



## An updated taxonomic view on the family Gomphotheriidae (Proboscidea) in the final Pleistocene of south-central Chile

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With 5 figures and 4 tables

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LABARCA ENCINA, R. & ALBERDI, M.T. (2011): An updated taxonomic view on the family Gomphotheriidae (Proboscidea) in the final Pleistocene of south-central Chile. – N. Jb. Geol. Paläont. Abh., 262: 43–57; Stuttgart.

**Abstract:** There is an abundant fossil record of the family Gomphotheriidae in Chile, which is entirely ascribed to the late Pleistocene. Despite this, the lack of taxonomically diagnostic material has led to an extended discussion, which has not reached a consensus regarding the number of forms of gomphotheres effectively present. This paper discusses the taxonomy of Chilean gomphotheres, based on tooth morphology and biometry, paleoecological and biogeographical data. The morphology of the tusks indicates the presence of the *Stegomastodon* genus in Chile, while bivariate and multivariate analyses of the teeth show an important amount of variability within the studied sample, although with a tendency towards larger sizes for the genus *Stegomastodon* and the Chilean samples than for *Cuvieronius*, especially among the M3s and m3s. In spite of this, in this paper only the specimens from localities that yielded molars associated with tusks are assigned to the genus *Stegomastodon*. Biogeographic information is consistent with the presence of a lowland-adapted taxon such as *Stegomastodon*, which could have reached the Chilean territory either through an Andean corridor from Argentina, or through a low-altitude route from Peru, then by the northern region of Chile. Bibliographic isotopic data also indicates an adaptive change to C3 feeding along a latitudinal gradient, around 35–41°S, which makes the Chilean and south Argentinean results quite similar at these latitudes. Due to the metric variability observed, the Chilean samples could not be assigned to individual species.

**Key words:** Late Pleistocene, south-central Chile, taxonomy, *Stegomastodon*.

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### 1. Introduction

The family Gomphotheriidae is known from South America from the middle Pleistocene up to the early Holocene, through the genera *Cuvieronius* and *Stegomastodon* (PRADO et al. 2005). Both were part of an ancestral stock that came from North America, and which would have spread across the subcontinent after the rising of the Panamanian isthmus (PRADO et al. 2005). Osteomorphological studies have recognized the presence of only three species: *C. hyodon* FISCHER, 1814, *S. platensis* AMEGHINO, 1888 and *S. waringi* HOL-

LAND, 1920, thus simplifying the taxonomy of a group that had a great diversity during the North American late Clarendonian up to the early Hemphillian Stages (Upper Miocene between 9 and 8–7 Ma, Chasicuan – Huayquerian transition) (ALBERDI et al. 2002; PRADO et al. 2005; LAMBERT & SHOSHANI 1998).

In Chile, the record of gomphotheres is the most abundant among Pleistocene mammals, with more than 50 localities where specimens have been found (CASAMIQUELA 1999; FRASSINETTI & ALBERDI 2000, 2005; Moreno et al. 1991), most of them ascribed to the late Pleistocene (CASAMIQUELA 1999; FRASSINETTI &