-Days – you must sign up with a participant that is under 18. We want to make sure that our young diggers have ample opportunities to join.

Every agency is feeling the pinch of budget cuts, and Paleontology is no different. One of our fossil dig goals has been to keep the digs as low cost as possible, to encourage as many diggers as we can. In order to pay for digging materials, (for non-Pembina digs) we will be charging $10 per person, per dig day. Brushes wear out, picks break, plaster is used, and port-a-potties aren't free – so this minimal fee will help us keep the dig program running, and add more dig-dates to our calendar.

The only dig that specifically offers a souvenir is the Pembina Gorge dig. This dig costs more ($89 per day), but you also GET more. Food, transportation, shade tent, port-a-potty, and a souvenir. The other digs may or may not have shade or a port-a-potty, and a lot of that has to do with location. If we are very remote and constantly on the move (Dickinson Area), then we can't easily have those amenities. If the dig is in one location (Medora), then it is easier for us to have little creature comforts. We tried out a voluntary souvenir t-shirt last year, which went over well, so we may do that again (at the end of the dig season).

All in all, we want our Public Fossil Digs to be as educational, inclusive, and safe as possible. For some people joining a dig means crossing an item off of a bucket list. For others, it becomes a lifelong passion. Wherever you may fall on that spectrum, we hope you enjoy your time in the field with us.

The hedgehog is hungry! Help her eat her favorite tasty treats - follow the maze from her mouth, to her tummy.