

Vertebrate Evolution History

525 MYA

First Vertebrates

Appearance of jawless fish (Agnathans) such as Haikouichthys. Development of a primitive cranium and backbone.

450 MYA

Gnathostomes

Evolution of hinged jaws and paired fins. Rise of early cartilaginous fishes (Chondrichthyes).

395 MYA

Tetrapods

Sarcopterygii (lobe-finned fish) evolve limbs. Early ancestors begin transitioning from water to shallow wetlands.

312 MYA

Amniotes

Development of the amniotic egg, allowing vertebrates to reproduce on land away from water sources.

230 MYA

The Age of Reptiles

Diversification of Archosaurs; rise of Dinosaurs, Pterosaurs, and early Crocodilians.

200 MYA

Early Mammals

Emergence of small, nocturnal Mammaliaformes from Synapsid lineages during the late Triassic.

150 MYA

Avian Evolution

Theropod dinosaurs evolve feathers and skeletal structures leading to the first birds (Archaeopteryx).

66 MYA

Cenozoic Expansion

K-Pg extinction leads to the decline of non-avian dinosaurs and the rapid radiation of modern mammals and birds.