Dataset

3D models related to the publication: Virtual reconstruction of cranial endocasts of traversodontid cynodonts (Eucynodontia: Gomphodontia) from the upper Triassic of Southern Brazil.

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Abstract

The present 3D Dataset contains the 3D models of brain endocast of traversodontid cynodonts studied in: Pavanatto et al. 2019. Virtual reconstruction of cranial endocasts of traversodontid cynodonts (Eucynodontia: Gomphodontia) from the upper Triassic of Southern Brazil. Journal of Morphology. https://doi.org/10.1002/jmor.21029

Keywords: *Exaeretodon*, *Siriusgnathus*, CT-scan, Cynognathia, endocranial morphology

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Model IDs	Taxon
CAPPA/UFSM0032	*Siriusgnathus niemeyerorum*
CAPPA/UFSM0030	*Exaeretodon riograndensis*
CAPPA/UFSM0227	*Exaeretodon riograndensis*

Table 1. List of brain endocast 3D models. The 3D specimens belong tot the collections of the CAPPA/UFSM, Paleontological collection of the Centro de Apoio à Pesquisa Paleontológica da Quarta Colônia, São João do Polêsine, Brazil.

INTRODUCTION

Traversodontidae is a clade of herbivorous/omnivorous nonmammaliaform gomphodont cynodonts from the Middle–Late Triassic, characterized by the presence of labiolingually expanded upper postcanine teeth with a deep occlusal basin (Kammerer et al., 2008; Liu and Abdala, 2014). This contribution contains the firsts 3D models of the brain endocast of two cynodonts of the Traversodontidae family (Eucynodontia: Gomphodontia), *Siriusgnathus niemeyerorum* and *Exaeretodon riograndensis* from the late Triassic (Carnian) of southern Brazil, generated using computed tomography scan data. The analyzed specimens include the holotype of *S. niemeyerorum* (CAPPA/UFSM 0032) and two specimens of *E. riograndensis* (CAPPA/UFSM 0030 and 0227) (Figure 1 and Table 1).

METHODS

The specimens were scanned in a medical clinic, using a Philips Brilliance 16-Slice CT Scanner and a Philips Brilliance 64-Slice CT Scanner (Table 1). The raw scan data were exported from the scanner computer in DICOM format. The software 3D Slicer 4.8 (Fedorov et al., 2012) was employed to segment the endocranial cavity of the specimens and generate 3D models. The slices were analyzed individually, and the endocranial cavity was manually filled. The 3D surface models are provided in .ply format, and can, therefore, be opened with a wide range of freeware.

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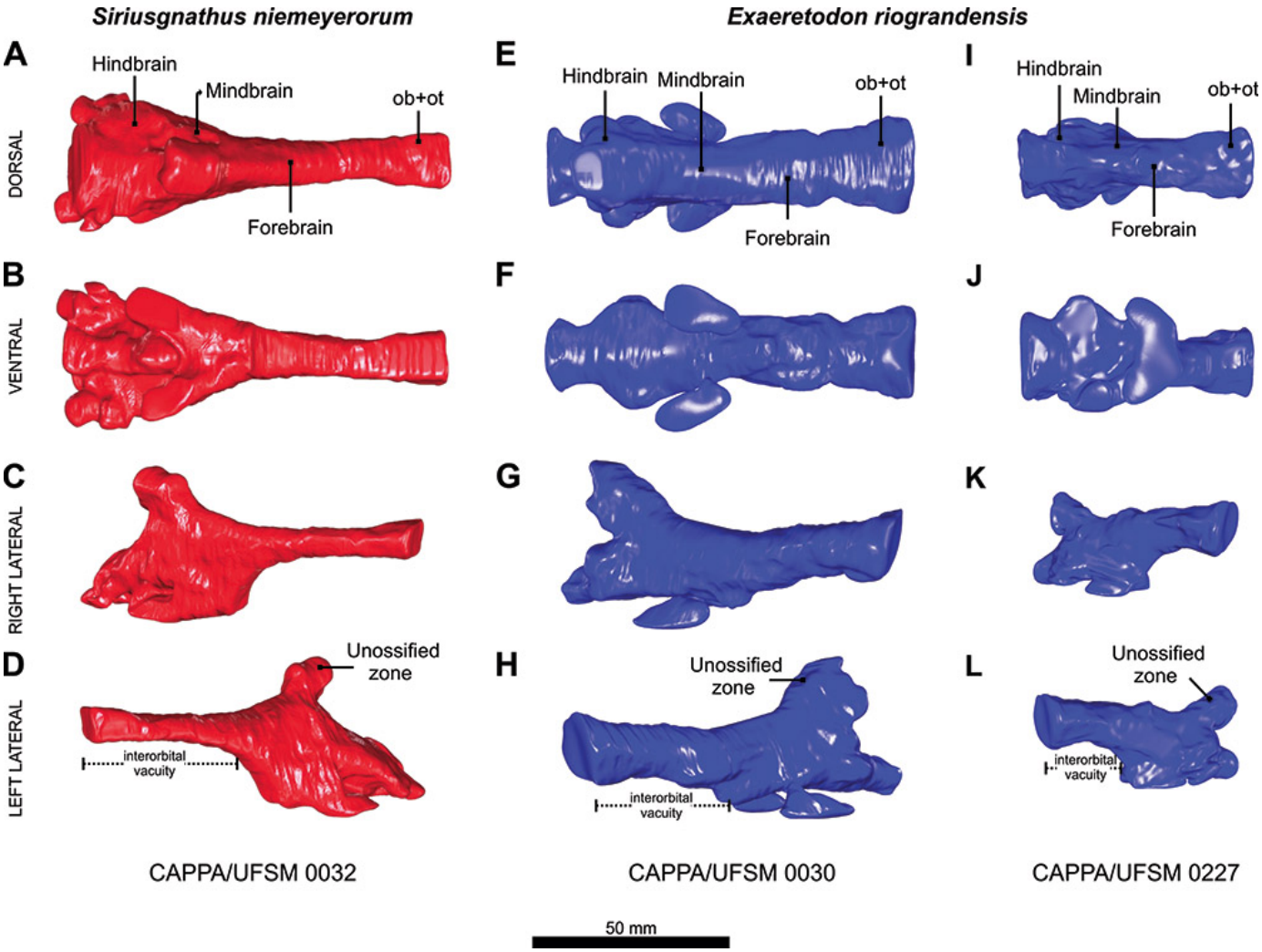

Figure 1. 3D models of the brain endocast of the traversodontids cynodonts from the Upper Triassic (Carnian) of southern Brazil. A-D, *Siriusgnathus niemeyerorum* (CAPPA/UFSM 0032); *Exaeretodon riograndensis*, CAPPA/UFSM 0030 (E-H) and CAPPA/UFSM 0227 (I-L). (ob+ot, olfactory bulbs and olfactory tracts).

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