

Biodiversity for Sustainable Development

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BIODIVERSITY

The word biodiversity is used to explain the variety of life on Earth, and is considered at different levels of biological organizations including genes, species and ecosystems.

Biodiversity is most often understood in terms of the number of species or other taxa and can be considered at different spatial scales such as Whittaker's definition of alpha, beta and gamma diversity . Biodiversity is not distributed evenly over the world, leading to Myers concept of biodiversity hotspots.

The importance of biodiversity was one of the key subjects of the 1992 World Summit held in Rio de Janeiro, Brazil, which resulted in convention on biological diversity. The goals of the CBD are "The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits from the use of genetic resources "Nevertheless, human actions have caused huge losses in biodiversity, including the disruption of ecosystem processes, habitat destruction, species extinction and the eroding of genetic diversity within species.

What is biodiversity ?

Biodiversity is the variety of life on earth and includes variation at all levels of biological organizations from genes to species to ecosystems. Genetic, organismal and ecological diversity are all elements of biodiversity with each including a number of components.

Mapping biodiversity

In general as the size of an area increases so does the number of species found within it. This species-area relationship is commonly represented as :

$$\text{Log } S = \log c + z \log A$$

S is the number of species

A is the area

Z and c constants known as the Arrhenius relationship

Value of biodiversity

Humans cannot exist without biodiversity as we use it directly and indirectly in a number of ways. Direct uses include things like foods, fibers, medicines and biological control, whilst indirect uses include ecosystem services such as atmospheric regulation, nutrient cycling and pollination.

Causes of biodiversity loss

The Millennium Ecosystem Assessment identifies following as the primary drivers leading to loss of biodiversity:-

Habitat change

Climate change

Invasive species

Over-exploitation

Pollution

Conserving biodiversity – what actions can be taken?

Following actions have been partly successful in reducing biodiversity loss and can be further strengthened in the future

Protected areas

Species protection and recovery measures for threatened species

Ecosystem restoration

Ex situ and in situ conservation of genetic diversity

Public awareness, communication and education