Dataset

3D models related to the publication: New traversodontid cynodont from the Late Triassic Chañares Formation

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Abstract
This contribution contains the 3D models described and figured in the following publication: Gaetano, L. C., Abdala, F., Mancuso, C, and Vega N. 2025. New traversodontid cynodont from the Late Triassic Chañares Formation. Publicación Electrónica de la Asociación Paleontológica Argentina.

Keywords: Anatomy, Carnian, Cynodontia, Gondwana, traversodontid

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Inv nr.	Species	Description
PULR-V 287	*Pontognathus ignotus*	partial snout preserving the lateralmost incisor, the base of the canine, and several postcanines
PULR-V 289	*Massetognathus pascuali*	partial lower jaw

Table 1. µCT-scanned specimens of *Pontognathus ignotus* and *Massetognathus pascuali*. Collection: Museo de Ciencias Antropológicas y Naturales, Universidad Nacional de La Rioja, Argentina.

INTRODUCTION

We here present the 3D model of the holotype and only known specimen of a new traversodontid cynodont from Upper Triassic (Carnian) levels of the Chañares Formation of the Ischigualasto-Villa Unión Basin, north-western Argentina (Table 1). *Pontoganthus ignotus* Gaetano et al. (2025), gen. et sp. nov., is represented by a skull fragment preserving the upper postcanines. In addition, we present a 3D model of a small individual of *Massetognathus pascuali* (Cynodontia, Traversodontidae) that was found in the same fossiliferous levels as *Pontoganthus ignotus*. It is represented by the incomplete lower jaws. The two specimens were analyzed through micro-tomography (µCT) (Fig. 1). The high-resolution x-ray µCT data allowed the evaluation of not completely erupted teeth and the identification of replacement elements (or their absence).

METHODS

PULR-V 287 (*Pontoganthus ignotus* holotype) and PULR-V 289 (*Massetognathus pascuali* referred specimen) were analysed through X-ray micro-tomography in order to make available for description not-fully-erupted teeth and to evaluate the presence of replacement teeth. We employed a Nikon XT225ST 2X micro-CT scan at the Laboratorio Argentino de Haces de Neutrones (Centro Atómico Constituyentes, Comisión Nacional de Energía Atómica). In the case of the holotype of *Pontoganthus ignotus* (PULR-V 287), the equipment was set up to 80kV and 201µA. A total of 1000 projections of the specimen were captured with an exposure time of 500ms. In the case of the mandible referred to *Massetognathus pascuali* (PULR-V 289), the parameters were set to 80kV and 261µA. A total of 600 projections of the specimen were captured with an exposure time of 250ms. In both cases, a 1mm aluminium filter was employed. The experimental design resulted in a 19.7µm voxel size for PULR-V 287 and 16.2µm for PULR-V 289. The digital segmentation and 3D surface models of the bones were obtained using Avizo 2019.1 (FEI) through semi-automatic selection tools (i.e., Brush, Lasso, Magic Wand, Threshold Selection tools). The 3D surface models were colored and oriented in Morphodig (Lebrun, 2018). The 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware.

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BIBLIOGRAPHY

Gaetano, L. C., Abdala, F., Mancuso, A. C., and Vega, N. 2025. New traversodontid cynodont from the Late Triassic Chañares Formation. Publicación Electrónica de la Asociación Paleontológica Argentina 25(2): 49–67. https://doi.org/10.5710/PEAPA.01.08.2025.540

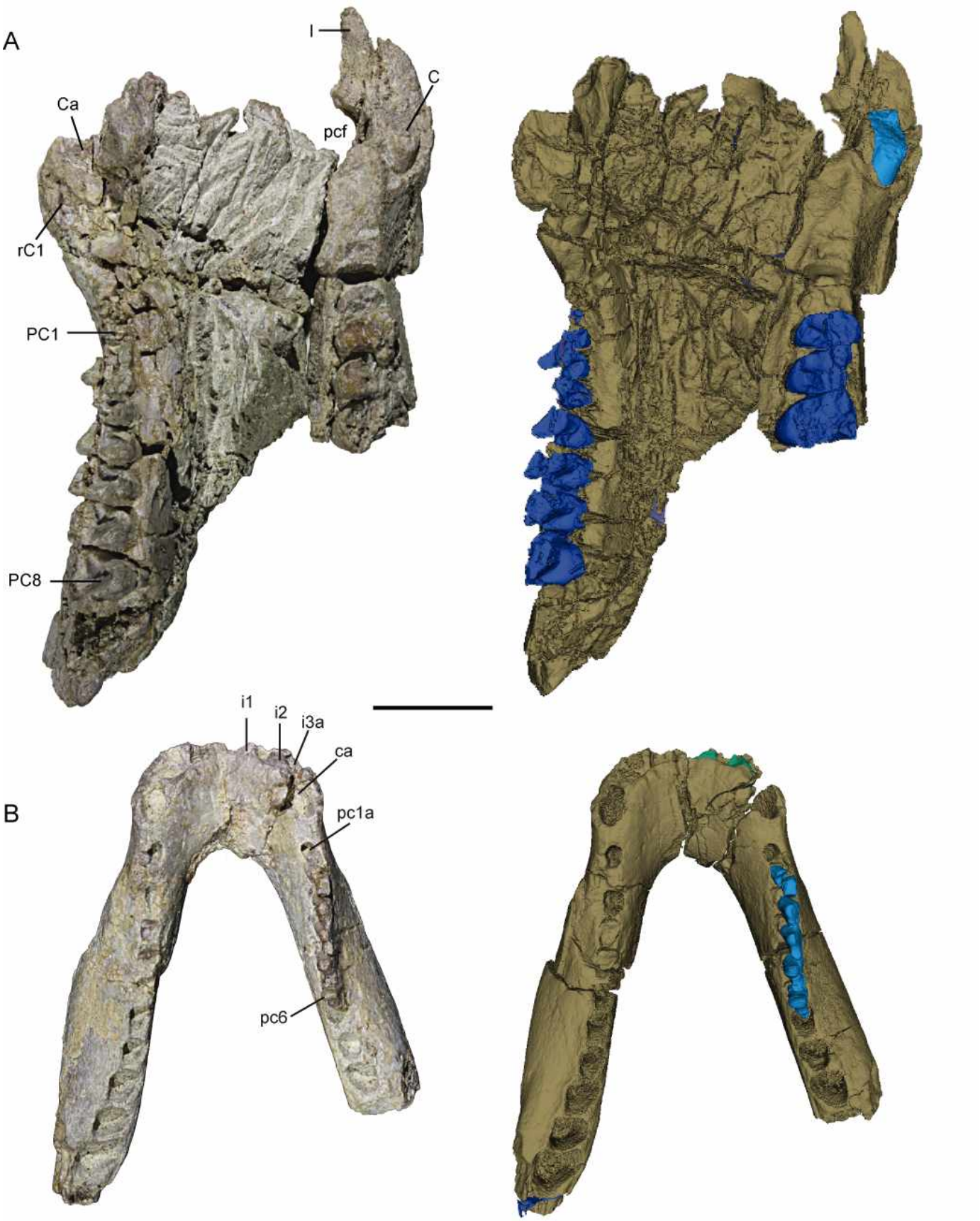

Figure 1. *Pontognathus ignotus* gen. et sp. nov. holotype (PULR-V 287) and *Massetognathus pascuali* referred specimen (PULR-V 289). Photograph and 3D model of the skull (PULR-V 287) in ventral view and lower jaw (PULR-V 289) in dorsal view. Scale bar equals 10mm.

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Lebrun, R. 2018. MorphoDig, an open-source 3D freeware dedicated to biology. IPC5, Paris, France; 07/2018.

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