

European giant deer
Megaloceros giganteus
Quaternary

Glyptodon
Glyptodon elegans
Quaternary

Phiornia
Tertiary

Hyacotherium
Tertiary

CENOZOIC

Around 65 million years ago a meteorite crashed into the Earth, triggering rapid global cooling that contributed to the extinction of the dinosaurs.

Pteranodon
Cretaceous

Tyrannosaurus rex
Cretaceous

Lystrosaurus
Triassic

MESOZOIC

Mixosaurus
Triassic

Dimetrodon
Permian

PALEOZOIC

Silurian plants
Silurian

Dunkleosteus
Devonian

Trilobite
Olenoides serratus
Cambrian

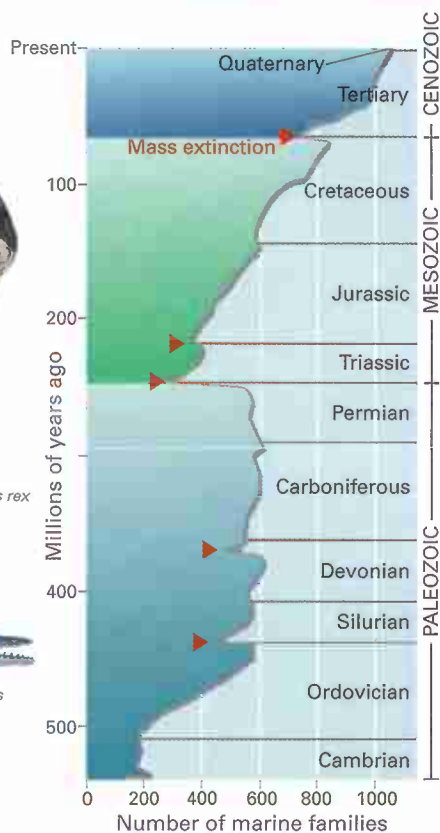
The story of life on Earth—which grew more complex with the appearance of trilobites in the Cambrian period, 540 to 510 million years ago—has been punctuated by numerous minor and several major extinctions.

DIVERSITY OF LIFE

Since the Swedish botanist Linnaeus published his *Systema Naturae*, a system for classifying living things, in the mid-1700s, taxonomists have identified between 1.5 million and 1.75 million species, some 4,500 of them mammals. Many more species have yet to be named and described. Controversy surrounds the issue of how many

unknown species may exist—and how many are becoming extinct before we can count them. Estimates of the total number of species on Earth range from five million to a hundred million. Whatever the sum, insects appear to be by far the most numerous, making up about half of all life. Beetles, in fact, are the most various and pervasive creatures identified thus far.

RAPID EXTINCTIONS, SLOW RECOVERIES



An estimated 99 percent of all species that ever lived are extinct. Yet more kinds of creatures may be alive today than at any other single time in the planet's 4.6-billion-year history.

In the beginning single-celled microbes had a watery, rocky world to themselves. During the Cambrian period, which began 540 million years ago, complex animal life increased dramatically. And later some disappeared. On at least five occasions in the past, mass extinctions destroyed whole families of species across the globe in relatively short time periods.

The Ordovician extinction, 440 million years ago, eliminated some 75 percent of animal species. (The percentage of families lost—each of which can have many species—is far smaller.) The Devonian, 370 million years ago, was almost as harsh. The worst crash, the Permian extinction of 250 million years ago, claimed more than 90 percent of all marine animals. The Triassic followed 210 million years ago. The Cretaceous extinction, 65 million years ago, ended the reign of the dinosaurs and killed about two-thirds of all animals.

In each ecological cataclysm some species slipped through to the other side, but recovery took millions of years. Biologists warn that we are in another wave, the sixth extinction. It is the first to be caused by and to affect humans. The recovery period, if there is one, has little meaning on the timescale of *Homo sapiens*.

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