

# The Five Worst Mass Extinctions

Endangered Species International

<http://www.endangeredspeciesinternational.org/overview.html>

Time periods in the history of life on Earth during which exceptionally large numbers of species go extinct are called mass extinctions. These extinctions are quite different from the rate of extinction, which occurs even when the diversity of life is increasing. Many species vanished in five cataclysmic mass extinctions and today, 99.9 percent of all species that have existed on Earth are extinct.

The **Ordovician-Silurian extinction** occurred about 439 million years ago due to a drop in sea levels as glaciers formed followed by rising sea levels as glaciers melted. During this extinction 25 percent of marine families and 60 percent of marine genera (the classification above species) were lost.

The **Late Devonian extinction** took place somewhere around 364 million years ago. To this day its cause is unknown. However, evidence supporting the Devonian mass extinction suggesting that warm water marine species were the most severely affected in this extinction event, has led many paleontologists to believe that an episode of global cooling, similar to the event which that may have resulted in the Ordovician-Silurian mass extinction, may have led to the Devonian extinction. Thus this theory suggests that the extinction of the Devonian was triggered by another glaciation event on Gondwana, which is evidenced by glacial deposits of this age in northern Brazil.

Similarly to the late Ordovician crisis, agents such as global cooling and widespread lowering of sea-level may have triggered the late Devonian crisis. Scientists have also suggested that meteorite impacts may have been possible agents for the Devonian mass extinction, but the data in support of a possible extra-terrestrial impact remains inconclusive, and the mechanisms responsible for the Devonian mass extinction are still under debate. What is known, however, is that this mass extinction killed 22 percent of marine families and 57 percent of marine genera.

The **Permian-Triassic extinction** happened about 251 million years ago and was Earth's worst mass extinction. 95 percent of all species, 53 percent of marine families, 84 percent of marine genera, and an estimated 70 percent of land species such as plants, insects and vertebrate animals were killed during this catastrophe. Direct evidence for this period has not been found but many scientists believe a comet or asteroid impact led to this extinction. Others think that volcanic eruption, coating large stretches of land with lava from the Siberian Traps, which are centered around the Siberian City of Tura, and related loss of oxygen in the seas were the cause of this mass extinction. Still other scientists suspect that the impact of the comet or asteroid triggered the volcanism.

The **End Triassic extinction**, taking place roughly 199 million to 214 million years ago, was most likely caused by massive floods of lava erupting from the central Atlantic magmatic province triggering the breakup of Pangaea and the opening of the Atlantic Ocean. The volcanism may have led to deadly global warming. Rocks from the eruptions now are found in

the eastern United States, eastern Brazil, North Africa and Spain. 22 percent of marine families, 52 percent of marine genera, and an unknown percentage of vertebrate deaths were the result. Finally, the **Cretaceous-Tertiary extinction** occurred about 65 million years ago and is thought to have been aggravated, if not caused, by impacts of several-mile-wide asteroid that created the Chicxulub crater now hidden on the Yucatan Peninsula and beneath the Gulf of Mexico. Yet, some scientists believe that this mass extinction was caused by gradual climate change or flood-like volcanic eruptions of basalt lava from the Deccan Traps in west-central India. During this extinction, 16 percent of marine families, 47 percent of marine genera, and 18 percent of land vertebrate families including the dinosaurs.