

Mission to map 10 million species in 50 years

April 20 2012



Biodiversity is the variety of life on Earth. The Natural History Museum looks after 70 million specimens, such as this tray of butterflies, and these will help scientists to map the estimated 10 million more species to discover.

An incredible 18,000 new plant and animal species are discovered each year. But this number is dwarfed by the estimated 10 million more species yet to be discovered. It sounds like an impossible task, but it could be achieved in less than 50 years according to scientists.

Mapping the Biosphere is a grand plan that details how this could be achieved. It has been produced by an international group of 39 experts and was published last month in the journal *Systematics and Biodiversity*.

If the plan is put into action now, we may be able to sustain the Earth's biodiversity, the authors say. This is crucial because the planet's species

are going extinct at an increasing rate.

This biodiversity provides us with crucial ecological services, such as food, fuel, and medicines, and no one knows what the consequences of losing so much will be.

"The pace of environmental change and [species extinctions](#) indicates that we need a comprehensive inventory of species and we need it now," says Quentin Wheeler, lead author of the report and Director of the International Institute for Species Exploration.

"The rate of [habitat alteration](#) is ever more alarming, as I have seen on recent field trips," says co-author Dr. Sandra Knapp, plant expert at the Natural History Museum. "Places where biodiversity used to abound are now monocultures of one imported species."

Every unique species

The goal of Mapping the [Biosphere](#) is to know what makes every species on the planet unique. From its anatomy, behavior, distribution and [genome](#), to its interactions and evolutionary relationships with other species.

The team says that without this information we could miss opportunities to learn how nature solves problems that relate to our own sustainable survival, and to learn from the early responses plants and animals have to [climate change](#).

Rate of discoveries

If the goal is to be achieved, the rate of new discoveries would need to increase from 18,000 to 200,000 species per year.

The key actions needed to achieve this are to use and share worldwide collections, expertise and the latest technologies, as well as to raise public awareness.

Expertise

The plan requires collaborations between experts from a wide area of fields, from ecologists and architects to information engineers and sociologists.

Experts such as taxonomists, who identify, name and classify species, are obviously crucial to achieving the goal. The team points out, however, that a generation of these experts is retiring without their knowledge being passed on.

Members of the public also play an important role, as they are increasingly active partners in discovering and documenting species each year too.

Collections

Around 3 billion specimens lie in collections around the world and they are essential for understanding biodiversity. There are also many specimens that lie hidden away, unidentified. It is only when a passing expert investigates that a new identity is revealed, like the new species of tropical butterfly found in the Museum collections in April 2011.

Technologies

With a vast amount of biodiversity information already produced, the task is to use the latest technologies, such as digitisation, to create a 'worldwide museum' that is accessible to everyone.

The move in January to electronic publication for naming new plants has helped speed up the rate of new species descriptions are published.

And tools such as scratchpads, portals like Encyclopedia of Life, and the digitisation of resources like the Biodiversity Heritage Library, are speeding up and increasing the accessibility of this important information.

Public awareness

The plan also highlights the need to build public awareness and gain public support with activities like bio-blitzes, where people spot as many [species](#) as possible in a 24-hour period.

Opportunities

Co-author Johannes Vogel, Director of the Museum of Natural History in Berlin, Germany, sums up the position we are in today. 'In 2012, we are facing an unprecedented crisis and have unprecedented opportunities.

"The world is in an extinction crisis. At the same time, we have all the intellectual and technological capacity for rapid biodiversity discovery – combining the power of science, industry and society for a most noble cause: discovering and understanding the planet we inhabit."

Provided by Natural History Museum

Citation: Mission to map 10 million species in 50 years (2012, April 20) retrieved 28 April 2024 from <https://phys.org/news/2012-04-mission-million-species-years.html>

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