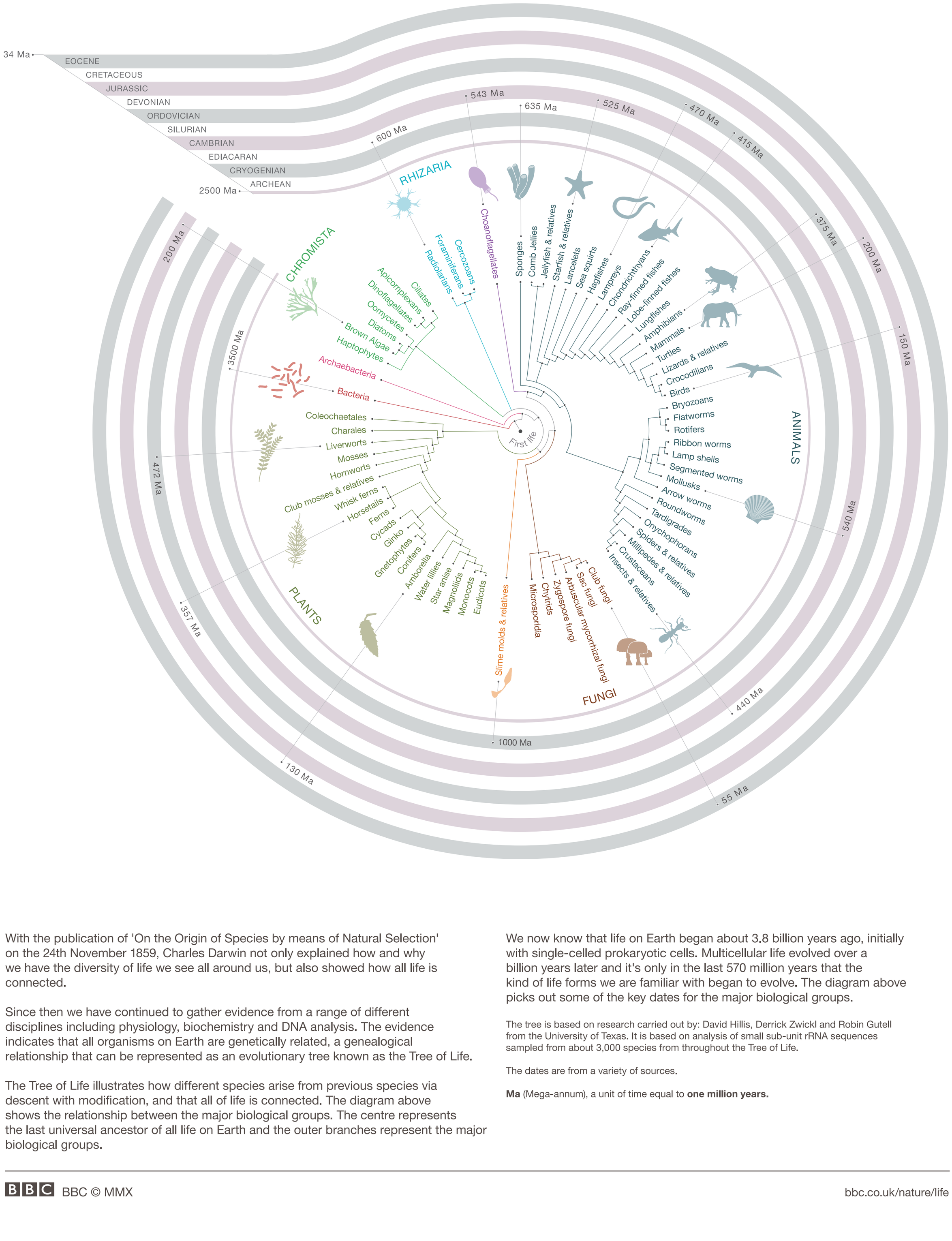
The Tree of Life



With the publication of 'On the Origin of Species by means of Natural Selection' on the 24th November 1859, Charles Darwin not only explained how and why we have the diversity of life we see all around us, but also showed how all life is connected.

Since then we have continued to gather evidence from a range of different disciplines including physiology, biochemistry and DNA analysis. The evidence indicates that all organisms on Earth are genetically related, a genealogical relationship that can be represented as an evolutionary tree known as the Tree of Life.

The Tree of Life illustrates how different species arise from previous species via descent with modification, and that all of life is connected. The diagram above shows the relationship between the major biological groups. The centre represents the last universal ancestor of all life on Earth and the outer branches represent the major biological groups.

We now know that life on Earth began about 3.8 billion years ago, initially with single-celled prokaryotic cells. Multicellular life evolved over a billion years later and it's only in the last 570 million years that the kind of life forms we are familiar with began to evolve. The diagram above picks out some of the key dates for the major biological groups.

The tree is based on research carried out by: David Hillis, Derrick Zwickl and Robin Gutell from the University of Texas. It is based on analysis of small sub-unit rRNA sequences sampled from about 3,000 species from throughout the Tree of Life.

The dates are from a variety of sources.

Ma (Mega-annum), a unit of time equal to **one million years.**

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