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

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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

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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

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 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).

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

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

* Model IDs: MUSM-xxxx represents the Museum number at the Museo de Historia Natural - Universidad Nacional Mayor San Marcos (MUSM), Lima, Peru.
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
