



Understanding Biodiversity

Welcoming biodiversity into your home

Understanding biodiversity

What is biodiversity?

Biodiversity is a recent concept that came about in the 1980s, merging together "biological" with "diversity". It characterises the study of species, their interaction with each other and with their environments. This biological diversity is the result of a long evolution of more than 4.5 billion years. From the formation of Earth and the first appearance of the single celled organism, to the appearance of land based plants, reptiles, mammals, birds and the first humans, 7 million years ago.

Man depends on animal and vegetal biodiversity in order to survive. Over 70% of food crops, representing 40% of our food exists thanks to pollinating insects. Our pharmacopoeia contains numerous active substances from plants, which have become vital in medicine. Whole populations depend equally on raw animal and vegetal materials in order to stay warm and sheltered.

However, human activities are threatening to make some living species extinct, putting our own survival at risk in the process.

The notion of biodiversity can be split into three levels which interact with each other.

The ecosystem level is the first, which corresponds to the diversity of living environments, such as forests, oceans, deserts, lakes and urban areas.

The second level, called the species level, refers to the diversity between species, such as vegetal matter, animals, bacteria and fungi which all interact with each other and their environment.

The last is the genetic level. This refers to the diversity in the genes that are present within a single species, giving each living being their own unique characteristics.

Functions and roles of biodiversity

Current ecosystems which are the result of billions of years of evolution, form a balanced set of interactions. The more substantial the biodiversity, the more stable the balance is.

Observation of the food chain is a good example of this. Vegetation uses the energy from the sun in order to create organic matter, This feeds the primary consumers such as herbivores, who are then in turn eaten by carnivores, who

are the prey of top predators. Decomposers like bacteria and fungi then consume the organic matter created by producers and consumers, decomposing this into nutritious elements for vegetation.

Together, all of food chains balance themselves out, and one disturbance to a single link in the food chain can have disastrous consequences. Take a forest, for example. If insecticide is sprayed on an oak tree, the caterpillars will gradually disappear. Birds such as tits will then have a more limited food choice, which will have a direct impact on their reproduction. This decline in the population of tits will equally impact the sparrow-hawks that eat them. The balance of the environment is as such disturbed. By trying to get rid of a single species like the caterpillar, an entire ecosystem is threatened.

The decline of biodiversity

Today, around 10 million living species populate our planet, however only 1.3 million have been recorded to date. However, it could be that half of the known species disappear within the next half a century, in light of the current situation. As a matter of fact, biodiversity rests on a balance that is made fragile by human activity.

Agricultural and property development, the exploitation of plant and animal species, deforestation, the introduction of invasive plants and a lot of industrial and agricultural pollution pose a significant threat to biodiversity.

Preserving biodiversity

In order to reverse the declining trend of species, humans must change their devastating behaviour and reduce their growing impact on the environment. As well as modifying production and consumption methods, there must be a wave of transformation in our relationship with living things. For this, we need to come up with several new ways of living, a habitat that's better integrated with nature, responsible agriculture that is more respectful of the environment, well thought out local production, and better managed natural resources.

Currently, more than 54% of the world's population lives in an urban environment, and this is expected to rise to 66% by 2050.

The city has to become sustainable, considering local biodiversity in all its organisational issues, control of land and social links.

We can for example, act in favour of: increasing green spaces, creating ecological passageways which link different spaces and allow the circulation of species, encouraging the development of urban agriculture, creating reserve areas with bird boxes, bird feeders. insect houses or even reducing the amount of rubbish we make. These sorts of actions allow both us and biodiversity to survive!

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