



HAL
open science

3D models related to the publication: Dental remains of cebid platyrrhines from the earliest late Miocene of Western Amazonia, Peru: macroevolutionary implications on the extant capuchin and marmoset lineages

Laurent Marivaux, Rodolfo Salas-Gismondi, Pierre-Olivier Antoine

► To cite this version:

Laurent Marivaux, Rodolfo Salas-Gismondi, Pierre-Olivier Antoine. 3D models related to the publication: Dental remains of cebid platyrrhines from the earliest late Miocene of Western Amazonia, Peru: macroevolutionary implications on the extant capuchin and marmoset lineages. *MorphoMuseum*, 2017, 3 (1), 10.18563/m3.3.1.e4 . hal-01813183

HAL Id: hal-01813183

<https://hal.umontpellier.fr/hal-01813183>

Submitted on 13 Jun 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

3D models related to the publication: Dental remains of cebid platyrrhines from the earliest late Miocene of Western Amazonia, Peru: macroevolutionary implications on the extant capuchin and marmoset lineages

Marivaux Laurent^{1*}, Salas-Gismondi Rodolfo², Antoine Pierre-Olivier¹

¹Laboratoire de Paléontologie, Institut des Sciences de l'Évolution de Montpellier (ISE-M, UMR 5554, CNRS/UM/IRD/EPHE), c.c. 064, Université de Montpellier, place Eugène Bataillon, 34095 Montpellier Cedex 05, France

²Departamento de Paleontología de Vertebrados, Museo de Historia Natural - Universidad Nacional Mayor San Marcos (MUSM), Av. Arenales 1256, Lima 11, Peru

*Corresponding author: laurent.marivaux@umontpellier.fr

Abstract

This contribution contains the 3D models of the isolated teeth attributed to stem representatives of the *Cebuella* and *Cebus* lineages (*Cebuella* sp. and *Cebus* sp.), described and figured in the following publication: Marivaux et al. (2016), Dental remains of cebid platyrrhines from the earliest late Miocene of Western Amazonia, Peru: macroevolutionary implications on the extant capuchin and marmoset lineages. American Journal of Physical Anthropology. <http://dx.doi.org/10.1002/ajpa.23052>

Keywords: Callitrichinae, Cebinae, Neogene, Primates, South America

Submitted:2017-08-14, published online:2017-09-13. <https://doi.org/10.18563/m3.3.1.e4>

INTRODUCTION

We present here the 3D digital models of five isolated teeth (Fig. 1; Table 1) documenting two distinct fossil Cebidae: *Cebus* sp., a medium-sized capuchin (Cebinae) and *Cebuella* sp., a tiny marmoset (Callitrichinae). The fossils were recently discovered in Peruvian Amazonia (Contamana, Loreto Department) from fluvial deposits (CTA-43) dating from the early late Miocene (ca. 11 Ma; i.e., Mayoan South American Land Mammal Ages [SALMA]; Antoine et al., 2016). They were recovered after wet-screening of about 800 kg of sediment. The material documenting *Cebus* sp. is a single lower m1 (Fig. 1A), lacking its entire buccal margin (about four-fifths of the crown are preserved). *Cebuella* sp. is documented by three premolars (one lower p4, one half P3 or P4, and one upper P2; Fig. 1B-D, respectively) and one particularly worn upper incisor (I2; Fig. 1E). Although limited, this new fossil material of platyrrhine primates is particularly critical because it testifies of the first and oldest records of the modern *Cebuella* and *Cebus/Sapajus* lineages in the lower latitudes of the Neotropics. This discovery has therefore substantial macroevolutionary implications about the origin of extant marmosets and capuchins, and it implies significant changes regarding their historical biogeography (see Marivaux et al., 2016).

METHODS

AVIZO 7.1 (Visualization Sciences Group) software was used for visualization, segmentation and 3D rendering. The teeth were prepared within a “labelfield” module of AVIZO, using

Model IDs	Taxon	Description
MUSM-3243	<i>Cebus</i> sp.	Left lower m1 (lingual part)
MUSM-3239	<i>Cebuella</i> sp.	left lower p4
MUSM-3240	<i>Cebuella</i> sp.	right upper P3 or P4 (buccal part)
MUSM-3241	<i>Cebuella</i> sp.	right upper P2
MUSM-3242	<i>Cebuella</i> sp.	upper I2

Table 1. List of models. All specimens come from the Museo de Historia Natural - Universidad Nacional Mayor San Marcos (MUSM), Lima, Peru.

the segmentation threshold selection tool. The 3D models are provided in .ply format, and then can be opened with a wide range of freeware.

ACKNOWLEDGEMENTS

3D data presented in this work were produced through the technical facilities of the Montpellier RIO Imaging (MRI) platform and of the LabEx CeMEB. We particularly thank R. Lebrun (ISE-M, Université de Montpellier) for his help and advices during micro-CT scan acquisitions and treatments. This work (paleontological fieldwork and laboratory post-field analyses) was financially supported by the L. S. B. Leakey Foundation. This work has also benefited from an “Investissements d’Avenir” grant managed by the Agence Nationale de la Recherche, France (CEBA, ANR-10-LABX-0025-01).

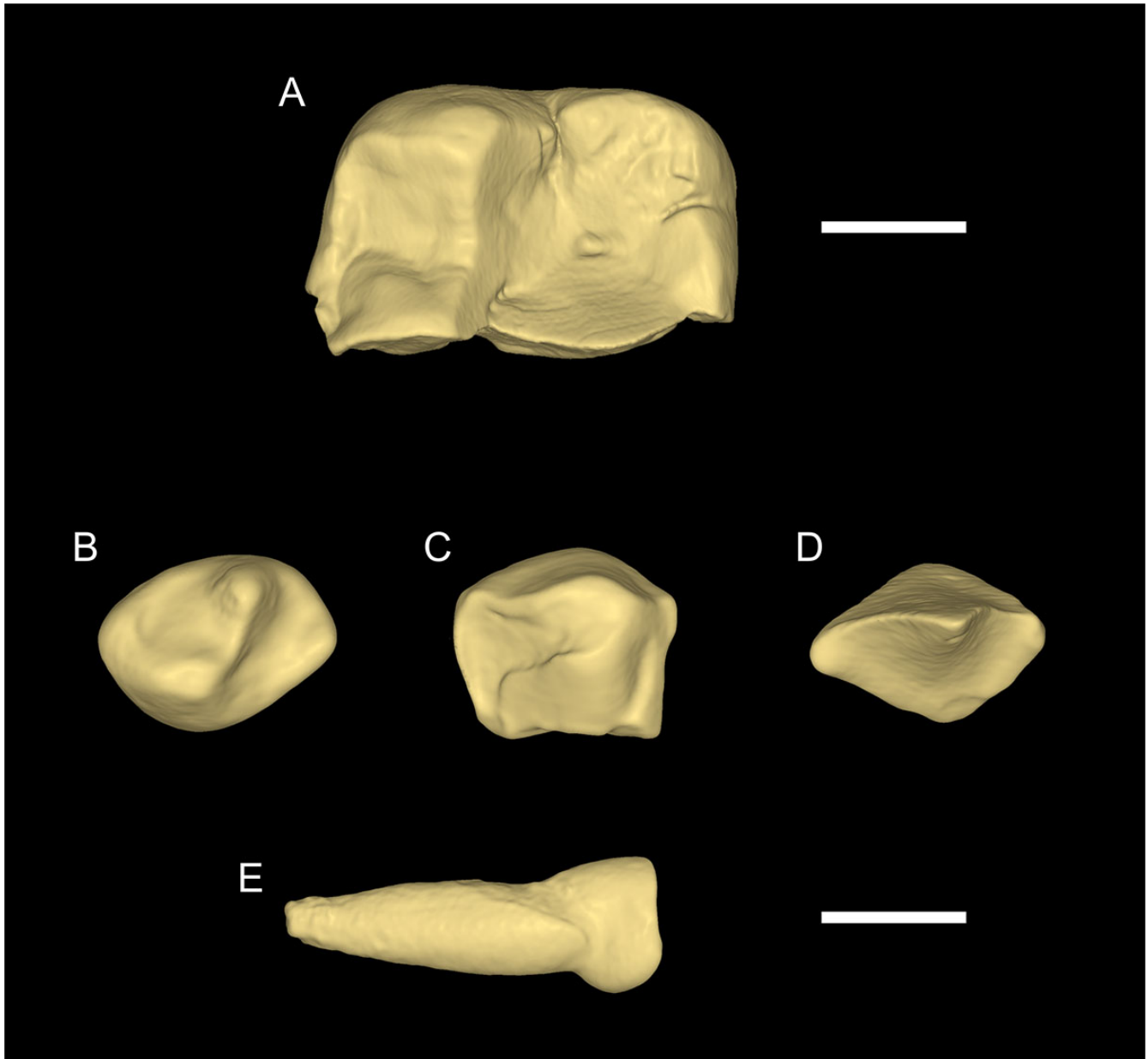


Figure 1. Fossil dental specimens of *Cebus* sp. and *Cebuella* sp. from the early late Miocene (Mayoan SALMA) of Contamana locus n°43 (CTA-43), Peruvian Amazonia. *Cebus* sp.: A) MUSM-3243, left m1 (lingual part). *Cebuella* sp. (B-E): B) MUSM-3239, left p4; C) MUSM-3240, right P3 or P4 (buccal part); D) MUSM-3241, right P2; E) MUSM-3243, upper I2. Teeth from A to D are in occlusal view, while the upper incisor is in buccal view. Scale bar = 1 mm.

BIBLIOGRAPHY

- Antoine, P.-O., Abello, M. A., Adnet, S., Altamirano-Sierra, A. J., Baby, P., Billet, G., Boivin, M., Calderón, Y., Candela, A. M., Chabain, J., Corfu, F., Croft, D. A., Ganerød, M., Jaramillo, C., Klaus, S., Marivaux, L., Navarrete, R. E., Orliac, M. J., Parra, F., Pérez, M. E., Pujos, F., Rage, J.-C., Ravel, A., Robinet, C., Roddaz, M., Tejada-Lara, J. V., Vélez-Juarbe, J., Wesselingh, F. P., Salas-Gismondi, R., 2016. A 60-million year Cenozoic history of western Amazonian ecosystems in Contamana, Eastern Peru. *Gondwana Research* 31, 30-59. <http://dx.doi.org/10.1016/j.gr.2015.11.001>
- Marivaux, L., Adnet, S., Altamirano-Sierra, A. J., Pujos, F., Ramdarshan, A., Salas-Gismondi, R., Tejada-Lara, J. V., Antoine, P.-O., 2016. Dental remains of cebid platyrrhines from the earliest late Miocene of Western Amazonia, Peru: macroevolutionary implications on the extant capuchin and marmoset lineages. *American Journal of Physical Anthropology* 161(3), 478-493. <http://dx.doi.org/10.1002/ajpa.23052>