

# Tree of life branches out online (w/ Video)

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Credit: Unsplash/CC0 Public Domain

A new website makes exploring the evolutionary tree of life as easy as using an online mapping service.

The site – called OneZoom – starts with a graphic depicting the tree of life with a trunk, branches, twigs and then leaves representing individual

species. But you can use the mouse to zoom in on any point on the tree to explore ever smaller categories of life.

And if you want to find where we or any other creature appears on the tree, you just type a name in and click on go. The tool then zooms into the leaf depicting whichever species you typed in, giving its Latin name, as well as conservation and population status. In the process, you can see exactly which other species it is related to.

'OneZoom gives you a natural way to explore large amounts of complex information like the tree of life. It's intuitive because it's similar to the way we explore the real world by moving towards interesting objects to see them in more detail,' says Dr James Rosindell from Imperial College London, who devised the tool together with Dr Luke Harmon from the University of Idaho.

Until now, there were only limited ways to visualise the tree of life. The traditional tree is often drawn with a thick trunk denoting the first life on Earth. The trunk then splits into large boughs for different categories of life such as [plants and animals](#), then ever-smaller branches for different groups of life such as insects, fish, birds and [mammals](#).

But the amount of information you can see on this type of tree is restricted by the size of the piece of paper it is printed on. This means either you can only see small portions of it at any one time, or you can't see much detail. Even relatively small trees have been challenging to visualise without huge sheets of paper or multiple computer screens. Not just that, but there's no space for extra information, like photos or maps.

Rosindell realised that with no way to see the entire tree of life at once, the evolutionary relationships between millions of species, which represent decades of scientific effort, are almost impossible to fully appreciate for both scientists and any interested member of the public.

But a way to do this is urgently needed, especially as our knowledge of the [evolutionary relationships](#) among all life on Earth is expanding rapidly.

'After decades of effort, scientists are now probably only a year away from having the first draft of the complete tree of life, and it would be a great shame if having built it, we had no way to visualise it,' says Rosindell.

Inspired by Google Maps, Rosindell saw a way to overcome this problem, taking advantage of the unlimited space in the digital world. Now, with OneZoom anyone can explore the tree of life in detail.

'Trees with millions of tips, richly embellished with additional data, can now be easily explored within the web browser of any modern hardware with a zooming user interface similar to that used in Google Maps,' the authors say in their paper, published in *PLoS Biology* today.

'OneZoom is a new way to visualise the tree of life. It still looks like a tree, but you can zoom into regions you're interested in like you can with a digital map,' Rosindell says.

'You can zoom in on specific information. It's a very natural way of displaying large and complex amounts of information. It's the same way we explore the real world: we move closer to objects of interest to see them in extra detail.'

At the moment, OneZoom only includes mammals. This is still over 5000 species arranged in related groups, each colour-coded to indicate their extinction risk. Rosindell plans to complete the tree over the coming years, and add photos for individual species.

He's keen for the site not to be used only by scientists. 'Our site is quite

different from existing biodiversity encyclopaedia-style webpages out there, because of its user interface and the way it shows the tree of life. I hope it'll find its place among them and be just as much used, especially after I make further improvements to it,' he says.

'Our dream for the more distant future is an easily accessible web page presenting all that we know about life on Earth in one place. The logical way to do this is to build around the [tree of life](#) visualised using OneZoom; we may yet see the Google Maps equivalent for all [life on Earth](#),' say the authors.

**More information:** Rosindell J, Harmon LJ (2012) OneZoom: A Fractal Explorer for the Tree of Life. *PLoS Biol* 10(10):e1001406. [doi:10.1371/journal.pbio.1001406](https://doi.org/10.1371/journal.pbio.1001406)

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