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A Paleogene chondrichthyan assemblage from central Chile supports a latitudinal and temporal boundary of the Weddellian Province along the southeastern Pacific

Rodrigo A. Otero, Sergio Soto-Acuña, Raúl Ugalde P., and Héctor Ortiz
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The locality of Algarrobo in central Chile, has yielded a rich Late Cretaceous fossil assemblage that enriched the knowledge of the vertebrate diversity in the context of the Weddellian Biogeographic Province, by providing midlatitude records comparable to coeval taxa found in subantarctic paleolatitudes. In this sense, Algarrobo represents the northernmost Late Cretaceous available locality that can be included as part of the Weddellian Biogeographic Province. Before this research, post-Cretaceous vertebrate records from Algarrobo were limited to the mention of chondrichthyan teeth which remained undescribed, without detailed stratigraphic provenance, nor additional context. Unusual high-energy tide conditions during 2024 caused the removal of most algae that permanently cover the fossiliferous sediments exposed in the coastal platform. This allowed the recovery of the first Paleogene chondrichthyan assemblage from Algarrobo. Available material includes *Abdounia beaugei*, aff. *Carcharhinus* sp., *Cretolamna* sp., *Xiphodolamia* sp., *Striatolamia macrota*, *Carcharias* sp., *Rhinoptera* sp., and *Sulcidens sulcidens*. The combined biochron of these taxa supports the occurrence of Ypresian levels in the studied unit, extending the age interval of the fossil-bearing informal unit (Algarrobo Beds) to the lower–upper Eocene, thus, implying a hiatus of ca. 12–14 Ma with respect to the Upper Cretaceous underlying levels. The paleogeographic distribution of the recognized taxa shows affinities with Europe and north Africa. This interchange reinforces the hypothesis of a late Paleogene chondrichthyan turnover along the southeastern Pacific, based on upper Paleocene–lower Oligocene assemblages recognized in southern localities of the Pacific margin. The studied fauna complements an emerging picture for the temporal and geographical declination of the Weddellian Province, likely beginning during the late Paleocene, and acquiring a more marked Atlantic influence during the Eocene–Oligocene.

Key words: Chondrichthyes, biogeography, Paleogene, Weddellian Province, Chile, South America.

Rodrigo A. Otero [otero2112@gmail.com; ORCID: https://orcid.org/0000-0002-3046-2973], Red Paleontológica U-Chile, Laboratorio de Ontogenia y Filogenia, Departamento de Biología, Facultad de Ciencias, Universidad de Chile, Las Palmeras 3425, Ñuñoa, Santiago, Chile; Nucleus Early Evolutionary Transitions

of Mammals, ANID, Chile; Museo de Historia Natural y Cultural del Desierto de Atacama. Interior Parque El Loa s/n, Calama, Chile. Sergio Soto-Acuña [sesotacu@ug.uchile.cl ; ORCID: https://orcid.org/0000-0002-9311-9355], Paleontológica Red U-Chile, Laboratorio de Ontogenia y Filogenia, Departamento de Biología, Facultad de Ciencias, Universidad de Chile, Las Palmeras 3425, Ñuñoa, Santiago, Chile; Nucleus Early Evolutionary Transitions of Mammals, ANID Chile; Escuela de Medicina Veterinaria, Pontificia Universidad Católica de Chile. Benito Rebolledo 2054, Macul, Santiago, Chile; Kaytreng Consultores en Paleontología SpA. Ñuñoa, Santiago, Chile. Raúl Ugalde P. [raul.ugalde@umayor.cl; ORCID: https://orcid.org/0000-0002-8085-8909], Nucleus Early Evolutionary Transitions of Mammals, ANID Chile; Kaytreng Consultores en Paleontología SpA. Ñuñoa, Santiago, Chile; Escuela de Geología, Facultad de Ciencias, Ingeniería y Tecnología, Universidad Mayor, Camino La Pirámide 5750, Huechuraba, Santiago, Chile; PEDECIBA Geociencias, Facultad de Ciencias, Universidad de la República, Iguá 4225, Montevideo, Uruguay. Héctor Ortiz [hctros@gmail.com ; ORCID: https://orcid.org/0000-0001-6010-3990], Red Paleontológica U-Chile, Laboratorio de Ontogenia y Filogenia, Departamento de Biología, Facultad de Ciencias, Universidad de Chile; Las Palmeras 3425, Ñuñoa, Santiago, Chile; Nucleus Early Evolutionary Transitions of Mammals, ANID, Chile.

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