

## MAMMALIAN DIVERSITY PATTERNS OF ASIA THROUGH THE CENOZOIC

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The fossil record of terrestrial mammals can reflect large scale diversity patterns and processes, provided there is an adequate amount of preservation and sampling. The fossil record in North America is one such example that has yielded much information and has been investigated extensively. Asia, in contrast, contains a rich fossil record but has not been thoroughly studied. The Asian record of mammalian occurrences has been used to explore the possible processes behind the diversity patterns seen for various mammalian orders. Such processes include abiotic factors such as climatic and environmental changes, biogeographical causes like interchanges and dispersal between different areas, and ecological factors in local or widespread populations (e.g., competition and replacement).

There are distinctive patterns of diversity for mammals in Asia through the Cenozoic. The species and generic diversities for all mammals follow a logistic curve, implying that the mammalian radiation reached a limit in the late Paleogene. Individual orders, however, do not all follow this pattern. Numbers of species and genera within many orders radiate quickly and then decrease just as rapidly. This may be a true reflection of extinction, but more likely is following a pattern of the number of localities sampled for particular time intervals. An abrupt decrease of diversity in the late Miocene that is related to other than the number of localities suggests a significant extinction event. Although a possible cause is the geographic distribution of the localities, another possible effect is the climate change occurring near lower latitudinal regions. Patterns of replacement are seen, especially among ungulates. However, similar patterns are not detected between the Carnivora and Creodonta.

These data were also used to examine specific questions about the Carnivora. The carnivoran record is complete enough to give a signal as strongly as other major groups with larger populations such as ungulates. It appears that the carnivoran diversity pattern follows that of potential prey organisms.