

# 3D models related to the publication: Miocene Moschidae (Mammalia, Ruminantia) from the Linxia Basin (China) connect Europe and Asia and show early evolutionary diversity of a today monogeneric family

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## Abstract

The present 3D Dataset contains 3D models of holotypes described in Aiglstorfer et al. (2023a). Miocene Moschidae (Mammalia, Ruminantia) from the Linxia Basin (China) connect Europe and Asia and show early evolutionary diversity of a today monogeneric family. Palaeogeography, Palaeoclimatology, Palaeoecology.

**Keywords:** dispersal, *Hispanomeryx*, “*Micromeryx*”, origin, saber tooth, systematics

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Inv nr.	Taxon	Description
IVPPV28596	<i>Hispanomeryx linxiaensis</i>	teeth, mandibule, and sediment.
CUGBGV87045	“ <i>Micromeryx</i> ” <i>caoi</i>	teeth, mandibule, and sediment.

**Table 1.** List of presented models of the holotype of *Hispanomeryx linxiaensis* (IVPP V28596) and “*Micromeryx*” *caoi* (CUGB GV87045). Collections: Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing, China (IVPP); China University of Geosciences, Beijing, China (CUGB)

## INTRODUCTION

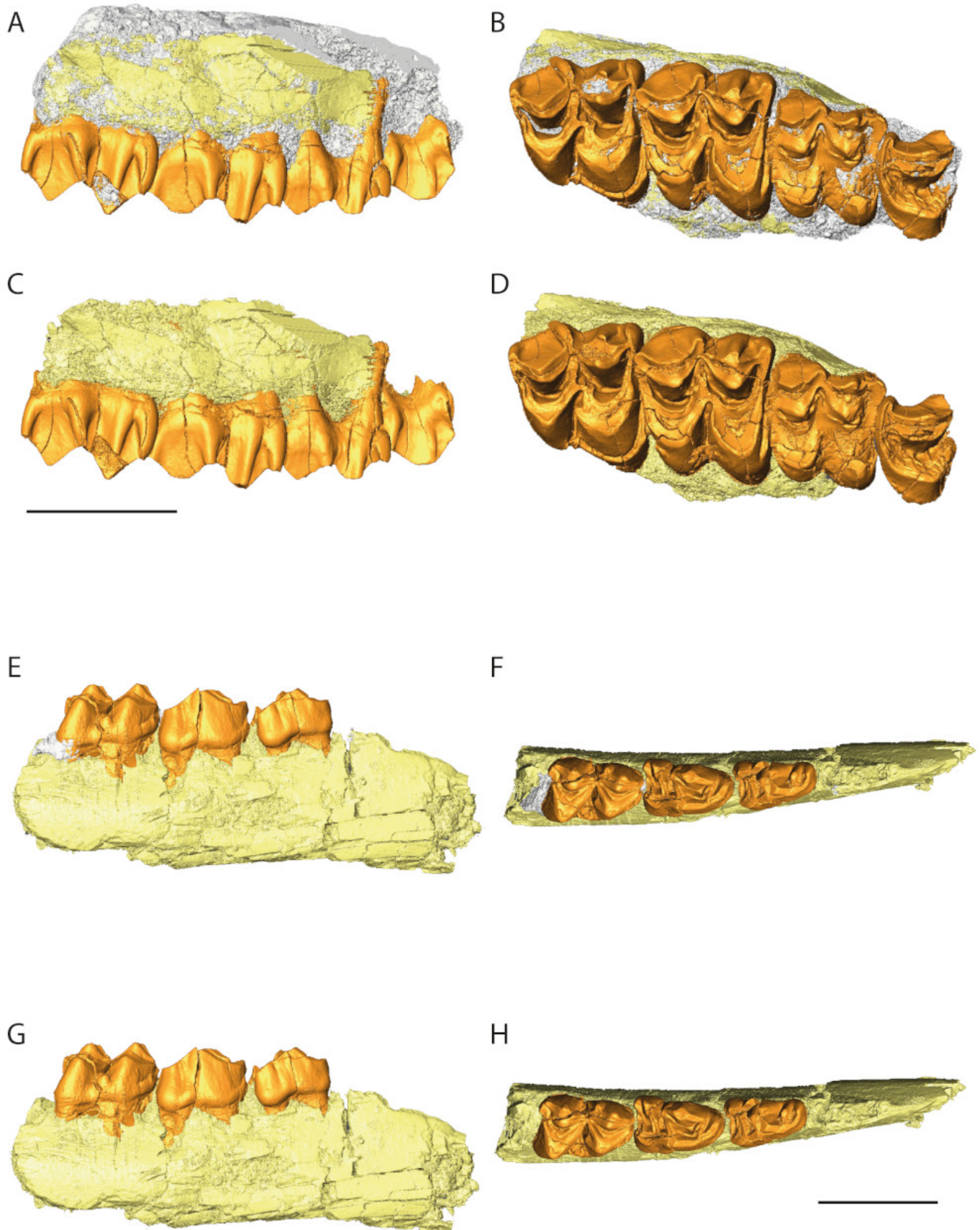
Moschidae saber-toothed ruminants are only represented by one genus today, *Moschus*. Despite abundant material in Europe, their origin and diversification remain relatively enigmatic due to the lack of an Early and Middle Miocene rich fossil record in Asia for this family, where they may have originated (Aiglstorfer et al. 2023b). To date, only one species of Moschidae (*Hispanomeryx andrewsi*) is described for this time interval in this area (Sánchez et al. 2011). The new species “*Micromeryx*” *caoi* (Figure 1, Table 1) shows affinities with the late Middle Miocene species of ‘*M.*’ *eiselei* from Steinheim am Albuch (Aiglstorfer et al. 2023a). The description of *Hispanomeryx linxiaensis*, the oldest known *Hispanomeryx* species, provides information concerning the origin of this genus and the early diversification of this family (Aiglstorfer et al. 2023a). With the help of phylogenetical analyses, we propose an Asiatic origin for the genus *Hispanomeryx*. The Asian clade shows a more basal morphology than the younger species known from Europe.

## METHODS

The specimen IVPP V28596 examined here is housed at Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing, China (IVPP). The specimen CUGB GV87045 examined here is housed at China University of Geosciences, Beijing, China (CUGB). Micro-CT scanning of the samples were done at the IVPP. The samples were imaged using high resolution micro computed tomography system (Nikon Metrology HMX-ST 225). Projection images on CCD camera were obtained at 160kV and 140μA with resolution of 19.530 μm. 2500 image projections were acquired during 360° rotation of sample. The software phoenix datosx 2 rec was used to construct a stack of 2-D sections from this series of projection images from each sample. The 3D surfaces of the teeth, the mandibles, and the sediment were extracted semi-automatically within AVIZO 9.0 using the segmentation threshold selection tool. All 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.** 3D models of the holotypes of *Hispanomeryx linxiaensis* (IVPP V28596; A-D) and "*Micromeryx*" *caoi* (CUGB GV87045; E-H) with (A-B, E-F) and without (C-D, G-H) sediment in labial (A & C and E & G) and occlusal (B & D and F & H) views. Scale bare is 1 cm.

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