

3D models related to the publication: Phylogenetic signal in anteater snout morphology: implications for interpreting rare vermilinguans fossils

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Abstract

This contribution contains the 3D models described and figured in: Phylogenetic signal in anteater snout morphology: implications for interpreting rare vermilinguan fossils. *Palaeobiodiversity and Palaeoenvironments*.

Keywords: 3D reconstruction, Endocranial anatomy, La Venta, Miocene, Xenarthra

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INTRODUCTION

We present the 3D models of 10 specimens representing four taxa of extinct and extant anteaters (Xenarthra, Vermilingua; Table 1). The fossil specimen (VPPLT 977) is an anterior portion of a cranium, without jugals and premaxillae (Fig. 1) from the Middle Miocene fossil site of La Venta in Colombia (Hachemi-Rachedi *et al.* in press). The models include the cranium, nasal bones, and internal cranial canals reconstructed for VPPLT 977 and nine specimens representing three species of extant anteaters: *Cyclopes didactylus*, *Tamandua tetradactyla*, and *Myrmecophaga tridactyla* (Table 1). These specimens, along with others, are studied in Hachemi-Rachedi *et al.* (in press). The specimens provide new information on the morphological variation in the internal cranial anatomy of extant and extinct anteaters, which contribute to elucidate the phylogenetic relationships within the clade.

METHODS

The models are from specimens of the following collections: JAGUARS, Kwata Association, Cayenne, Guiana, France; Museum of Vertebrate Zoology, University of California, United States of America; Natural History Museum United-Kingdom, London, England; Collections of the Montpellier University, France; Vigías del Patrimonio Paleontológico de la Tatacoa, Museo de Historia Natural La Tatacoa, Villavieja, Colombia. Specimens were scanned at the MRI platform at the University of Montpellier, France and at the Imaging and Analysis center of the Natural History Museum, London, England. The 3D surfaces were digitally reconstructed from μ CT data using Mimics v. 25.0 (3D Medical Image Processing Software, Materialize, Leuven, Belgium) and 3D Slicer 5.6.2 (<https://www.slicer.org>). The 3D surface models are provided in .ply format and can therefore be opened with a wide range of freeware.

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Inv nr.	Taxon	Collection	Scanning facility	Voxel size (mm)
VPPLT 977	<i>Indet indet</i>	MHNV, Colombia	MRI	0.0240898
M 1525	<i>Cyclopes didactylus</i>	JAGUARS	MRI	0.0347316
M 1571	<i>Cyclopes didactylus</i>	JAGUARS	MRI	0.0347123
M 3023	<i>Myrmecophaga tridactyla</i>	JAGUARS	MRI	0.173946
NHMUK 3.7.7.135	<i>Tamandua tetradactyla</i>	NHM, London	NHMUK	0.073893
NHMUK 4.7.4.90	<i>Tamandua tetradactyla</i>	NHM, London	NHMUK	0.073893
UM 788N	<i>Tamandua tetradactyla</i>	ISEM, Montpellier	MRI	0.0571395
MVZ 121210	<i>Cyclopes didactylus</i>	MVZ, California, USA	MRI	0.0176135
MVZ 112943	<i>Myrmecophaga tridactyla</i>	MVZ, California, USA	MRI	0.0600506
MVZ 185238	<i>Myrmecophaga tridactyla</i>	MVZ, California, USA	MRI	0.0636527

Table 1. List of specimens for which 3D models of the crania and internal cranial canals are provided. JAGUARS: Kwata Association, Cayenne, Guiana, France; MVZ: Museum of Vertebrate Zoology, University of California, United States of America; NHM: Natural History Museum United-Kingdom, London, England; Collections of the Montpellier University, France; Vigías del Patrimonio Paleontológico de la Tatacoa, Museo de Historia Natural La Tatacoa, Villavieja, Colombia. Scanning facilities: MRI: Montpellier Ressources Imagerie of the Institute of Evolutionary Science of Montpellier, France; NHMUK: Imaging and Analysis center of the Natural History Museum United-Kingdom, London



Figure 1. Partial cranium of the extinct from La Venta (VPPLT 977; Myrmecophagidae indet.) in dorsal view.