

## Crocodylian remains from the Miocene of the Fore-Carpathian Basin and its foreland—including the world's northernmost Neogene crocodylian

Marcin Górká, Jakub Březina, Milan Chroust, Rafał Kowalski, Sergi López-Torres, and Mateusz Tałanda  
*Acta Palaeontologica Polonica* 70 (2), 2025: 225–251 doi:10.4202/app.01194.2024

The geographic distribution of Crocodylia in Europe throughout the Cenozoic experienced fluctuations in the extension of its northern limit. Whereas crocodylians reached very high latitudes during the early Eocene (78°N), their northward extension was more moderate during almost the entire Paleogene and the Neogene. Here we reassess previous Early-to- Middle Miocene crocodylian records from the Fore-Carpathian Basin and its foreland, namely from marine limestones of Pińczów (Poland), and Židlochovice (Czechia) and from the new vertebrate site of Szczerców (Poland), currently interpreted as a freshwater paleoenvironment. All crocodylian material from these three sites represents Crocodylia indet. and its possible taxonomic attribution is discussed. The new Szczerców specimen, an osteoderm, represents the world's northernmost record of a crocodylian from the entire Neogene.

**Key words:** Crocodylia, *Diplocynodon*, *Gavialosuchus*, *Tomistoma*, Miocene, Central Paratethys, Czechia, Poland.

Marcin Górká [[magurka@uw.edu.pl](mailto:magurka@uw.edu.pl)]; ORCID: <https://orcid.org/0000-0001-7811-249X>  
, Department of Sedimentary Basins, Faculty of Geology, University of Warsaw, ul. Żwirki i Wigury 93, 02-089 Warsaw, Poland. Jakub Březina [[jerezina@mzm.cz](mailto:jerezina@mzm.cz)  
; ORCID: <https://orcid.org/0000-0003-2087-6053>], Department of Geology and Paleontology, Moravian Museum, Zelný trh 6, 659 37 Brno, Czechia. Milan Chroust [[chroust@twarda.pan.pl](mailto:chroust@twarda.pan.pl)]; ORCID: <https://orcid.org/0000-0003-3301-5578>  
, Institute of Paleobiology, Polish Academy of Sciences, ul. Twarda 51/55, 00-818 Warsaw, Poland Rafał Kowalski [[rafal.kowalski@mz.pan.pl](mailto:rafal.kowalski@mz.pan.pl)  
; ORCID: <https://orcid.org/0000-0002-1472-9930>], Polish Academy of Sciences Museum of the Earth, al. Na Skarpie 20/26, 00-488 Warsaw, Poland. Sergi López-Torres [[s.lopez-torres@uw.edu.pl](mailto:s.lopez-torres@uw.edu.pl)]; ORCID: <https://orcid.org/0000-0002-0046-1013>  
] and Mateusz Tałanda [[m.talanda@uw.edu.pl](mailto:m.talanda@uw.edu.pl)]; ORCID: <https://orcid.org/0000-0003-3358-9539>], Institute of Evolutionary Biology, Faculty of Biology, University of Warsaw, ul. Żwirki i Wigury 101, 02-089 Warsaw, Poland.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see [creativecommons.org](http://creativecommons.org)), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

 [Full text \(1,916.0 kB\)](#)