

EARLY TO MIDDLE MIOCENE MAMMAL COMMUNITIES IN THE MIDDLE LATITUDES OF THE NEOTROPICS

Darin A. CROFT¹ and Federico ANAYA²

¹*Dept. of Anatomy, Case Western Reserve University, 10900 Euclid Ave., Cleveland, Ohio, 44106-4930, USA, dcroft@case.edu;* ²*Facultad de Ingeniería Geológica, Universidad Autónoma Tomás Frías, Potosí, Bolivia.*

Southern South America has long been a model to illustrate broader trends in Cenozoic mammal communities. Nevertheless, much of South America lies north of the Southern Cone. Whether patterns in southern mammal communities are representative of those in the Neotropics is not known. The present study compares characteristics of early to middle Miocene mammal communities from the middle latitudes to those elsewhere in South America. We define middle latitude faunas as those from 15° to 30° S; high latitude faunas are south of 30° S, and low latitude faunas are north of 15° S. These divisions are primarily based on spatial gaps in sampling during this interval and characteristics of faunas within each region.

The late early Miocene fauna of Chucal, Chile shares roughly 60% of genera with classic Santacrucian SALMA localities, but many fewer genera and families of mammals have been recorded in total. This may be partly due to fewer identified specimens, but even Santa Cruz museum collections of similar size include more genera and families. More recent and carefully documented collections from Santa Cruz show more limited taxonomic breadth, indicating that older collections may include time and/or habitat-averaging. Nevertheless, the mammal fauna of Chucal and other factors suggest a mostly open but not arid habitat in northern Chile, contrasting with the more mixed vegetation inferred for southern Patagonia. Thus, both ecological and biogeographic factors likely contribute to faunal differences between these middle and high latitude localities. Slight temporal differences may be an additional factor.

The early middle Miocene (Colloncuran?) fauna of Cerdas, Bolivia shares about 50-70% of genera with the roughly coeval faunas of Collón-Curá (Colloncuran SALMA) and Río Frías (Friasian s.s. SALMA). It differs from both localities and instead resembles Chucal in its very abundant mesotheriid notoungulates, an apparently biogeographic characteristic shared by most middle latitude faunas.

The late middle Miocene (Laventan SALMA) fauna of Quebrada Honda, Bolivia shares only 13 percent of genera with the coeval fauna of La Venta, Colombia. The diverse fauna of Quebrada Honda suggests a predominantly open habitat, and a recent ecological diversity analysis highlighted similarities with Australian open habitat faunas. This habitat contrasts markedly with the complex vegetational mosaic of La Venta, indicating both ecological and biogeographic differentiation of these two faunas. El Petiso, a potentially coeval Patagonian fauna, has not yet been studied in sufficient detail to permit faunal or ecological comparisons, though a recently named cavioid occurs at Quebrada Honda and El Petiso but not La Venta.

A moderately well-sampled fauna derives from Nazareno, Bolivia. Most of the fauna is older than 12.79 Ma (Horton 1998), though the total time span represented is unknown. Its fauna is very similar to that of Cerdas, including at least six shared genera, and differs markedly from Quebrada Honda. This suggests an early middle Miocene age and corroborates its referral to the Colloncuran SALMA as suggested by Oiso (1991).

Horton, B.K. 1998. Sediment accumulation on top of the Andean orogenic wedge: Oligocene to late Miocene basins of the Eastern Cordillera, southern Bolivia. *GSA Bulletin* 110: 1174-1192.

Oiso, Y. 1991. New land mammal locality of middle Miocene (Colloncuran) age from Nazareno, southern Bolivia. In: R. Suárez-Soruco (Ed.) *Fofoiles y Facies de Bolivia*—Vol. I Vertebrados. Yacimientos Petrolíferos Fiscales Bolivianos, Santa Cruz, pp 653–672.