

## Brief Overview on Evolution of Dinosaur Genera

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### Opinion Article

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### DESCRIPTION

Dinosaurs are reptiles from the clade Dinosauria. During the Triassic epoch, they first appeared between 243 and 233.23 million years ago, while the exact origin and chronology of dinosaur evolution are still being researched. After the Triassic–Jurassic extinction crisis 201.3 million years ago, they became the dominating terrestrial vertebrates, and their supremacy lasted through the Jurassic and Cretaceous ages. Birds are contemporary feathered dinosaurs that evolved from older theropods during the Late Jurassic era, and they are the only dinosaur lineage known to have survived the Cretaceous–Paleogene extinction catastrophe around 66 million years ago, according to the fossil record. Dinosaurs are split into two groups: avian dinosaurs, or birds, and extinct non-avian dinosaurs, which include all dinosaurs other than birds.

Dinosaurs are a diverse collection of species in terms of taxonomy, morphology, and evolutionary history and ecology. With over 10,700 species, birds are the most diverse group of vertebrates. Based on fossil evidence, palaeontologists have identified over 900 different genera and over 1,000 different species of non-avian dinosaurs. Extant species (birds) and fossil remains of dinosaurs may be found on every continent.

Before birds were recognised as dinosaurs in the early part of the twentieth century, most scientists assumed dinosaurs were lethargic and cold-blooded. The majority of research done since the 1970s, on the other hand, has shown that dinosaurs were busy animals with high metabolisms and multiple social characteristics. Some were carnivorous, while others were herbivorous. Evidence implies that all dinosaurs laid eggs, and that many dinosaurs, both avian and non-avian, had the ability to create nests.

Despite the fact that dinosaurs were bipedal at the time, many prehistoric groups contained quadrupedal animals, with some being able to switch between the two. All dinosaur groups include elaborate display structures like horns or crests, and some extinct groups acquired skeletal adaptations like bony armour and spines. Many prehistoric dinosaurs (non-avian and avian) were large-bodied—the largest sauropod dinosaurs were estimated to have reached lengths of 39.7 metres (130 feet) and heights of 18 metres (59 feet). They are the world's largest terrestrial creatures. The belief that non-avian dinosaurs were all enormous stems in part from preservation bias, as huge, strong bones are more likely to survive.

The first dinosaur fossils were discovered in the early nineteenth century, and Sir Richard Owen coined the term "dinosaur" (meaning "terrible lizard") to describe these "huge fossil lizards" in 1841. Since then, museums around the world have featured displayed fossil dinosaur skeletons, and dinosaurs have become an indelible part of popular culture. Dinosaurs are frequently included in best-selling novels and films, such as Jurassic Park, due to their enormous size and supposedly terrible and bizarre nature. Dinosaur science has received significant funding as a result of public interest in the animals, and new findings are constantly highlighted by the media.

Dinosaurs are commonly defined as the group that includes the Most Recent Common Ancestor (MRCA) of Triceratops and modern birds (Neornithes) and all of their descendants, according to phylogenetic terminology. It has also been suggested that the MRCA of Megalosaurus and Iguanodon be used to designate the Dinosauria, as these were two of the three genera mentioned by Richard Owen when he identified the Dinosauria. This definition includes major groups such as ankylosaurians (armoured herbivorous quadrupeds), stegosaurians (plated herbivorous quadrupeds), ceratopsians (bipedal or quadrupedal herbivores with neck frills), pachycephalosaurians (bipedal herbivores with thick skulls), ornithomimids (bipedal or quadrupedal herbivores (mostly large herbivorous quadrupeds with long necks and tails).

Birds are currently acknowledged as theropod dinosaurs' sole surviving lineage. Birds were once thought to be a unique class that originated from dinosaurs, a distinct superorder, according to classical taxonomy. However, a majority of modern palaeontologists interested with dinosaurs reject traditional classification in favour of phylogenetic taxonomy, which demands that all descendants of members of a group be included in the group in order for it to be natural. As a result, birds are considered dinosaurs, and dinosaurs are not extinct. Birds are considered as being part of the Maniraptora subgroup, which includes coelurosaurs, theropods, saurischians, and dinosaurs.