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

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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

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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>).

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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.

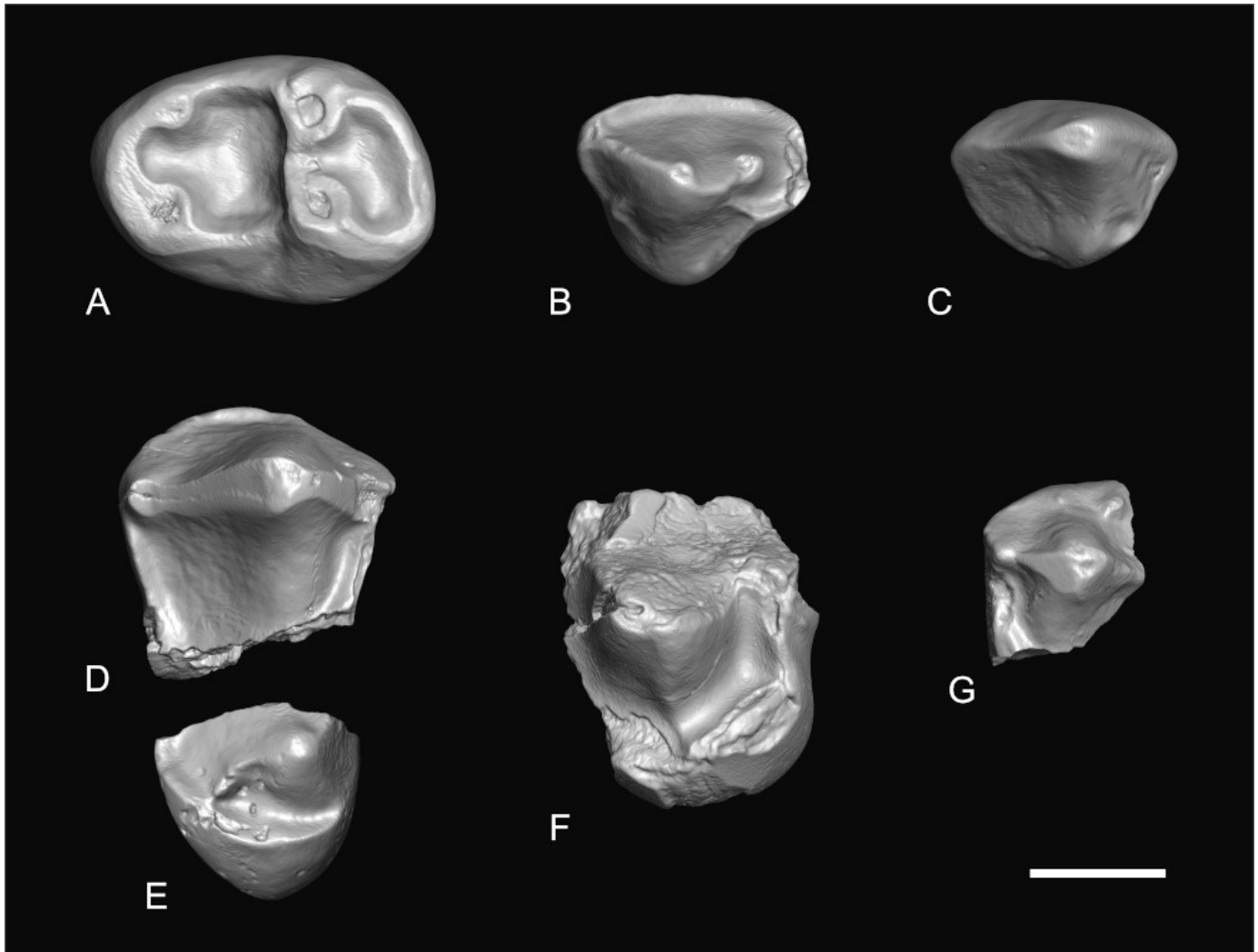


Figure 1. Fossil dental specimens of *Neosaimiri cf. fieldsi* from the late Middle Miocene (Laventan SALMA) of Tarapoto/Juan Guerra locus n°31 (TAR-31), San Martín Department, Peruvian Amazonia. **A)** MUSM-3888, right m3; **B)** MUSM-3890, left dp2; **C)** MUSM-3895, right DC1; **D)** MUSM-3893, buccal 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.