



Living in harmony with nature

Global Taxonomy Initiative



The science of taxonomy is critical as we advance our understanding of biodiversity and seek informed policy decisions to ensure its sustainable use. Taxonomists provide us with the tools necessary to distinguish between organisms that appear similar but are biologically distinct, and between those that threaten human health and those that can contribute to our well-being. This data is also essential to climate change adaptation and mitigation, the fight against habitat loss, pollution, overexploitation, and avoiding the spread of invasive alien species.

Taxonomists use units called *taxa* as universal identifiers to classify organisms. For example, the term water hyacinth, an invasive aquatic plant, actually refers to the genus *Eichhornia*, of which there are seven species, with such diverse names as 'aguap', 'bekabe kairanga', 'bung el ralm', 'riri vai', and 'water orchid' among others. Nature is intricately complex and scientists believe we have yet to even discover the vast majority of organisms on earth.

Taxonomic information includes: up-to-date taxa, characteristics of each taxon, natural occurrences of each organism, invasive occurrence of each organism, location of the standard specimen of the taxon, images of each organism, DNA sequences of the whole genome or DNA barcoding.

The development of robust taxonomic information systems is essential to addressing environmental challenges. Taxonomy is evolving with technology. Genome sequences and DNA barcoding increasingly broaden the understanding of biodiversity. Taxonomic information is also important to computer simulations used to predict future patterns of biodiversity.

Applications of taxonomic information include: early detection of invasive alien species, identification and monitoring of biodiversity in protected areas, monitoring of biodiversity responses to climate change, predicting the sustainability of biological resources, and raising public awareness of biodiversity.

The **Programme of Work for the Global Taxonomy Initiative (GTI)** provides guidance on how to develop capacity to generate and share taxonomic information for each thematic area and cross-cutting issue under the Convention. Taxonomic capacity-building is crucial to the success of the Convention and Strategic Plan for Biodiversity 2011-2020.



Convention on
Biological Diversity

www.cbd.int/gti



Fast Facts

- ▶ In the past 250 years of research, taxonomists have identified type specimens of approximately 1.78 million animals, plants and micro-organisms.
- ▶ The predicted number of species globally has been estimated at 8.7 million eukaryotic species (single-celled or multicellular organisms containing a nucleus), excluding primitive organisms without a nucleus). This total includes some ~2.2 million marine species.¹
- ▶ In spite of 250 years of taxonomic classification and over 1.2 million species already catalogued in a central database, some 86% of existing species on Earth and 91% of species in the ocean still await description.¹
- ▶ There are no more than approximately 20,000-30,000 people with taxonomic qualifications worldwide, of which between 5,000 and 7,000 are professionals.²

¹ Mora C, Tittensor DP, Adl S, Simpson AGB, Worm B, 2011 How Many Species Are There on Earth and in the Ocean? PLoS Biol 9(8): e1001127. doi:10.1371/journal.pbio.1001127

² www.senckenberg.de/odes/Haas_Haeuser.pdf

Learn More

GTI Programme of Work ▶ www.cbd.int/gti/pow.shtml

COP decisions about the GTI ▶ www.cbd.int/gti/decisions.shtml

The Global Biodiversity Information Facility (GBIF) ▶ www.gbif.org

Encyclopedia of Life ▶ <http://eol.org>

Census of Marine Life ▶ www.coml.org

Biodiversity Heritage Library Assessment ▶ www.biodiversitylibrary.org

International Barcode of Life ▶ <http://ibol.org>

BioNET International ▶ www.bionet-intl.org

CONABIO ▶ www.conabio.gob.mx

National Biodiversity Institute - InBIO ▶ www.inbio.ac.cr/en/

South African National Biodiversity Institute (SANBI) ▶ www.sanbi.org

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