The Reign of Conifers

Towards the end of the Palaeozoic Era, Earth's environment gradually became drier and the swamp forests filled with giant horsetails and clubmosses began to disappear. As a result, plant groups better adapted to these changing conditions started to dominate. Among them were the cordaites, the earliest relatives of conifers, named in honour of the 19th-century Czech palaeobotanist and mycologist August Josef Corda, together with the first true conifers.

In addition to seeds containing nutrients essential for early growth, these plants also produced pollen equipped with air bladders (saccate pollen). These structures enabled pollen grains to travel long distances by wind and greatly increased reproductive success.

The oldest known conifer fossils date back to the Carboniferous Period of the Palaeozoic Era. However, conifers flourished most successfully during the Mesozoic Era, when all the major conifer groups that survive today first evolved. During the same period, ginkgoes also emerged. Although today they grow naturally only in China, fossil discoveries from Central Europe show that they were once widespread across temperate regions as well.

The expansion of conifers coincided with the age of dinosaurs, which dominated the land for another 170 million years.

Distribution of continents on Earth 245 million years ago (Triassic Period, Mesozoic Era)

Timeline

Beginning of the Palaeozoic Era – Cambrian	538 million years ago
Ordovician	485 million years ago
Silurian	443 million years ago
Devonian	419 million years ago
Carboniferous	358 million years ago
Fossilised pollen found	365 million years ago
First conifer *Swillingtonia*	310 million years ago
Permian	298 million years ago
Utrechtia (*Walchia*) conifer	305 million years ago
Oldest pollen grains	300 million years ago

Largest mass extinction in geological history	250 million years ago
Beginning of the Mesozoic Era – Triassic	251 million years ago
Expansion of conifers	245 million years ago
Age of reptiles (dinosaurs)	240 million years ago
Asteroid impact in present-day Mexico	66 million years ago
Beginning of the Tertiary – Palaeocene	66 million years ago
Beginning of the Quaternary – Pleistocene	2.6 million years ago

***Utrechtia* (*Walchia*)**

A conifer reaching heights of approximately 5 metres.

It most commonly grew in dry environments.

Somewhat resembled the modern Norfolk pine (*Araucaria heterophylla*), often incorrectly referred to as a “house pine”.

Needles, the narrow leaves of the plant, were arranged spirally along the branches.

Reproductive organs were arranged in cones.

Pollen grains possessed air sacs that improved wind dispersal.

Annual growth rings are visible within the wood of the trunk.

Unlike cycads and ginkgoes, its pollen did not contain motile male reproductive cells and therefore no longer required a watery environment for fertilisation.

Modern conifers are probably descended from plants related to the genus Utrechtia.

Fossilised trunks of Palaeozoic conifers are frequently discovered in Czech quarries.

In the past, these fossil trunks were known as “araucarites” because of their resemblance to modern araucarias.

The needles, and especially the wood, sometimes contain resin canals. Fossilised resin from the Tertiary Period is known today as amber.