




RECOMMENDATION

New baenid turtle material from the Campanian of Wyoming

Jérémy Anquetin^{1,2} 

Cite as: Anquetin J (2023). New baenid turtle material from the Campanian of Wyoming. *Peer Community in Paleontology*, 100216. DOI: 10.24072/pci.paleo.100216

Published: 13th July 2023

Based on reviews by:
Heather F. Smith and Brent Adrian

Correspondence:
jeremy.anquetin@jurassica.ch


¹ JURASSICA Museum – Porrentruy, Switzerland

² Department of Geosciences, University of Fribourg – Fribourg, Switzerland

A recommendation of

Wu KY, Heuck J, Varriale FJ, and Farke A (2023). A baenid turtle shell from the Mesaverde Formation (Campanian, Late Cretaceous) of Park County, Wyoming, USA. *PaleorXiv* uk3ac, ver. 5, peer-reviewed by PCI Paleo. DOI: 10.31233/osf.io/uk3ac

© 2023 Author(s)

 CC-BY-ND 4.0

This work is licensed under the Creative Commons Attribution-NoDerivatives 4.0 International License.

The *Baenidae* form a diverse extinct clade of exclusively North American paracryptodiran turtles known from the Early Cretaceous to the Eocene (Hay, 1908; Gaffney, 1972; Joyce and Lyson, 2015). Their fossil record was recently extended down to the Berriasian-Valanginian (Joyce et al., 2020), but the group probably originates in the Late Jurassic because it is usually retrieved as the sister group of *Pleurosternidae* in phylogenetic analyses. However, baenids only become abundant during the Late Cretaceous, when they are restricted in distribution to western United States, Alberta and Saskatchewan (Joyce and Lyson, 2015).

During the Campanian, baenids are abundant in the northern (Alberta, Montana) and southern (Texas, New Mexico, Utah) parts of their range, but in the middle part of this range they are mostly represented by poorly diagnosable shell fragments. In their new contribution, Wu et al. (2023) describe a new articulated baenid specimen from the Campanian Mesaverde Formation of Wyoming. Despite its poor preservation, they are able to confidently assign this partial shell to *Neurankylus* sp., hence definitively confirming the presence of baenids and *Neurankylus* in this formation. Incidentally, this new specimen was found in a non-fluvial depositional environment, which would also confirm the interpretation of *Neurankylus* as a pond turtle (Hutchison and Archibald, 1986; Sullivan et al., 1988; Wu et al., 2023; see also comments from the second reviewer).

The study of Wu et al. (2023) also includes a detailed account of the state of the fossil when it was discovered and the subsequent extraction and preparation procedures followed by the team. This may seem excessive or out of place to some, but I agree with the authors that such information, when available, should be more commonly integrated into scientific articles describing new fossil specimens. Preparation and restoration can have a significant impact on the perceived morphology. This must be taken into account when working with fossil specimens. The chemicals or products used to treat, prepare, or consolidate the specimens are also important information for long term curation. Therefore, it is important that such information is recorded and made available for researchers, curators, and preparators.

References

- Gaffney ES (1972). The systematics of the North American family Baenidae (Reptilia, Cryptodira). *Bulletin of the American Museum of Natural History* 147, 241–320.
- Hay OP (1908). *The Fossil Turtles of North America*. Washington, D.C.: Carnegie Institution of Washington. doi: 10.5962/bhl.title.12500.
- Hutchison JH and Archibald JD (1986). Diversity of turtles across the Cretaceous/Tertiary boundary in Northeastern Montana. *Palaeogeography, Palaeoclimatology, Palaeoecology* 55, 1–22. doi: 10.1016/0031-0182(86)90133-1.
- Joyce WG and Lyson TR (2015). A review of the fossil record of turtles of the clade *Baenidae*. *Bulletin of the Peabody Museum of Natural History* 56, 147–183. doi: <https://doi.org/10.3374/014.058.0105>.
- Joyce WG, Rollot Y, and Cifelli RL (2020). A new species of baenid turtle from the Early Cretaceous Lakota Formation of South Dakota. *Fossil Record* 23, 1–13. doi: 10.5194/fr-23-1-2020.
- Sullivan RM, Lucas SG, Hunt AP, and Fritts TH (1988). Color pattern on the selmacryptodiran turtle *Neurankylus* from the Early Paleocene (Puercan) of the San Juan Basin, New Mexico. *Contributions in Science* 401, 1–9. doi: 10.5962/p.241286.
- Wu KY, Heuck J, Varriale FJ, and Farke A (2023). A baenid turtle shell from the Mesaverde Formation (Campanian, Late Cretaceous) of Park County, Wyoming, USA. *PaleoXiv* uk3ac, ver. 5, peer-reviewed by PCI Paleo. doi: 10.31233/osf.io/uk3ac.

Appendix

Reviews by Heather F. Smith and Brent Adrian, DOI: 10.24072/pci.paleo.100216.