

# Traces of giant prehistoric crocodiles discovered in northern British Columbia

April 1 2022, by Guy Plint and Charles Helm

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Credit: AI-generated image ([disclaimer](#))

Giant crocodiles once roamed northeastern British Columbia. A recently published article in *Historical Biology* features [the first detailed trace fossil evidence ever reported of giant crocodilians](#). The sites are from the Peace Region of northeastern British Columbia, north of Tumbler Ridge.

The trace fossils include [swim traces](#), made when the crocodiles were scraping the muddy bottoms of lakes and [river channels](#) with their claws. Some of these swim traces showed remarkable detail, including parallel striations that represent scale patterns on the crocodiles' feet.

While the Tumbler Ridge area has become [well known for its dinosaur tracks](#), there is something special about crocodiles. Unlike dinosaurs, they survived, and still have [not changed substantially since the Mesozoic](#).

In 2020, a crane company donated time and personnel to recover [four large blocks containing some of the finest examples of these tracks and traces](#). They were transported to [the Tumbler Ridge Museum](#), where they are securely stored and will be incorporated into future exhibits.

## **Ancient giants**

The tracks and traces we examined are in the age range of 95–97 million years from the [Cretaceous Period](#). The tracks included ankylosaurs, ornithopods and turtles.

The size of the crocodiles can be estimated from [the distance between their claw impressions](#). We used this distance to estimate a total body length of about nine meters, and possibly as much as 12 meters. This was corroborated by our identification of a partial track, 75 centimeters long, which allowed for a similar length estimate of close to nine meters.



An example of giant crocodile swim traces made by a crocodile's claws scraping the bottom of a river channel, showing scale striations. Credit: C. Helm, Author provided

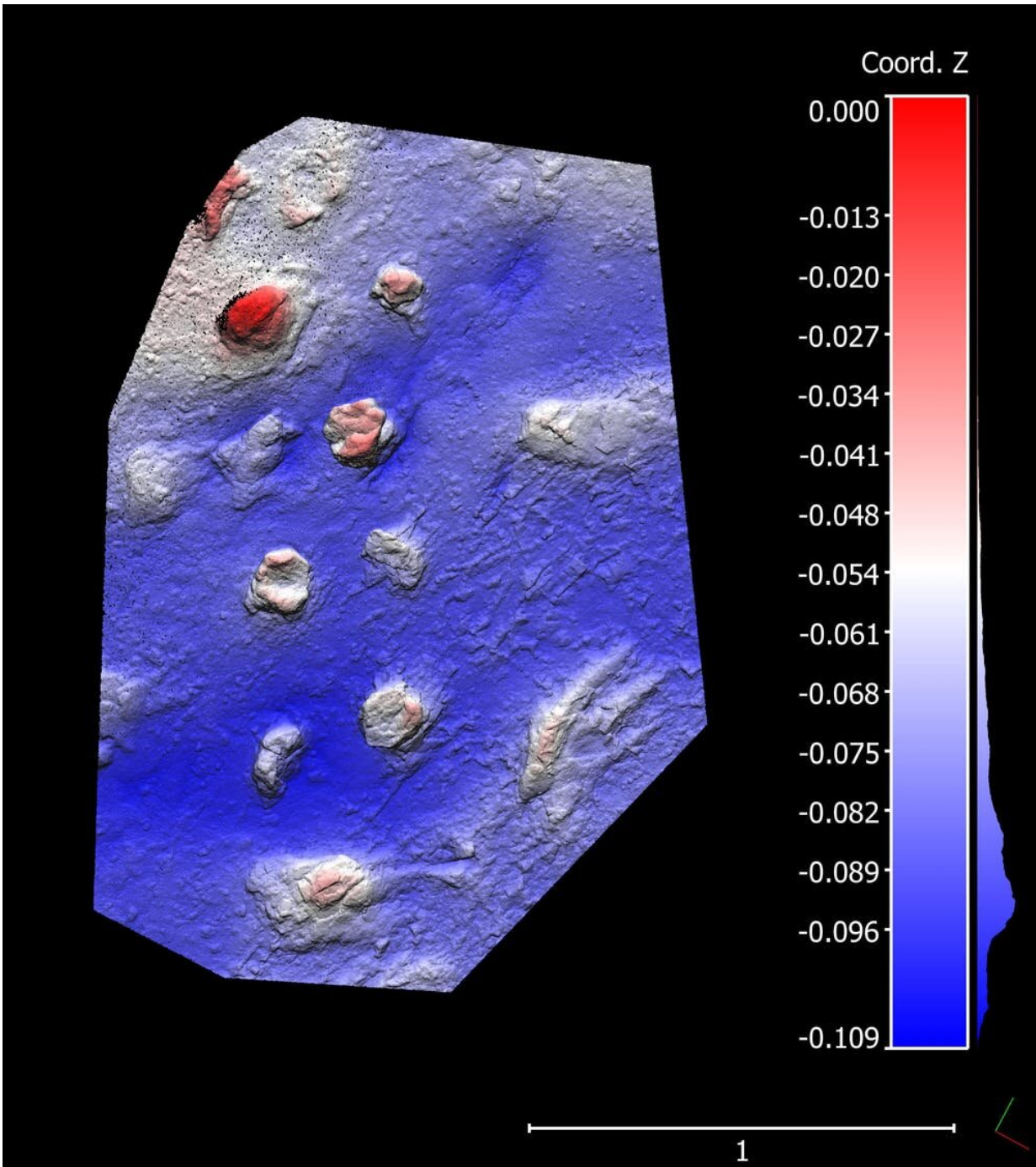
A crocodile of such prodigious size would have weighed around five tons, and would probably have been a top predator. By comparison, the record length of crocodiles living today is about six meters.

Gigantism in crocodiles has been [reported several times in the fossil record](#). In North America, the oldest body fossil evidence of giant crocodiles is of Deinosuchus at about 82 million years, [estimated to have been between eight to 12 meters long](#). Deinosuchus has been recorded from the United States and Mexico, but never from Canada.

The large swim traces from north of Tumbler Ridge may represent a precursor to Deinosuchus, that lived at least 13 million years before the previously reported first appearance of giant crocodiles in North America.

## **Tracking environmental changes**

The environment consisted of a low-lying delta-plain with shallow lakes, river channels and vegetated wetlands, situated about 100 kilometers inland from the shoreline of [the Western Interior Seaway](#) that linked the Gulf of Mexico with the Arctic Ocean.



3D photogrammetry image showing a trackway made by a juvenile ankylosaur on the left, and on the right a hybrid between a crocodile track and swim trace; horizontal and vertical scales are in metres. Credit: C.Helm, Author provided

It was possible to document multiple episodes of flooding and emergence, which determined whether and when animals walked or swam. This helped explain the variety of tracks and traces that were identified.

These findings follow our discovery of [112 million-year-old swim traces](#), made by much smaller crocodylians (between one and two meters long) within the [Tumbler Ridge UNESCO Global Geopark](#). Our familiarity with the nature of the exceptionally well-preserved traces from near Tumbler Ridge led directly to the first identification of crocodile swim traces in Africa.

The co-existence of traces made by [walking ankylosaurs](#) and swimming [crocodiles](#) on a single surface was intriguing and unprecedented in the [fossil record](#). One of the ankylosaur trackways is the smallest thus far described from the region. It comprised tracks only 10 centimeters wide, presumably made by a juvenile.

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