

## **PARALLELISMS BETWEEN FOSSIL AND EXTANT FAIRY ARMADILLOS (CHLAMYPHORINAE, CINGULATA): TRACKING ITS EVOLUTIONARY HISTORY**

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### **RESUMO**

Among Cingulata (Xenarthra), the Chlamyphoridae represent the last recognized subfamily and, according to molecular data, the last to have diverged. Their representatives are commonly known as fairy armadillos or "pichiciegos", and are considered one of the most elusive living mammals. The current diversity includes two allopatric species: *Chlamyphorus truncatus* Harlan, 1825 (pink fairy armadillo or lesser "pichiciego"), restricted to central Argentina, inhabiting dry grasslands and sandy plains, and *Calyptophractus retusus* Burmeister, 1863 (greater "pichiciego"), distributed along the Gran Chaco in northern Argentina, western Paraguay and southern Bolivia, inhabiting in soft sandy soil environments. Though it is believed that some anthropic activities such as agricultural development and livestock farming represent potential threats to their populations due to habitat loss, the reality is that both species are classified as Data Deficient by the IUCN Red List. This is due, particularly, to the great sampling challenges derived from the fossorial and nocturnal habits of these armadillos, which are believed to have naturally low population densities. From a paleontological perspective, fossils of Chlamyphorinae are extremely scarce. All remains, recovered from Central Argentina, belong to the recently described taxon *Chlamyphractus dimartinoi* (Barasoain, Tomassini, Zurita, Montalvo and Superina, 2020). This extinct taxon shows, unlike living fairy armadillos, a thick dorsal carapace, a well-defined ornamentation pattern on the exposed surface of the osteoderms and rump plate, and a more horizontal position of the rump plate. The great morphological affinity of the mandible and molariforms between fossil and living species suggests similar diet habits. However, the postcranial anatomy (e.g. humerus, dorsal carapace, and rump plate) suggests that *Chlamyphractus* would have been a good digger, but, unlike extant species, would not have had "fully" subterranean habits. Records of *Chlamyphractus* are restricted, at the moment, to the late Miocene (~9-10 Ma.) of Buenos Aires, La Pampa, and San Juan provinces. At this point, it is noteworthy that the provenance of all fossil records coincides with the current geographical distribution range of *Chlamyphorus truncatus*; hence, it is possible to infer the presence of chlamyphorines along most part of central Argentina at least for the last ~10 Ma. Contrary to date, no fossil records have been found in other Cenozoic deposits within the range of *C. retusus*. These records are, however, still so scarce to propose specific hypotheses on the evolution of this lineage, particularly because there is an important gap in

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the fossil record from the late Miocene to recent. Even though the available data of fossil chlamyphorines can still be considered as insufficient, the increasing knowledge of their evolutionary history, biogeography, biology, and ecology can eventually derive in the development of effective conservation strategies.

**PALAVRAS-CHAVE:** Chlamyphorinae, Cingulata, Diversity, Miocene

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