3D models related to the publication: A *Dorcatherium* (Mammalia, Ruminantia, middle Miocene) petrosal bone and the tragulid ear region.

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Abstract

The present 3D Dataset contains the 3D models analyzed in the article Mennecart, B., and L. Costeur. 2016. A *Dorcatherium* (Mammalia, Ruminantia, Middle Miocene) petrosal bone and the tragulid ear region. Journal of Vertebrate Paleontology 36(6), 1211665(1)-1211665(7). DOI: 10.1080/02724634.2016.1211665.

Keywords: inner ear, Miocene, phylogeny, ruminant

Model IDs	Taxon	Short description
M3#119_10028	*Tragulus javanicus*	left bony labyrinth
M3#120_C.2453	*Moschiola meminna*	left bony labyrinth
M3#122_C.1930	*Hyemoschus aquaticus*	right bony labyrinth
M3#123_San.15053	*Dorcatheriun crassum*	right bony labyrinth

Table 1. List of models

INTRODUCTION

We compared the morphology of the bony labyrinth of the extinct *Dorcatherium crassum* with those of three living Tragulidae: *Tragulus javanicus*, *Hyemoschus aquaticus*, and *Moschiola meminna* (see Table 1). We ran a phylogenetic analysis where fossil and extant pecoran ruminants were included to understand the distribution of characters of the petrosal bone and bony labyrinth within ruminants (Fig. 1). We propose a set of new synapomorphies for the Tragulidae among the Ruminantia. We demonstrate the potential of characters of the bony labyrinth for the phylogeny of ruminants (Mennecart Costeur 2016, Mennecart et al. 2016).

METHODS

The 3D surfaces were extracted within AVIZO 7.0 (Visualization Sciences Group) using the segmentation threshold selection tool. The 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware.
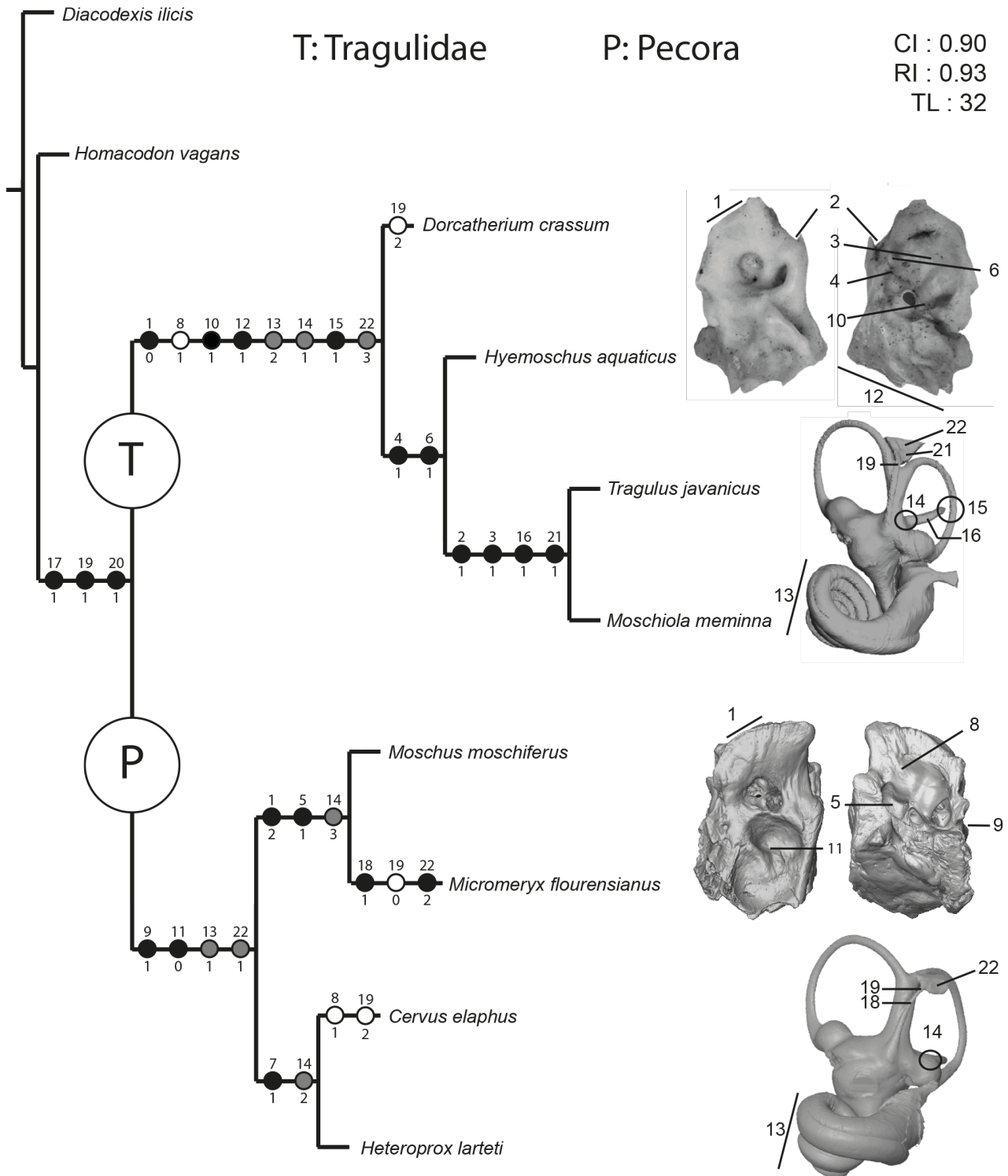
BIBLIOGRAPHY

Mennecart, B., and L. Costeur. 2016. A *Dorcatherium* (Mammalia, Ruminantia, Middle Miocene) petrosal bone and the tragulid ear region. Journal of Vertebrate Paleontology 36(6), 1211665(1)-1211665(7). DOI: 10.1080/02724634.2016.1211665.

Mennecart, B., Rössner, G. E., Métais, G., DeMiguel, D., Schultz G., Müller, B., and Costeur, L. 2016 The petrosal and bony labyrinth of Early to Middle Miocene European deer (Mammalia, Cervidae) reveal their phylogeny. Journal of Morphology 277, 1329-1338. DOI: 10.1002/jmor.20579.

Figure 1. Cladistic analysis of the ruminants based on the morphology of the petrosal bone and the bony labyrinth (modified from Mennecart Costeur 2016). See also Appendix 1 and Supplemental Data from Mennecart Costeur 2016 for details of the characters and character states.