



A new thylacosmilid (Mammalia, Metatheria, Sparassodonta) from the Miocene of Patagonia, Argentina

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Abstract

A new genus and species, *Patagosmilus goini*, of the family Thylacosmilidae (Mammalia, Metatheria, Sparassodonta) is described here. The new taxon is based on a single specimen collected from the west margin of the Río Chico, in Río Negro Province, Argentina, from the middle Miocene Colloncuran SALMA. Until now, two formally recognized species were encompassed in the family Thylacosmilidae: *Thylacosmilus atrox*, from the late Miocene-late Pliocene Huayquerian to Chapadmalalan SALMA of Argentina and probably Uruguay; and *Anachlysictis gracilis*, from the middle Miocene Laventan SALMA of Colombia. Recognition of the Patagonian taxon, *Patagosmilus*, provides new anatomical data, likely to be included in future phylogenetic analyses. The overall morphology of *Patagosmilus* suggests that it has a more generalized anatomy than *Thylacosmilus*. The dental morphology suggests the new Patagonian taxon was probably closer to *Thylacosmilus* than *Anachlysictis*. Saber-tooth thylacosmilids have several autapomorphic features in the skull that differentiate them from other sparassodonts, including the delayed replacement or non-replacement of the deciduous last premolar.

Key words: saber-tooth metatherians, Cenozoic, South America

Introduction

The family Thylacosmilidae (Mammalia, Metatheria, Sparassodonta) has one of the most bizarre morphologies among the native Neogene predators of South America. The overall cranial morphology of thylacosmilids resembles that of saber-tooth felids (Eutheria, Felidae, Machairodontinae) in that both acquired large hypertrophied upper canines, a classic example of convergent evolution (e.g., Riggs 1933, 1934; Simpson 1971; Marshall 1976, 1977; Turnbull 1978; Turnbull & Segall 1984; Churcher 1985). Thylacosmilids belong to the monophyletic Sparassodonta (Marshall *et al.* 1990; Muizon 1999; Forasiepi 2009), all with carnivorous adaptive features, but different levels of specialization (e.g., Marshall 1976, 1977, 1978). Sparassodonts evolved in South America over 55 million years, from the Paleocene to the Pliocene. Thylacosmilids represent the last large-sized members of the group and the last large metatherians that inhabited South America. After their extinction, (i.e., from Chapadmalalan SALMA to present), South American metatherians are small- to medium-sized marsupials with a mostly generalized appearance, such as the living opossum, “monito de monte”, and shrew opossums (i.e., Didelphimorphia, Microbiotheria, and Paucituberculata, respectively).

The family Thylacosmilidae (Riggs 1929; see also Riggs 1933, 1934 ranked as subfamily) was originally created to accommodate a single genus: *Thylacosmilus* Riggs 1933. Several authors assigned different species to this genus (Riggs 1933, 1934; Riggs & Patterson 1939) or considered other genera closely related to it (Reig 1958; Kraglievich 1960; Ringuelet 1966; Marshall 1976). Despite these taxonomic proposals, there is at present a general consensus that all late Miocene and Pliocene remains from Argentina belong to a single species: *T. atrox* Riggs 1933 (= *Achlysictis lelongi* Ameghino 1891; see Goin & Pascual 1987 for a review of