

3D models related to the publication: On the "cartilaginous rider" in the endocasts of turtle brain cavities

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Abstract

The present 3D Dataset contains 26 3D models analyzed in the study: On the "cartilaginous rider" in the endocasts of turtle brain cavities, published by the authors in the journal *Vertebrate Zoology*.

Keywords: braincase, Cryptodira, Pleurodira, skull endocasts, Testudinata

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INTRODUCTION

Here we provide brain endocast models of eight extinct and 18 extant turtle species (Figs. 1,2,3, Table 1). Not published as separate data files, some of them were previously analyzed in studies that observed different aspects of turtle endocranial anatomy (Lautenschlager et al. 2018; Paulina-Carabajal et al. 2017, 2019; Ferreira 2018; Evers et al. 2019; Werneburg and Joyce 2021, Ferreira et al. in press). As a whole, the models were now comparatively analyzed by Werneburg et al. (2021), who studied the diversity and the anatomical correlates of the "cartilaginous rider" in the dorsal region of brain endocasts. The main outcome of that study was that the endocast rider anatomically corresponds to the anterior part of the cranial tectum, which remains cartilaginous in adults and buffers forces introduced by neck retraction.

METHODS

The 3D surfaces were extracted semi-automatically within AVIZO 9.2 (FEI) using the segmentation threshold selection tool. The 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware.

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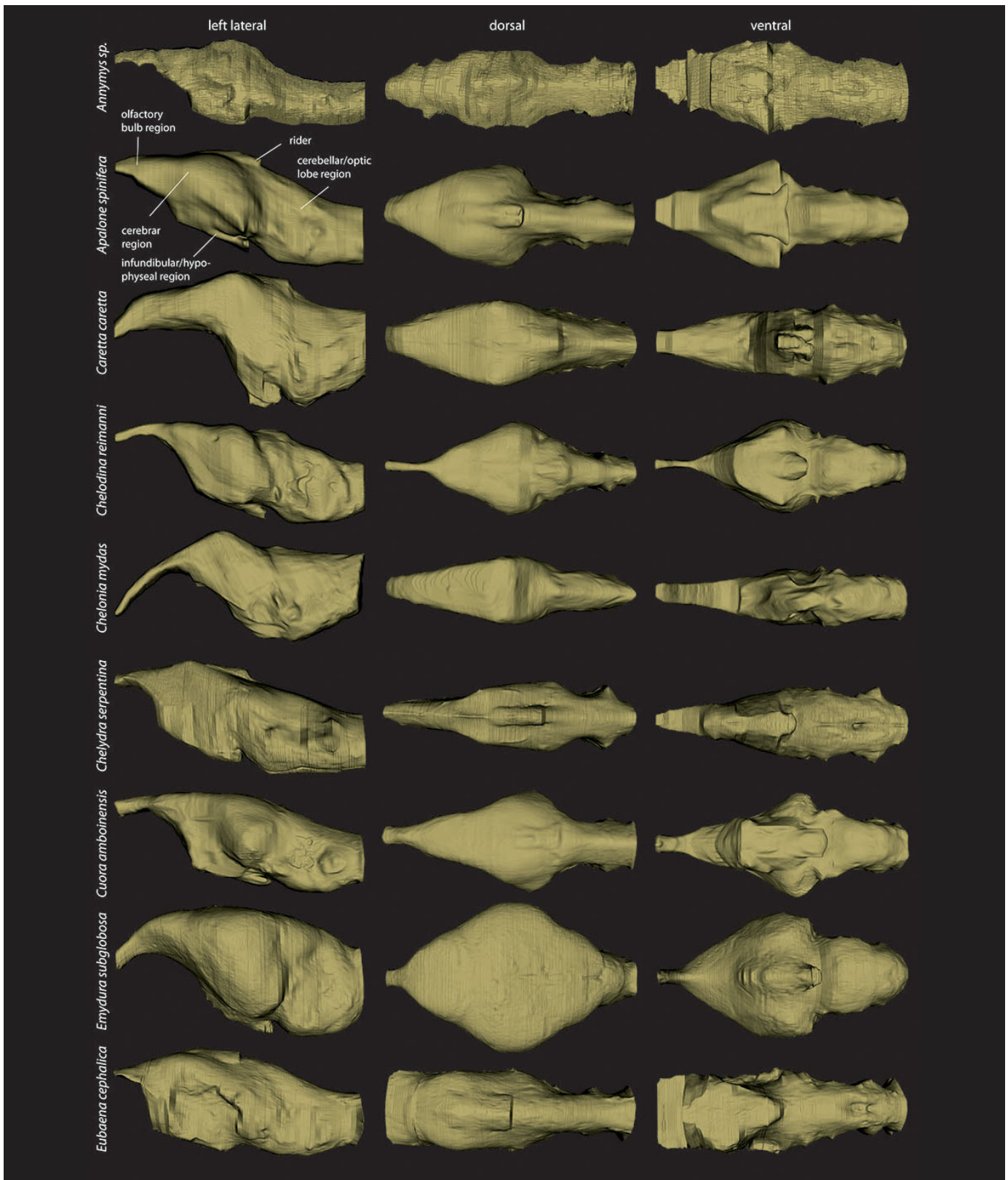


Figure 1. Left lateral, dorsal and ventral views of the surface models of turtle brain endocasts in an alphabetical order. Endocasts not to scale. Continued in Figures 2-3.

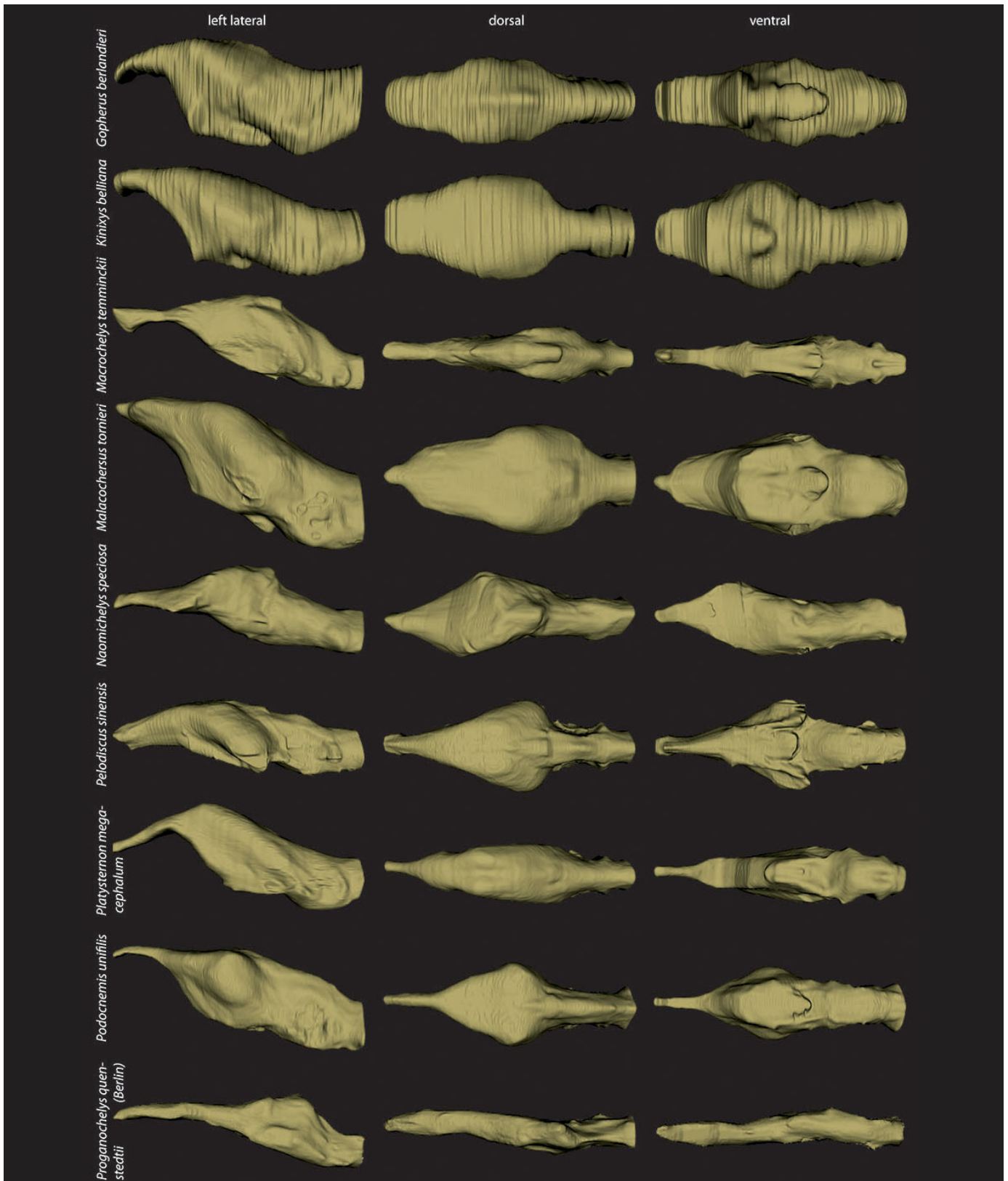


Figure 2. Continuation of Figure 1. Continued in Figure 3.

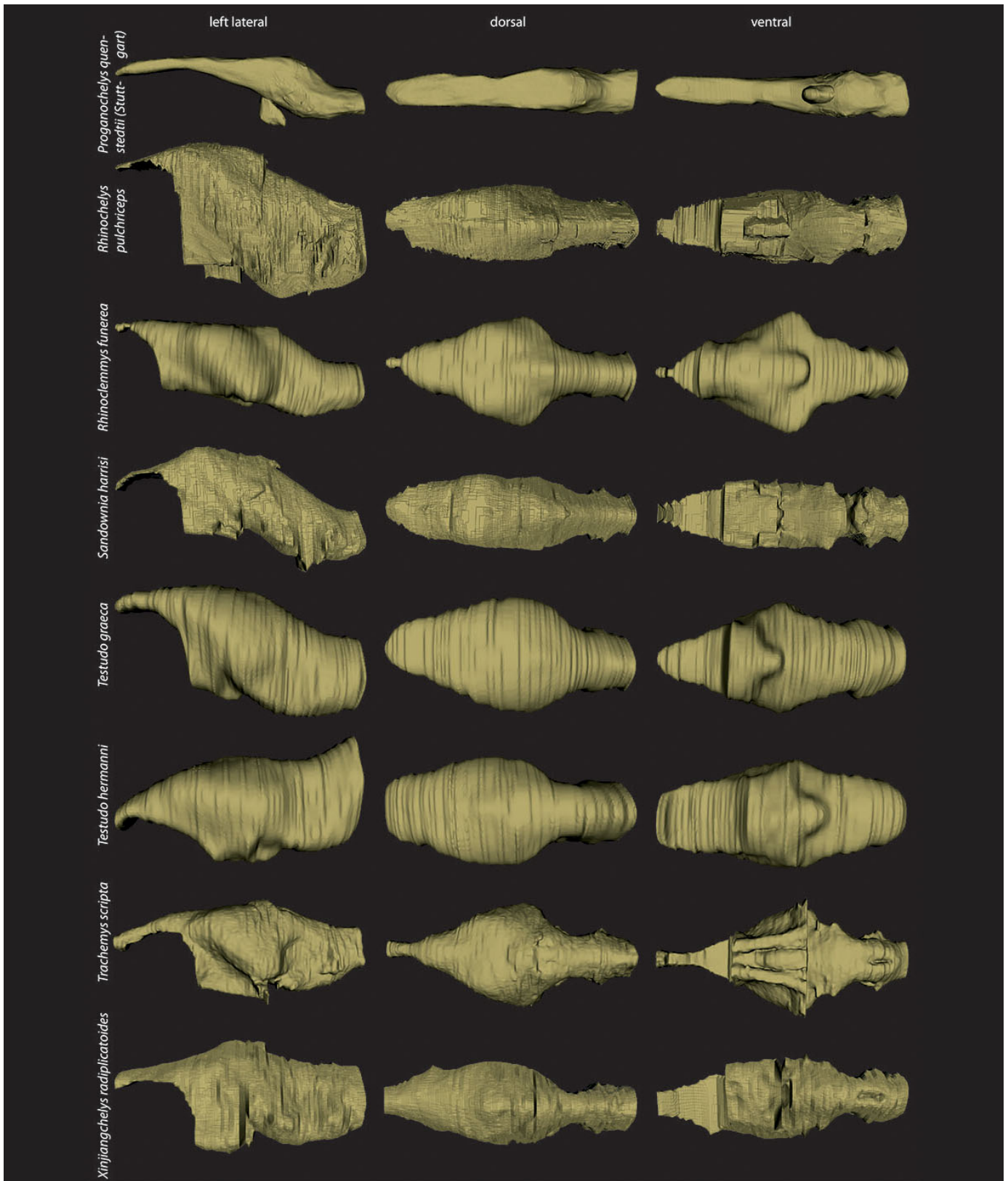


Figure 3. Continuation of Figures 1-2.

M3 file no	Collection no	Taxon
M3#772	IVPP-V-18106	† <i>Annemys</i> sp.
M3#773	FMNH 22178	<i>Apalone spinifera</i>
M3#786	NHMUK1940.3.15.1	<i>Caretta caretta</i>
M3#774	ZMB 49659	<i>Chelodina reimanni</i>
M3#775	ZMB-37416MS	<i>Chelonia mydas</i>
M3#801	UFR VP1	<i>Chelydra serpentina</i>
M3#776	NHMUK69.42.145_4	<i>Cuora amboinensis</i>
M3#777	IW92	<i>Emydura subglobosa</i>
M3#778	DMNH 96004	† <i>Eubaena cephalica</i>
M3#779	AMNH-73816	<i>Gopherus berlandieri</i>
M3#780	AMNH-10028	<i>Kinixys belliana</i>
M3#781	GPIT-PV-79430	<i>Macrochelys temminckii</i>
M3#787	SMF-58702	<i>Malacochersus tornieri</i>
M3#782	FMNH-PR-273	† <i>Naomichelys speciosa</i>
M3#783	IW576-2	<i>Pelodiscus sinensis</i>
M3#784	SMF-69684	<i>Platysternon megacephalum</i>
M3#785	SMF-55470	<i>Podocnemis unifilis</i>
M3#788	MB 1910.45.2	† <i>Proganochelys quenstedtii</i>
M3#789	SMNS 16980	† <i>Proganochelys quenstedtii</i>
M3#790	CAMSM.B55775	† <i>Rhinochelys pulchriceps</i>
M3#791	YPM12174	<i>Rhinoclemmys funereal</i>
M3#792	MIWG3480	† <i>Sandownia harrisi</i>
M3#793	YPM14342	<i>Testudo graeca</i>
M3#794	AMNH134518	<i>Testudo hermanni</i>
M3#795	See Evers et al. (2019) for specimen information	<i>Trachemys scripta</i>
M3#796	IVPP V9539	† <i>Xinjiangchelys radiplicatoides</i>

Table 1. List of data files with species and specimen information. Institutional abbreviations: AMNH, American Museum of Natural History, USA; CAMSMB, Sedgwick Museum of Earth Sciences, UK; FMNH, Field Museum of Natural History, USA; GPIT, Paleontological Collection Tübingen; IVPP, Institute of Vertebrate Paleontology and Paleoanthropology, China; IW, Ingmar Werneburg Private Collection; MB, Museum für Naturkunde Berlin, Germany; MIWG, Museum of Isle of Wight Geology, UK; NHMUK, Natural History Museum, UK; R, Reptile collection of SMNS; SMF, Senckenberg Museum Frankfurt, Germany; SMNS, Staatliches Museum für Naturkunde Stuttgart, Germany; YPM, Yale Peabody Museum, USA; ZMB, Zoologisches Museum Berlin, Germany; UFR VP, Université de Fribourg, Switzerland.