

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!

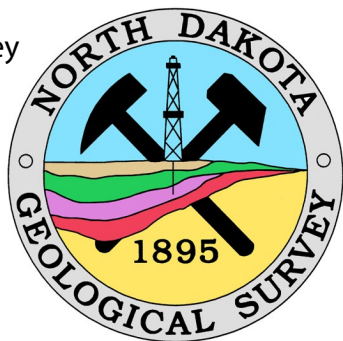
Spring 2025 No. 56

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

becbarnes@nd.gov

Next Issue: June 2025

View past issues here, or subscribe to future free FIND newsletters at:
<https://www.dmr.nd.gov/dmr/paleontology/fossils-north-dakota-find-newsletter>



Feature Fossil: *Hoploparia buntingi*

Fossils of **decapods** (creatures with ten limbs like lobsters, crabs, and shrimp) had been described since the 1880s, but the first one from North Dakota was discovered in 1961. An amateur collector from Mandan, ND named John G. Bunting found three fossil-rich concretions near Fallon, ND, containing lobster bits. Dr. Rodney Feldmann accompanied Mr. Bunting to his discovery location, and they found a fourth concretion with a lobster! Two more specimens were found the next year by two Kent State University students.

The big question was - where were these rock lobsters coming from? The concretions were coming out of a gravel pit, but did the gravel come from the younger Cannonball Formation (from the Paleocene), or the older

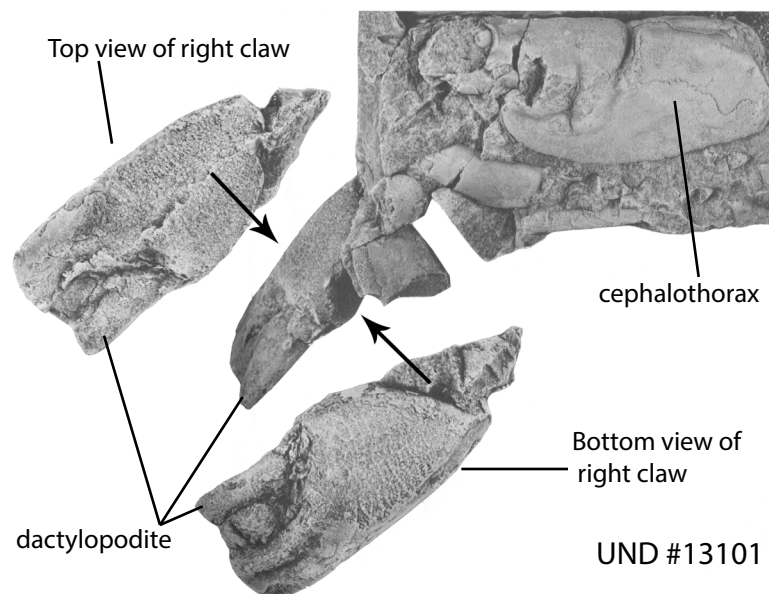
Haven't heard of Fallon before? There isn't much left. It was a settlement stop on the way from Bismarck, ND to Deadwood, SD, which was part of the Mandan-Black Hills State Trail. It never had a lot of people - only about ten or so. According to the State Historical Society of ND, in the 1870s coaches and freight wagons made the journey through, pulled by hundreds of horse teams. Now there are only a few foundations left from old stores and buildings, and the St. Peter and Paul Catholic cemetery which is still maintained to the west of where the town was.

Fox Hills Formation (from the Cretaceous). Examining the sediment around the fossils, it was determined they were coming from the younger Paleocene rocks. During this time, the Western Interior Sea was shrinking and becoming more shallow. The flora (plants) and fauna (animals) were also undergoing a change. The giant marine reptiles like plesiosaurs and mosasaurs had gone extinct at the same time as dinosaurs. And here in the midst of all that chaos - a little lobster. Or a lot of lobsters!

It's difficult to tell behaviors from fossils, but if they were like their modern-day relatives, they would have hunted small prey such as fish, clams, sea urchins, and sometimes even other unlucky lobsters.

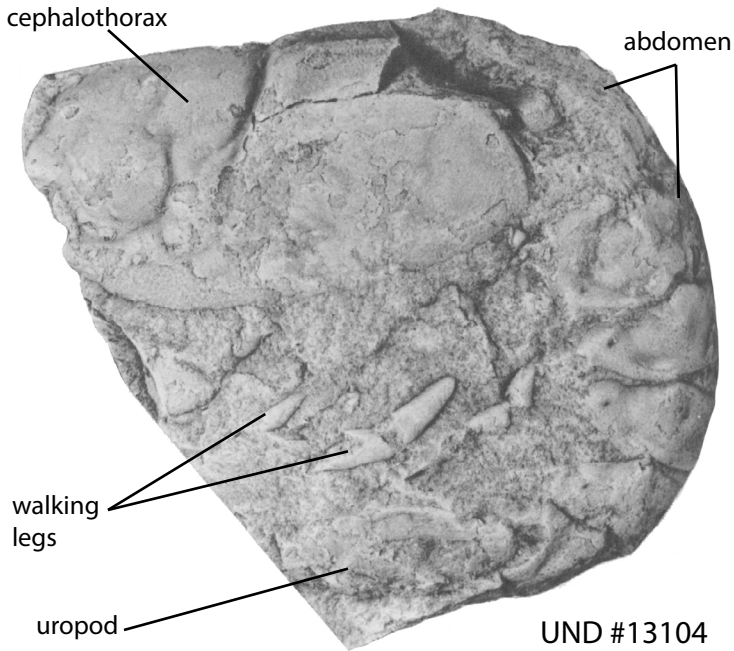
Like other crustaceans, *Hoploparia* did not have an internal skeleton like us. Instead it was covered by a hard shell called an **exoskeleton**. The shell is divided up into regions to make talking about features easier. For instance - the portion that covers the head and chest is called the **cephalothorax**. "Cephalo" for head, and "Thorax" for chest. It had small spines covering the head region. The **rostrum**, or nose area, was heavily built with more spines.

The first "walking legs" of the lobster, the **cheliped**, are what we consider claws. The right claw was more heavily built, for crushing, while the left claw was more slender for pinching or manipulating food. The mobile "thumb" of the pincer is slender, and called a **dactylopodite**. **Dactyle** meaning "digit" like thumb or finger, and **podite** meaning specifically a crustacean limb. Sometimes you might notice bumpy knobs between the thumb and **propodite** (the rest of the claw) - those

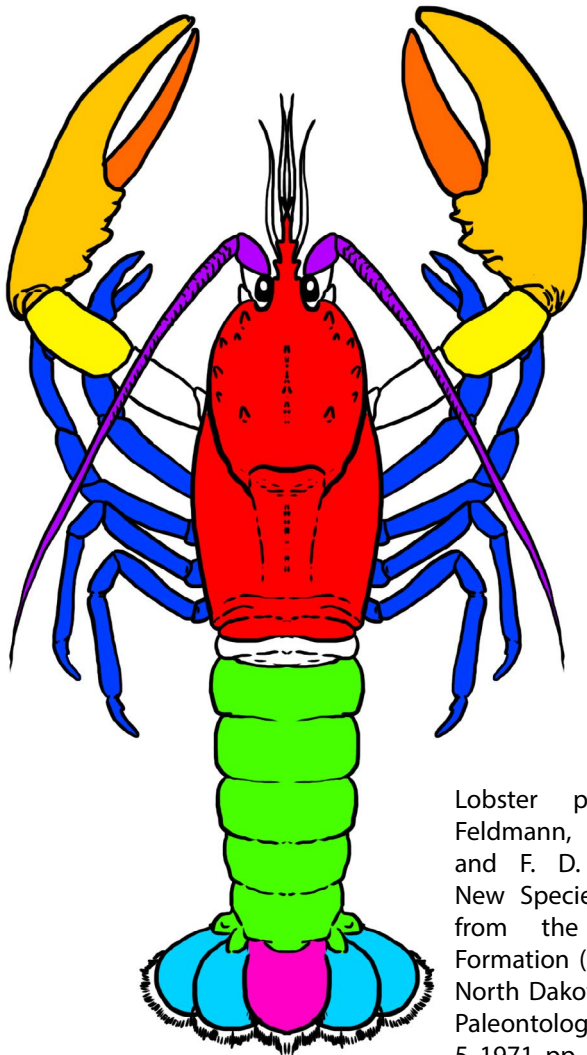


UND #13101

knobs are called **denticles**. *Hoploparia* did not have any denticles. The bottom shape of the tail fin were rounded, while the segments along the "tail" or abdomen had pointed side-edges.



UND #13104



- cephalothorax
- dactylopodite
- propodite
- carpopodite
- abdomen / tail
- uropods
- walking legs
- antenna
- telson

Lobster photos from Feldmann, Rodney M., and F. D. Holland. "A New Species of Lobster from the Cannonball Formation (Paleocene) of North Dakota." *Journal of Paleontology*, vol. 45, no. 5, 1971, pp. 838–843

Fossils and Food?

Imagine this: You have spent weeks working outside, bringing along lunches that won't spoil in the sun or that don't need refrigeration. Many of us find ourselves thinking about, or talking about: food. It comes up so often that sometimes we're inspired! After days of discussing the merits of Deviled Eggs, a couple of us actually went home, MADE them, and returned the next morning gathering with the tasty treat. Now – was eating a bunch of eggs before a field day smart? Eh hh maybe not... But was it delicious? Oh yes.



Other times we use food as a way of describing features – food items that many people might be familiar with. How should your plaster look / feel when you mix it? It partly depends on the weather and temperature. For instance, if it's particularly hot outside, you may want to mix your plaster thin until it resembles warm yogurt, or pancake batter. Is it cold outside? Thicker cold yogurt!

During the Beulah Mammoth dig, two shapes of snail shells were uncovered, and to better identify which exact one you were talking about... they were dubbed the ice-cream-cone-snail, and the cinnamon-bun-snail.



Summer Public Fossil Digs

It's March - which means our first public dig of the season is only 3 months away! For those of you who signed up, you may have noticed that this year we are only offering three dig site locations. Part of this is because once again, the Dickinson area needs more erosion and time to unlock its treasures. The rocks are pretty tough - which is part of how the fossils survive for so long.

This year we're teaming up for the first time with Fort Hays State University's Sternberg Museum of Natural History, for their High School Science Camps - often just shortened to the Sternberg Camps.



The first part of June will be spent working with High Schoolers with Hell Creek fieldwork. The Sternberg Museum offers camps for different ages of children, with a variety of involvement levels. From elementary students working in the museum, and middle-school week-long programming, to High School opportunities that include lab and fieldwork. For more information, make sure to check out their website:

<https://sternberg.fhsu.edu/education-outreach/science-camps/index.html>

The Medora dig begins late June, running from the 21st through the 29th. The crew will be returning to Medora Foundation property, working in the Paleocene of North Dakota. While there aren't any dinosaurs (except birds) there, plenty of other creatures are just waiting to be discovered. Crocodiles, fish, giant salamanders, turtles, leaves, coprolites (fossil poop), and a concentrated spot of champsosaur material.

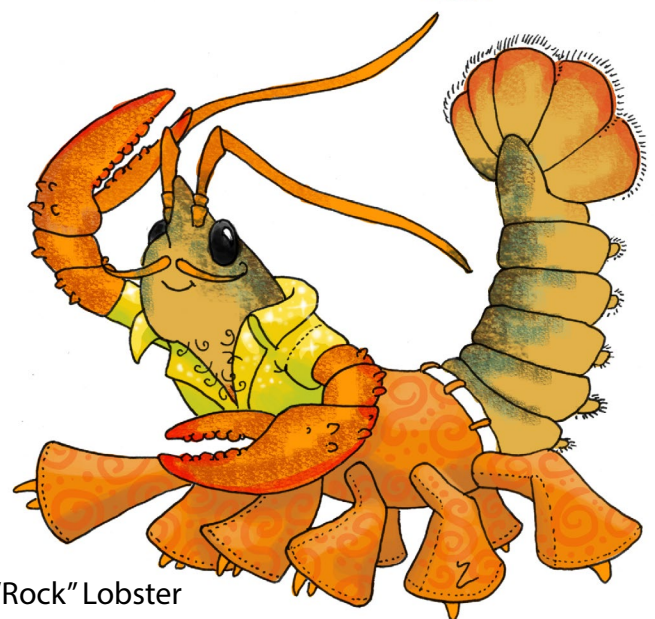
The Bismarck Area dig will once again run Mondays-Fridays, July 7th to August 1st. The group will leave from and return to Bismarck each day. The dig is on private land, so everyone will be brought down via

passenger van to ensure we don't have a bunch of vehicles on the property. This dig is our dinosaur locality, with most of the bones coming from the duckbilled dinosaur *Edmontosaurus*. Bones from *Triceratops*, *Tyrannosaurus* teeth, and crocodile skulls and armor (osteoderms) have also been recovered - as well as a NEW genus and species of dinosaur! Our staff is working hard on describing and writing the scientific paper for it - so keep your eyes and ears open for announcements on our Social Media (@NDGSPaleo).

The Pembina Gorge dig, located west of Walhalla, begins August 8th, and runs through August 17th. Jimmothy the *Ichthyodectes* is finally resting safe in Bismarck, and preparation has begun! Our hope is it will return to the area once an exhibit space is opened up. We're taking photos as we go, so you can look forward to a time-lapse of the preparation in the future.

Reader Art

Anonymous, age 11



"Rock" Lobster