

CHINCHILLIDS FROM NORTHERN CHILE AND SOUTHERN BOLIVIA

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Chinchillidae (Caviomorpha: Chinchilloidea) includes six extant species traditionally divided into: (1) Lagostominae, including the plains viscacha (*Lagostomus maximus*); and (2) Chinchillinae, including chinchillas (*Chinchilla* spp.) and mountain viscachas (*Lagidium* spp.). The chinchillid fossil record extends to the early Oligocene, and nearly all early fossil species have been referred to the Lagostominae based on their bilaminar (rather than trilaminar) cheek teeth. Flynn et al. (2002) reported a new chinchillid species from the late early Miocene of northern Chile (Chucal) and provisionally referred it to the Chinchillinae based on its trilaminar cheek teeth. This is the only pre-Pleistocene species referred to the subfamily. Additional remains of this species have expanded knowledge of its anatomy, revealing that it retains several ancestral character states of outgroups that are not seen among extant chinchillids and/or chinchillines, including an unreduced masseteric crest, coronoid process, and anterior zygomatic arch. Phylogenetic analyses of the new Chucal species, based on a modified version of the chinchilloid character-taxon matrix of Kramarz et al. (2013), suggest that the Chucal species diverged prior to the most recent common ancestor (MRCA) of extant chinchillids. In the Adams and majority-rule (MR) consensus trees of the 30 most-parsimonious trees, the Chucal species is basal to a polytomy that includes *Eoviscaccia*, *Prolagostomus*, and extant chinchillids but is crownward of the recently described early Miocene species, *Garridomys curunuquem*. In the strict consensus tree, *Garridomys*, the Chucal species, and the aforementioned polytomy are basal branches of a larger polytomy that includes *Scleromys osborni*, “*Scleromys*” *schurmanni*, and a clade that includes *Neoepiblema*, *Dinomys*, and *Tetrastylus*. Importantly, the Chucal species is not closely allied with extant chinchillines in any of the 30 most-parsimonious trees. If the Adams/MR topology is correct, then hypselodonty arose as many as three times independently among chinchillids (in the Chucal lineage and once or twice in chinchillines and lagostomines) or it originated once and was lost in *Eoviscaccia*. Recent field investigations in Bolivia have revealed a second member of the Chucal chinchillid lineage represented by a complete palate from Nazareno (early middle Miocene?) and 6 partial dentaries from Quebrada Honda (late middle Miocene). The Bolivian species has more obliquely oriented laminae than the Chucal species, a configuration divergent from, rather than convergent with, modern chinchillines. Together, the new Chucal and Bolivian species document a hitherto unrecognized chinchillid stem lineage that existed in the middle latitudes of South America for at least 6 million years. The phylogenetic relationships of this lineage suggest that it may have existed since the late Eocene, perhaps in as yet-unsampled low-latitude regions of South America, given its absence from the late Oligocene midlatitude Bolivian sites of Salla and Lacayani.

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Kramarz, A.G., Vucetich, M.G. and Arnal, M. 2013 A new early Miocene chinchilloid hystricognath rodent; an approach to the understanding of early chinchillid dental evolution. *Journal of Mammalian Evolution* 20: 249–61.

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