The Rodent Fauna of Pampa Castillo (Chile) and its Implications for Early Miocene Biochronology

(La Fauna de Roedores de Pampa Castillo (Chile) y sus Implicaciones para la Biocronología del Mioceno Temprano)

[1]Andrew J. McGrath, [2]John J. Flynn, [3]Darin A. Croft, and [1]André R. Wyss

[1]Department of Earth Sciences, University of California - Santa Barbara, Santa Barbara, CA 93106 U.S.A.

[2]Division of Paleontology and Richard Gilder Graduate School, American Museum of Natural History, Central Park West at 79th St., New York, NY, 10024-5192 U.S.A.

[3]Department of Anatomy, Case Western Reserve University School of Medicine, 10900 Euclid Ave., Cleveland, OH 44106-4930 U.S.A.

The diversity and general abundance of caviomorph rodent fossils contribute to their biochronological utility in the Cenozoic of South America. The early Miocene Pampa Castillo fauna [PCF], from the Aysén Region, Chile, includes a rich rodent assemblage (14 genera; 19 species) representing all four major caviomorph clades: Cavioidea, Chinchilloidea, Erethizontoidea, and Octodontoidea. A minimum of two new species are represented. More than half of all collected specimens represent *Neoreomys australis*.

We incorporated the rodent fauna from Pampa Castillo and those from ten other sites spanning the early–middle Miocene (Colhuehuapian, Santacrucian, and Colloncuran South American Land Mammal “Ages” [SALMAs]) in a hierarchical cluster analysis to address persisting biochronological uncertainties, including the validity of the contested ‘Pinturan’ interval. Our results corroborate earlier findings that the PCF is assignable to the Santacrucian SALMA. Its precise relationship to other individual Santacrucian faunas hinges on whether genus- or species-level data are used. Genus-level analyses indicate that the PCF is most similar to faunas generally assigned to the ‘Pinturan,’ whereas in species-level comparisons, PCF clusters with the ‘typical Santacrucian’ faunas from the Santa Cruz Formation in Argentina. The PCF unmistakably contains a mosaic of ‘Pinturan’ and ‘typical Santacrucian’ taxa. Species provide finer resolution than genera, given their typically shorter temporal durations, suggesting that the species-level results are more reliable. This result, along with recently published geochronological data, weaken the view that ‘Pinturan’ and ‘typical Santacrucian’ faunas represent distinct biochrons. Accordingly, we recommend that all proposed ‘Pinturan’ faunas be considered as pertaining to the Santacrucian SALMA.