Evolution of Trees

"Of course there's a god! Look at the trees!"

Trees are of course non-marine plants: they live on land and not in the sea. The first plants to invade the land did so about 430 million years ago in the Silurian period, before vertebrates invaded the land. Only after vascular tissue and then roots evolved, could trees evolve.

After the invasion of land by plants, a big adaptive radiation followed, in Devonian times. The first trees (big plants with woody stems) evolved about 360 million years ago and had roots and leaves. Amongst these first trees were lycopods, which are plants that could only live in moist environments because they reproduced by spores, which need moisture to enable sperm cells to move to the egg.

In the Devonian era, a second innovation came about: the seed. The seed enabled plants to colonize non-wet land, beginning a total change of much of the lands since plants play an important part in the formation of soil because they slow down erosion. The first seed plants evolved trees with seeds, which thus colonized the lands and formed the first vast forests. The first tree may have been Wattieza, evident in fossils dating back to the Middle Devonian (about 385 mya). Prior to this discovery, Archaeopteris was the earliest known tree. Both of these reproduced by spores rather than seeds and are considered to be links between ferns and the gymnosperms, which evolved in the Triassic period. The gymnosperms include conifers, cycads, gnetales, and ginkgos, and these may have appeared as a result of a whole genome duplication event, which took place about 319 million years ago. Ginkgophyta was once a widespread diverse group of which the only survivor is the maidenhair tree, Ginkgo biloba. This is considered to be a living fossil because it is virtually unchanged from the fossilized specimens found in Triassic deposits.

Sources: http://www.bomengids.nl/uk/tree-evolution.html and https://en.wikipedia.org/wiki/Tree#Evolutionary_history

Evolution of Trees

"Of course there's a god! Look at the trees!"

Trees are of course non-marine plants: they live on land and not in the sea. The first plants to invade the land did so about 430 million years ago in the Silurian period, before vertebrates invaded the land. Only after vascular tissue and then roots evolved, could trees evolve.

After the invasion of land by plants, a big adaptive radiation followed, in Devonian times. The first trees (big plants with woody stems) evolved about 360 million years ago and had roots and leaves. Amongst these first trees were lycopods, which are plants that could only live in moist environments because they reproduced by spores, which need moisture to enable sperm cells to move to the egg.

In the Devonian era, a second innovation came about: the seed. The seed enabled plants to colonize non-wet land, beginning a total change of much of the lands since plants play an important part in the formation of soil because they slow down erosion. The first seed plants evolved trees with seeds, which thus colonized the lands and formed the first vast forests. The first tree may have been Wattieza, evident in fossils dating back to the Middle Devonian (about 385 mya). Prior to this discovery, Archaeopteris was the earliest known tree. Both of these reproduced by spores rather than seeds and are considered to be links between ferns and the gymnosperms, which evolved in the Triassic period. The gymnosperms include conifers, cycads, gnetales, and ginkgos, and these may have appeared as a result of a whole genome duplication event, which took place about 319 million years ago. Ginkgophyta was once a widespread diverse group of which the only survivor is the maidenhair tree, Ginkgo biloba. This is considered to be a living fossil because it is virtually unchanged from the fossilized specimens found in Triassic deposits.

Sources: http://www.bomengids.nl/uk/tree-evolution.html and https://en.wikipedia.org/wiki/Tree#Evolutionary_history