

3D models related to the publication: Postcranial morphology of the extinct rodent *Neopiblema* (Rodentia: Chinchilloidea): insights into the paleobiology of neopiblemids

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Abstract

This contribution contains the 3D models of postcranial bones (humerus, ulna, innominate, femur, tibia, astragalus, navicular, and metatarsal III) described and figured in the following publication: “Postcranial morphology of the extinct rodent *Neopiblema* (Rodentia: Chinchilloidea): insights into the paleobiology of neopiblemids”.

Keywords: Chinchilloidea, functional morphology, Giant rodents, Neogene, Solimões Formation.

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INTRODUCTION

Neopiblemids are South American caviomorph rodents closely related to extant Chinchillidae and Dinomyidae (Kerber et al. 2017, 2019a,b; Kerber and Sánchez-Villagra 2019; Rasia and Candela 2018; 2019; Busker et al. 2020). They are unequivocally recorded from the early to late Miocene of South America and are represented by *Perimys* (including several species) (early Miocene), *Doryperimys olscheri* (early Miocene), *Neopiblema horridula* (late Miocene), *Neopiblema acrensis* (late Miocene), *Phoberomys burmeisteri* (late Miocene), and *Phoberomys pattersoni* (late Miocene). The morphofunctional study of the postcranial bones of *Neopiblema* by Kerber et al. (2021) suggests that their morphological features are consistent with the limb morphology of ambulatory rodents, but with faculty to dig or swim. The sedimentary evidence of the localities in which fossils of neopiblemids have been found suggests that these rodents lived in wet and water-related environments (near swamps, lakes, and/or rivers). In this contribution, we make available the 3D models of postcranial bones of *Neopiblema* analyzed by Kerber et al. (submitted) (Fig. 1 and table 1).

METHODS

The specimens are housed at the paleontological collection of the Universidade Federal do Acre, Rio Branco, Brazil. They were recovered from outcrops of the Solimões Formation (Upper Miocene), Acre, Brazil. This sedimentary unit is exposed in the southwestern Brazilian Amazonia (states of Acre and Amazonas), mainly along the Acre, Juruá, and Purus rivers,

and in road cuts. The specimens were scanned using a laser scanner (Z-Scan 700) at the Centro de Apoio à Pesquisa Paleontológica/Universidade Federal de Santa Maria. The 3D surface models are provided in .ply format, and can, therefore, be opened with a wide range of freeware.

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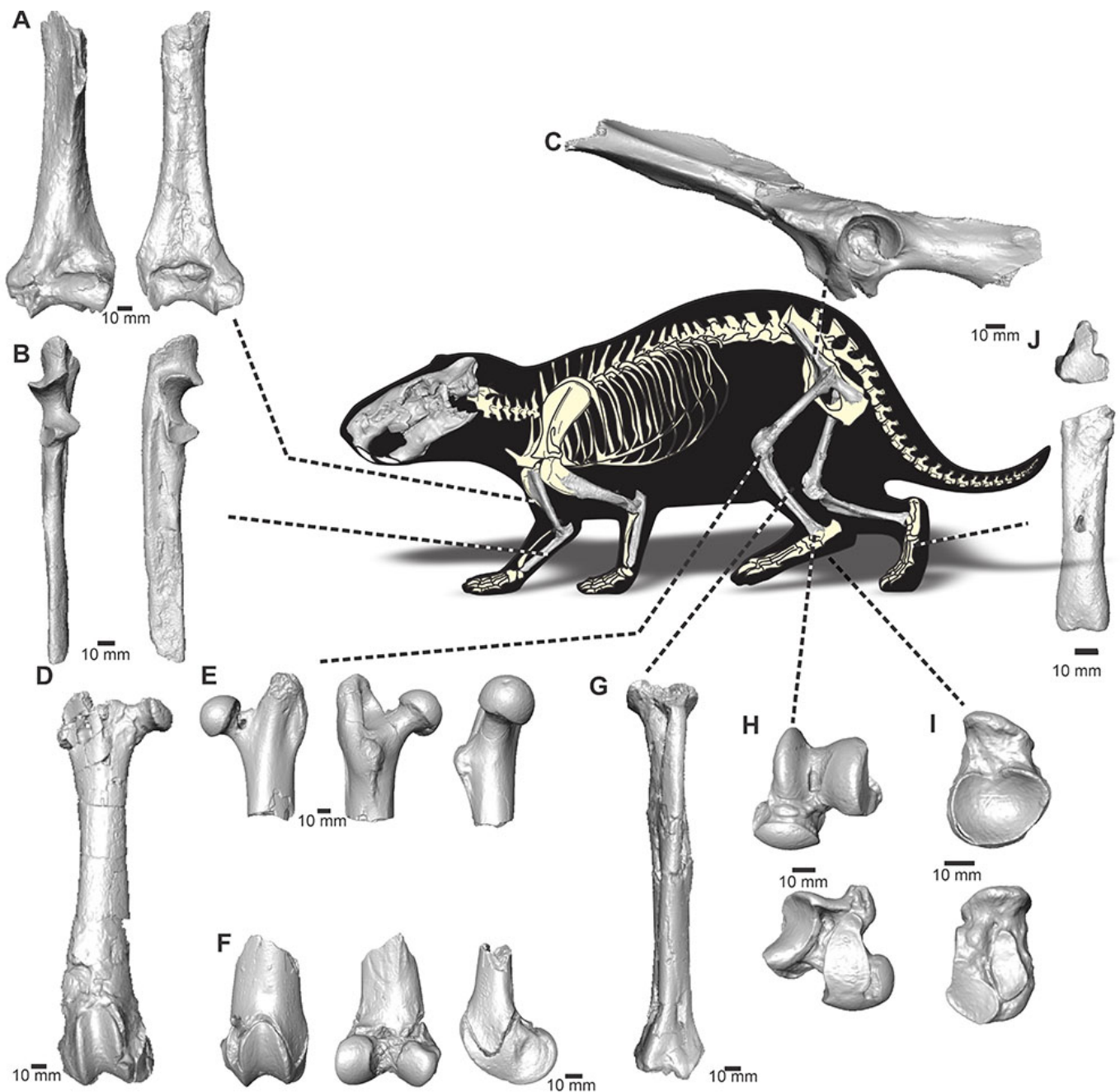


Figure 1. Composite skeleton of *Neopiblema acreeensis* based on several specimens from Niterói locality (Solimões Formation, Upper Miocene), Brazil and 3D models. **A**, UFAC 3549, left humerus (cranial and caudal views); **B**, UFAC 1939, right ulna (cranial and lateral views); **C**, UFAC 3697, right innominate (inverted) (lateral view); **D**, UFAC 2937, right femur (cranial view); **E**, UFAC 2574, left femur (cranial, caudal, and medial views); **F**, UFAC 2210, right femur (cranial, caudal, and medial views); **G**, UFAC 1887, right tibia (cranial view); **H**, UFAC 1840, left astragalus (dorsal and plantar views); **I**, Navicular – UFAC 3672, right navicular (proximal and distal views); **J**, UFAC 2116, left metatarsal III (proximal and dorsal views).

Inv nr.	Taxon	Description
UFAC3549	<i>Neoepiblema acreensis</i>	left humerus missing the proximal region.
UFAC5076	<i>Neoepiblema acreensis</i>	right humerus missing the proximal region.
UFAC1939	<i>Neoepiblema acreensis</i>	right ulna missing the olecranon epiphysis and the distal region.
UFAC3697	<i>Neoepiblema acreensis</i>	right innominate bone.
UFAC2574	<i>Neoepiblema acreensis</i>	proximal region of a left femur.
UFAC2937	<i>Neoepiblema acreensis</i>	right femur with damaged proximal region.
UFAC2210	<i>Neoepiblema acreensis</i>	distal region of a right femur.
UFAC1887	<i>Neoepiblema acreensis</i>	right tibia
UFAC1840	<i>Neoepiblema acreensis</i>	left astragalus.
UFAC2549	<i>Neoepiblema acreensis</i>	right astragalus.
UFAC3672	<i>Neoepiblema acreensis</i>	right navicular.
UFAC2116	<i>Neoepiblema acreensis</i>	left metatarsal III.
UFAC3260	<i>Neoepiblema horridula</i>	fragmented left innominate.
UFAC2620	<i>Neoepiblema horridula</i>	distal region of a right femur.
UFAC2737	<i>Neoepiblema horridula</i>	proximal region of right femur.
UFAC3202	<i>Neoepiblema horridula</i>	right tibia, missing the proximalmost and distal portions.
UFAC3212	<i>Neoepiblema horridula</i>	left astragalus.

Table 1. Specimen list. Collection: UFAC, paleontological collection of the Universidade Federal do Acre (Campus Rio Branco), Rio Branco, Brazil.

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