

## Cretaceous Mammals of Eurasia and North America

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Mammalian faunas underwent dramatic change over the course of the nearly 80 Ma-long Cretaceous Period. Late Jurassic and earliest Cretaceous assemblages are dominated by extinct groups of small, insectivorous forms ('symmetrodonts,' dryolestoids, and basal zatherians), with lesser numbers of presumed omnivores (docodonts, plagiaulacidan multituberculates) and carnivores (eutricodonts). By the end of the Cretaceous, archaic groups had disappeared, cimolodontan multituberculates proliferated, and modern groups, the therians, had diversified. As currently known, the patterns of diversification and extinction vary between the major northern landmasses.

Most of the morphologically informative specimens come from Asia, whereas North America has yielded the most taxonomically diverse, stratigraphically complete record of mammalian faunas. In both Eurasia and North America, archaic groups including eutricodonts, plagiaulacidan multituberculates, and basal trechnotheres (dryolestoids, spalacotherioids) remained well represented through the Early Cretaceous. Therians, which first appear in the Late Jurassic of China, are represented by basal Metatheria and Eutheria on both landmasses by the Aptian-Albian. Large-bodied carnivorous eutricodonts appeared on both landmasses at this time, with Gobiconodontidae represented in Eurasia (also present, presumably as an immigrant, in North America), and Triconodontidae in North America. Archaic groups vanished from Eurasia by the onset of the Late Cretaceous, but spalacotheriids and triconodontids persisted until the Campanian of North America. During the Late Cretaceous, eutherians proliferated in Eurasia whereas Metatheria dominated in North America until the Campanian. New data suggest immigration of at least three eutherian clades to North America by the Turonian. Of these, one lies within (or is a proximal sister taxon to) Placentalia, supporting the "long fuse" model of placental origin and diversification well prior to the Cretaceous-Paleogene boundary.