Dataset

3D models related to the publication: The neotropical giant ground sloth *Ocnotherium giganteum* (Xenarthra, Mylodontinae) from the Late Pleistocene of Brazil: anatomy, paleoneurology, and phylogenetic relationships

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Abstract
This contribution presents the three-dimensional digital models (i.e., skull, endocast, and inner ear) of a uniquely well-preserved and nearly complete skull (MCL 4228) attributed to the Late Pleistocene giant mylodontid ground sloth *Ocnotherium giganteum*, discovered in the Toca dos Ossos cave (Bahia State, Brazil). This specimen was described and figured in the following publication: Pujos et al. 2026: The neotropical giant ground sloth *Ocnotherium giganteum* (Xenarthra, Mylodontinae) from the Late Pleistocene of Brazil: anatomy, paleoneurology, and phylogenetic relationships. Zoological Journal of the Linnean Society. https://doi.org/10.1093/zoolinnean/zlag008

Keywords: Folivora, Mylodontidae, Quaternary, South America, Xenarthra

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INTRODUCTION

We present 3D models of the edentulous skull (Table 1; Fig. 1A), as well as its corresponding brain endocast (Fig. 1B) and inner ear (Fig. 1C), of the mylodontine *Ocnotherium giganteum*. This giant ground sloth species had been largely overlooked for nearly a century, but the discovery of abundant material in five Brazilian karstic caves has now made it possible to reconstruct almost its entire skeletal anatomy, paleoecology, phylogenetic affinities, and even its endocranial morphology (brain endocast and bony labyrinth). MCL 4228 is the most complete specimen of *Ocnotherium giganteum*, including, in addition to the skull, the mandible, vertebrae, ribs, hemal arches, and most of the bones of the hind limbs and forelimbs. The study of numerous specimens of *Ocnotherium* has provided a better understanding of this species, showing that: i) phylogenetically, it is a mylodontine characterized by 22 autapomorphies and several convergences with lestodontines; ii) it represents one of the nine Late Pleistocene species from Brazil, clearly distinct from the Patagonian taxa; and iii) the internal structures of the skull reveal large olfactory bulbs, extensive pneumatization, and a relatively small osseous labyrinth.

Inv nr.	Taxon	Description
MCL 4228	*Ocnotherium giganteum*	skull, endocast, inner ear

Table 1. Involved specimen. Collection: Museu de Ciências Naturais, Pontifícia Universidade Católica de Minas Gerais (PUC Minas), Belo Horizonte, Brazil.

METHODS

The specimen *Ocnotherium giganteum* (MCL 4228) was scanned using a medical CT scanner at the Hermes Pardini Laboratory in Belo Horizonte (Minas Gerais, Brazil), with a matrix of 512 × 512 pixels, resulting in 2,027 slices (pixel size = 0.5859 mm; slice thickness = 0.3 mm). The image segmentation was carried out using the digital tools available in 3D Slicer (Fedorov et al., 2012). The models were exported as ".PLY" files, converted into ".OBJ" format, and imported into ZBrush 4R6 for rendering (Pujos et al., 2026).

ACKNOWLEDGEMENTS

The 3D data presented in this work were produced at the Laboratório Hermes Pardini Aimorés in Belo Horizonte (Brazil).

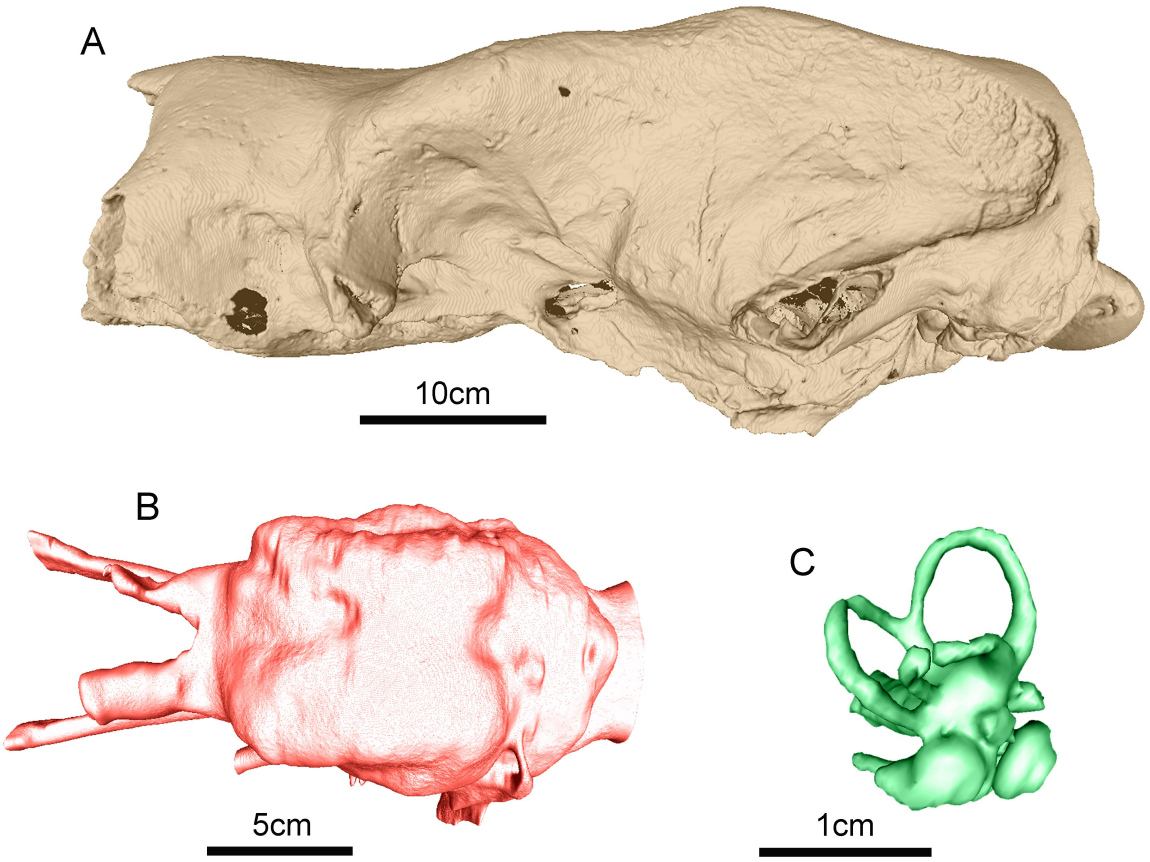

Figure 1. Digital reconstructions of the skull of *Ocnotherium giganteum* (MCL 4228). A, left lateral view of the skull (anterior towards left); B, dorsal view of the brain endocast (anterior towards left); and C, right bony labyrinth in left lateral view (dorsal towards top).

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