

What is biodiversity?



[Read also our summary of the Global Biodiversity Outlook 2 of the Convention on Biological Diversity](#)

Biodiversity is a contraction of biological diversity. It reflects the number, variety and variability of living organisms and how these change from one location to another and over time. Biodiversity includes diversity within species (**genetic diversity**), between species (**species diversity**), and between ecosystems (**ecosystem diversity**).

Biodiversity is important in all ecosystems, not only in those that are "natural" such as national parks or natural preserves, but also in those that are managed by humans, such as farms and plantations, and even urban parks. Biodiversity is the basis of the multiple benefits provided by ecosystems to humans.

Biodiversity is difficult to quantify precisely even with the tools and data sources that are available. But precise answers are seldom needed to sufficiently understand biodiversity, how it is changing, and the causes and consequences of such change.

Various ecological indicators, such as the number of species in a given area, are used to measure different aspects of biodiversity. They form a critical component of monitoring, assessment, and decision-making and are designed to communicate information quickly and easily to policy-makers. However, no single indicator captures all the dimensions of biodiversity.

[More...](#)

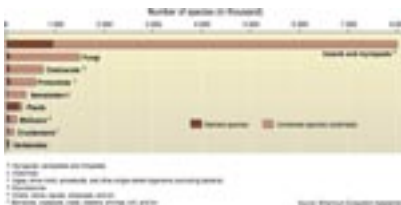
[Linkages among Biodiversity, Ecosystem Services & Human Well-being](#)

[Measuring Biodiversity: More than Species Richness](#)

[Ecological Indicators & Biodiversity](#)

[Criteria for Effective Ecological Indicators](#)

Where is biodiversity?



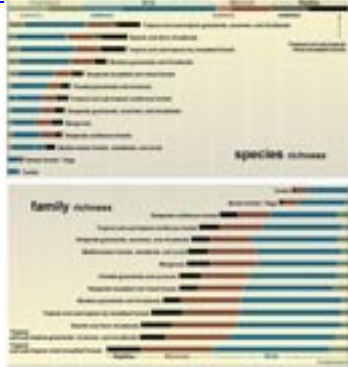
[Proportion of named species](#)

Life, and thus biodiversity, is essentially everywhere on Earth's surface and in every drop of its bodies of water. This is seldom appreciated because most organisms are small or invisible to the naked eye, and many are rare, short-lived or hidden.

Documenting biodiversity is difficult. The best known dimension of biodiversity is the classification of animals and plants into species, which mainly focuses on animals observable to the naked eye, temperate ecosystems, and aspects that are used by people. Only 1.7-2 million of the 5 to 30 million species that are thought to exist on Earth have been identified so far. More complete inventories are badly needed to correct for this deficiency.



Map of the different biomes



What is the link between biodiversity and ecosystem services?

Ecosystem services are the benefits obtained by people from ecosystems. These include:

- **provisioning services** such as food, clean water, timber, fiber, and genetic resources;
- **regulating services** such as the regulation of climate, floods, disease, water quality, and pollination;
- **cultural services** such as recreational, aesthetic, and spiritual benefits;
- **supporting services** such as soil formation, and nutrient cycling.

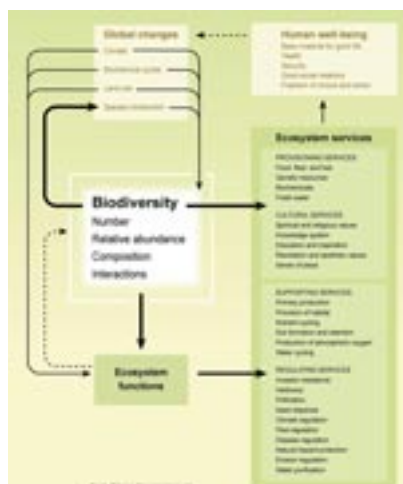


Figure 1.1: Biodiversity and Ecosystem Services (Source: Millennium Ecosystem Assessment, 2005)

This diagram illustrates the relationship between biodiversity, ecosystem functions, and ecosystem services. Biodiversity (Number, Relative abundance, Composition, Interactions) leads to Ecosystem functions, which in turn lead to Ecosystem services. Ecosystem services are categorized into Provisioning services (Food, Fiber, Fuel, Timber, Genetic resources, Medicines, Recreation, etc.), Regulating services (Climate regulation, Water regulation, Pollination, etc.), and Cultural services (Recreation, Education, etc.). The diagram also shows the influence of Global changes (Climate, land use, Pollution, Biodiversity loss, Ocean acidification) and Human well-being (Food, Health, Ecosystem resilience, Ecosystem services) on the system.