



THE TINGUIRIRICA FAUNA OF CHILE AND THE EARLY STAGES OF “MODERNIZATION” OF SOUTH AMERICAN MAMMAL FAUNAS¹

(With 7 figures)

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ABSTRACT: The evolution of South American Cenozoic mammal communities is generally seen as encompassing three distinct “faunal strata”. The recently formalized Tinguirirican South American Land Mammal “Age” (SALMA) represents the earliest interval within Simpson’s second faunal stratum and presents an exceptional opportunity to investigate a remarkable period of faunal “modernization” in South America. Of the 25 species currently recognized from the Tinguiririca Fauna, 17 are notoungulates, illustrating the group’s diversity and abundance during this interval. Two-thirds of notoungulate species are hypsodont, in marked contrast with earlier faunas, indicating the nearly simultaneous convergent appearance of this feature in several notoungulate clades. The most diverse and abundant notoungulates at Tinguiririca are archaeohyracids (six species, the highest diversity for any locality known to date), notohippids (four species), and intertheriids (two species). Large, brachydont notoungulates are scarce. In addition to the fauna from the type locality in central Chile, several Patagonian faunas of Tinguirirican age provide important complementary taxonomic and biogeographic data. Hegetotheriids are absent from the Tinguiririca Fauna but are reported from Tinguirirican faunules in Patagonia. Trachytheriine mesotheriids are uncommon during the Tinguirirican; they have previously been reported only from Rocas Bayas in Rio Negro, though a recently prepared Chilean specimen indicates presence of the group just north of Tinguiririca during this SALMA. Faunal hypsodonty, cenograms, and rainfall estimates have previously been used to suggest that the Tinguiririca Fauna is the earliest open-habitat community in South America. This conclusion is corroborated herein through an ecological diversity analysis (EDA) that consolidates browsers and grazers into a single dietary category, to counter potential errors in hypsodonty-based dietary interpretations of extinct taxa. The statistically significant results of a multivariate discriminant model based on this EDA confirm the resemblance of the Tinguiririca Fauna to modern open habitat communities, further supporting the presence of open habitats in high latitude South America by earliest Oligocene time, despite the apparent lack of a substantial regional climatic shift across the Eocene-Oligocene Transition in Argentine Patagonia.

Key words: South American Land Mammal “Age”. Notoungulate. Ecological diversity analysis. Tinguiririca Fauna. Chile.

RESUMO: A Fauna de Tinguiririca do Chile e os primeiros estágios de “modernização” das faunas de mamíferos sul-americanos.

A evolução das comunidades de mamíferos cenozóicos sul-americanos é geralmente vista como abrangendo três “estratos faunísticos” distintos. A recentemente formalizada “Idade” Tinguiririquense de Mamíferos Terrestres Sul-americanos representa o intervalo mais antigo do segundo estrato faunístico de Simpson e fornece uma oportunidade excepcional para se investigar um período notável de “modernização” faunística na América do Sul. Das 25 espécies atualmente reconhecidas para a Fauna de Tinguiririca, 17 são de notoungulados, ilustrando a diversidade e a abundância do grupo durante este intervalo. Dois terços das espécies de notoungulados são hipsodôntes, em contraste marcante com as faunas mais antigas, indicando um surgimento convergente quase simultâneo desta característica em vários clados de notoungulados. Os mais diversos e abundantes notoungulados em Tinguiririca são os representantes de Archaeohyracidae (seis espécies, a mais alta diversidade para qualquer localidade conhecida), de Notohippidae (quatro espécies), e de Intertheriidae (duas espécies). Notoungulados de grande porte braquiodôntes são raros. Além da fauna da localidade tipo no centro Chile, várias faunas da Patagônia, de idade Tinguiririquense, fornecem importantes dados taxonômicos e biogeográficos complementares. Os representantes de Hegetotheriidae estão ausentes

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