3D models related to the publication: New record of Neosaimiri (Cebidae, Platyrrhini) from the late Middle Miocene of Peruvian Amazonia

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: New record of Neosaimiri (Cebidae, Platyrrhini) from the late Middle Miocene of Peruvian Amazonia. *MorphoMuseum*, 2020, 6 (3), pp.e119. 10.18563/journal.m3.119 . hal-02896303

HAL Id: hal-02896303

<https://hal.umontpellier.fr/hal-02896303>

Submitted on 10 Jul 2020

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: New record of *Neosaimiri* (Cebidae, Platyrrhini) from the late Middle Miocene of Peruvian Amazonia

Laurent Marivaux^{1*}, Rodolfo Salas-Gismondi^{2,3}, Pierre-Olivier Antoine¹

¹ Institut des Sciences de l'Évolution de Montpellier (ISEM, UMR 5554, CNRS/UM/IRD/EPHE), Université de Montpellier, place Eugène Bataillon, 34095 Montpellier Cedex 05, France

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

³ BioGeoCiencias Lab, Facultad de Ciencias y Filosofía/CIDIS, Universidad Peruana Cayetano Heredia, Avda. Honorio Delgado 430, Lima 31, Peru

*Corresponding author: Laurent.Marivaux@UMontpellier.fr

Abstract

This contribution contains the 3D models of the fossil teeth of a small-bodied platyrrhine primate, *Neosaimiri* cf. *fieldsi* (Cebinae, Cebidae, Platyrrhini) discovered from Laventan deposits (late Middle Miocene) of Peruvian Amazonia, San Martín Department (TAR-31: Tarapoto/Juan Guerra vertebrate fossil-bearing locus n°31). These fossils were described and figured in the following publication: Marivaux et al. (2020), New record of *Neosaimiri* (Cebidae, Platyrrhini) from the late Middle Miocene of Peruvian Amazonia. Journal of Human Evolution. <https://doi.org/10.1016/j.jhevol.2020.102835>

Keywords: Laventan, Neogene, Paleobiogeography, Peru, Tropical South America

Submitted:2020-05-19, published online:2020-07-10. <https://doi.org/10.18563/journal.m3.119>

INTRODUCTION

We present here the 3D digital models of seven isolated teeth or fragments of teeth (Fig. 1; Table 1) documenting a fossil representative of Cebinae: *Neosaimiri* cf. *fieldsi*, a small-sized squirrel monkey-like primate (Cebidae, Platyrrhini). The fossils were recently discovered in Peruvian Amazonia (TAR-31, Tarapoto/Juan Guerra locus n°31, San Martín Department, Peru) from fluvial deposits documenting the lower member of the Ipururo Formation (Sánchez Hernández et al., 1997; Hermoza et al., 2005). Biochronological evidence based on the TAR-31 mammal assemblage allows dating this new primate-bearing locality to the late Middle Miocene (ca. 13.1-12.6 Ma; i.e., Laventan South American Land Mammal Age [SALMA]; Marivaux et al., 2020). The dental specimens were recovered after wet-screening of about 550 kg of sediment at TAR-31 (August 2017 and 2018). Only three of the seven dental specimens attributed to this taxon are complete and well preserved. They consist of a third lower molar (m3; Fig. 1A), a deciduous second lower premolar (dp2; Fig. 1B), and a deciduous upper canine (DC1; Fig. 1C). The other fossil teeth are broken and the fragments document either halves or quarters of premolars (Fig. 1D-E) and molars (Fig. 1F-G). Although limited, this new fossil material of *Neosaimiri* is critical because this taxon was so far only documented in the well-known La Venta locality, Colombia (Laventan SALMA, late Middle Miocene), with the species *N. fieldsi* Stirton, 1951. The La Venta fauna is famous for having yielded a wide array of crown platyrrhines. The occurrence of *N. cf. fieldsi* in coeval deposits of Peruvian Amazonia thus represents a second and southernmost record of that low-latitude genus in the

Inv nr.	Collection
MUSM-3888	right m3
MUSM-3890	left dp2
MUSM-3895	right DC1
MUSM-3891	lingual part of a fragmentary right M1 or M2
MUSM-3892	distobuccal part of a fragmentary right upper molar (metacone region)
MUSM-3893	buccal part of a fragmentary right P3 or P4
MUSM-3894	lingual part of a fragmentary left P3 or P4

Table 1. List of models of *Neosaimiri* cf. *fieldsi*. Collection: Museo de Historia Natural - Universidad Nacional Mayor San Marcos, Lima, Peru.

Neotropics, thereby demonstrating its wide distribution along the northwestern edge of the Pebas Mega-Wetland System, in tropical western South America (Marivaux et al., 2020).

METHODS

Each specimen was scanned with a resolution of 6 µm using a X-ray µCT EasyTom 150 / Rx Solutions (Montpellier Ressources Imagerie, ISE-M, Montpellier, France). AVIZO 7.1 (Visualization Sciences Group) software was used for visualization, segmentation, and 3D rendering. The isolated teeth and fragment of teeth were prepared within a “labelfield” module of AVIZO, using the segmentation threshold selection tool. The 3D models are provided in .ply format, and thus can be opened with a wide range of freeware. The .ply files were generated with MorphoDig 1.5.3., an open-source 3D freeware (Lebrun,

2018; <https://morphomuseum.com/Pages/morphodig>).

ACKNOWLEDGEMENTS

The 3D data presented in this work were produced through the technical facilities of the Montpellier RIO Imaging (MRI) platform (ISE-M, Université de Montpellier) and of the LabEx CeMEB. We particularly thank R. Lebrun and A.-L. Charruault (ISE-M, Université de Montpellier) for micro-CT scan acquisitions, treatments, and reconstructions. The paleontological fieldwork (August 2017-2018) and laboratory analyses were financially supported by The Leakey Foundation (L. Marivaux) and the National Geographic Society (P.-O. Antoine). This work also benefited from an “Investissements d’Avenir” grant managed by the Agence Nationale de la Recherche, France (CEBA, ANR-10-LABX-25-01). ISE-M publication n° 2020-131 Sud.

BIBLIOGRAPHY

- Hermoza, W., Brusset, S., Baby, P., Gil, W., Roddaz, M., Guerrero, N., Bolaños, R., 2005. The Huallaga foreland basin evolution: thrust propagation in a deltaic environment, northern Peruvian Andes. *Journal of South American Earth Sciences* 19, 21–34. <https://doi.org/10.1016/j.jsames.2004.06.005>
- Lebrun, R., 2018. MorphoDig, an open-source 3D freeware dedicated to biology. 5th International Paleontological Congress (IPC5) – *The Fossil Week*, July 9-13th, 2018 (Paris, France). Abstract volume, 399.
- Marivaux, L., Aguirre-Díaz, W., Benites-Palomino, A., Billet, G., Boivin, M., Pujos, F., Salas-Gismondi, R., Tejada-Lara, J. V., Varas-Malca, R., Antoine, P.-O., 2020. New record of *Neosaimiri* (Cebidae, Platyrrhini) from the late Middle Miocene of Peruvian Amazonia. *Journal of Human Evolution*, <https://doi.org/10.1016/j.jhevol.2020.102835>.
- Sánchez Fernández, A. W., Chira Fernández, J. E., Valencia Muñoz, M. M., 1997. Geología de los cuadrángulos de Tarpoto, Papa Playa, Utcucarca y Yanayacu 13-k, 13-l, 14-k, 14-l. *INGEMMET Boletín A* 94, 237 pp.

Figure 1. Fossil dental specimens of *Neosaimiri* cf. *fieldsi* from the late Middle Miocene (Laventan SALMA) of Tarapoto/Juan Guerra locus n°31 (TAR-31), San Martín Department, Peruvian Amazonia. **A)** MUSM-3888, right m3; **B)** MUSM-3890, left dp2; **C)** MUSM-3895, right DC1; **D)** MUSM-3893, buccal part of a fragmentary right P3 or P4; **E)** MUSM-3894, lingual part of a fragmentary left P3 or P4 (reversed); **F)** MUSM-3891, lingual part of a fragmentary right M1 or M2; **G)** MUSM-3892, distobuccal part of a fragmentary right upper molar (metacone region). Teeth from A to G are in occlusal views. Scale bar = 1 mm.