

Biodiversity

Biodiversity is the term used to describe variety in the living world. It refers to the number and variety of living organisms in a particular area and has three components:

- **Species diversity:** The number of different species and the number of individuals of each species within one community.
- **Genetic diversity:** The variety of genes possessed by the individuals that make up one species.
- **Ecosystem diversity:** The range of different habitats in a particular area.

One measure of biodiversity is species diversity and has 2 components:

- The number of different species in a given area.
- The proportion of the community that is made up of one species.

Measuring species diversity

One way of measuring species diversity is to use an index calculated as follows:

$$D = \frac{N(N-1)}{\sum n(n-1)}$$

Where:

d= species diversity index

N= total number of organisms of all species

n= total number of organisms of each species

Σ= the sum of

Species diversity and human activities

Impact of agriculture

As natural ecosystems develop they become complex communities with many individuals of a large number of different species. Agricultural ecosystems are controlled by humans.

Farmers select species for particular qualities meaning the number of species, and genetic variety of alleles they possess is reduced. Any particular area can only support a certain amount of biomass.

Impact of deforestation

As forests form layers between the ground and tops of trees there are numerous habitats available. Different species are adapted to living in these habitats and species diversity is high.

The most serious consequence is loss of biodiversity. Up to 50000 species are lost each year.