Nature and Biodiversity

PKE Pomeranian Branch, as part of the project ***"Baltic Youth's visions, innovations and initiatives to Green Deal implemented in local communities"*** *funded by the Project Support Facility (PSF) of the Council of the Baltic Sea States (CBSS), is carrying out educational tasks.*

The basis for young people's involvement is expanded multidisciplinary knowledge. Climate and energy transformation are part of the second pillar of the European Green Deal, and the following study aims to provide an overview of this issue

Nature - whether we want it or not, and often we do not realise it on a daily basis, especially when we live in big cities - we are dependent on nature while being an integral part of it. We often see ourselves as the rulers of nature, trying to subjugate it. In fact, nature has an indivisible influence on us. Without it, we do not exist.

Every activity we do, every decision we make, impacts the environment, nature and its condition. This is obvious, but we often do not want to remember it.

Already in ancient Greece, an understanding of the functioning of the universe was sought within the context of natural philosophy. Modern natural philosophy takes a holistic view of man and nature by considering, among other things, the problems of regularities in nature, causality, determinism and indeterminism. A key concept in understanding the workings of nature is 'diversity'. It refers to one of the most important features of the world, so obvious that it often goes virtually unnoticed.

However, we should realise that the more we can understand the mechanisms operating in nature and the need for a rich biodiversity, as well as the remarkable network of connections between biodiversity, climate, food and us, the easier it will be for our habits to change to strongly protect the World we live in.

On 5 June 1992, the Convention on Biological Diversity was presented at the so-called 'Earth Summit'.

1. Definitions

Biological diversity (biodiversity) means the variety of ecosystems, species and genes on Earth or in a particular habitat, in other words the richness and variety of life forms, considered at all levels of its organisation (ecosystem, genetic, species).

BIODIVERSITY:

Ecosystems - depends on climatic conditions and landforms. Its size in the case of e.g. terrestrial ecosystems is assessed based on the abundance of vascular plant species.

Genetic - enables species to adapt to changes in ecosystems, which determines survival. Measured in various ways, it determines the level of genetic variation within a population.

Species - depends on the biodiversity of ecosystems. It is defined in relation to a specific ecosystem or area and is expressed in terms of the total number of species present there, often given per unit area.

The principle is simple, the greater the population size the greater the genetic diversity ensuring a high adaptability to environmental change. Interesting examples of nature's adaptation to urban conditions are illustrated in Dutch evolutionary biologist Menno Schilthuizen's book *"Evolution in the Urban Jungle"*.

We do not know the exact number of species present on Earth because not all have been discovered. According to scientists, there are currently about 8.7 million of them. Unfortunately, many of them are becoming extinct, which is an irreversible loss. It is estimated that 5 000 to about 50 000 species of organisms go extinct every year. Each species has a place and a specific function in the ecosystem. If it dies out, the ecosystem destabilises. Living organisms are connected by various relationships, including nutritional ones, affecting the circulation of matter and the flow of energy in nature. Green plants, known as producers, produce simple organic compounds under the influence of light from water and carbon dioxide in the process of photosynthesis. First-order consumers are herbivorous organisms, second- and third-order are carnivorous animals and organisms that degrade organic matter, the so-called destructors. Organisms coexist with each other, sometimes competing for light, food, living space, water, mineral salts, a partner or parasitising. During the process of evolution, they have adapted to their living conditions by creating a complex system of relationships and balances.

If humans do not stop environmental degradation, up to 40% of all insect species could become extinct in the next few decades.

2. WHY IS BIODIVERSITY NECESSARY?

- Naturalistically - it is essential for the evolution and sustainability of biosphere systems.
- From the human perspective - it is essential for human well-being as it provides the functions that sustain economies and societies (climate regulation, sustainable water management, soil fertility and production of food, fuels, fibres and medicines, flood protection...).

Contrary to appearances, the global economy and consequently the major economic sectors are dependent on nature and its stability - construction, agriculture and the food industry, which together generate within the global economy of nearly 7.3 trillion euro per year.

Plant food production in many cases depends on pollination by bees and other pollinator species. In Poland, the value of pollination has been valued at more than 4 billion Polish zloty (about 930.66 million Euro) per year.

3. Threats to biodiversity

"In order to protect biodiversity, it is necessary to anticipate, prevent and combat the causes of its decline or extinction."

The main direct causes of biodiversity decline:

I. disappearance of natural habitats and ecosystems - its cause are intensive agricultural production systems (e.g. disappearance of traditional methods, excessive use of chemical fertilisers, intensive monoculture farming...), anthropopressure,
II. environmental pollution (soil, water, air...),
III. overexploitation of natural resources (forests, oceans, rivers, lakes and soils) - extractive industries, urbanisation, deforestation (deforestation i.e. reduction of the share of forest areas in the total area)
IV. introduction of invasive species into environments,
V. climate change - due to natural causes and caused by the above factors.

Protecting biodiversity is an enormous challenge, as it concerns all aspects of nature which are under manifold pressure from intensive management.

Protecting biodiversity by moving away from intensive, industrial agriculture that uses huge quantities of chemical fertilisers and pesticides to protect plants from pests and diseases. Overuse of chemicals causes, among other things, the destruction of soil structure, a change in its chemical composition, it becomes waterlogged, dried out, salinised, acidified, alkalinised, contaminated with heavy metals, etc. Soil transformation is very difficult to reverse because soil-forming processes are very slow.

The agricultural and food sector, which also has a harmful impact on human health (50% of European adults struggle with overweight), is responsible for about 1/3 of global greenhouse gas emissions (Intergovernmental Panel on Climate Change IPCC)

- The environmental footprint of food systems needs to be reduced while providing healthy and affordable food

- Returning to more traditional production methods, reducing the path from producer to consumer will also help preserve biodiversity. A closed loop economy is also recommended in agriculture

- Animal and plant production conducted on the farm allow the self-production of sufficient quantities of natural fertilisers by livestock and fodder to cover their nutritional needs. By protecting certain ecosystems, agricultural use can be preserved, e.g. semi-natural meadows and pastures where mowing and grazing create ecological niches beneficial to many plant and animal species.

Changing farming patterns are also influenced by people's diet and daily food choices. A healthy diet is a predominance of vegetables, low-processed products according to the latest version of the food pyramid. Buying the necessary amount of food and not overstocking reduces the possibility of wasting and throwing away. In addition, customers should choose fresh, seasonal and local foods.

"If the bee disappeared off the face of the Earth, man would only have four years left to live" - Claimed Albert Einstein. Bees are responsible for pollinating 84 % of the plants we eat. Thanks to them, there is also fodder for animals.

4. EU Solutions in the Green Deal

The EU Biodiversity Strategy 2030 is the basis for nature conservation in the EU and one of the key elements of the European Green Deal:

- create protected areas - at least 30% of the EU's terrestrial and marine areas, extending current Natura 2000 sites for this purpose
- restore degraded ecosystems - including by reducing pesticides and their risks by 50% and planting 3 billion trees across the EU
- allocate 20 billion euro each year for the protection and promotion of biodiversity from EU funds, as well as national and private sources
- create an ambitious global biodiversity framework

The EU is calling for intensified efforts to halt the loss of rich biodiversity. Sectors such as agriculture, fisheries and forestry have a particular role to play here. It suggests that a significant part of the 30% of the EU budget and Next Generation EU climate action expenditure should be invested in biodiversity and nature-based solutions that support it. A 'Farm-to-Table' and biodiversity strategy is proposed to, among other things, reduce the use of pesticides and fertilisers, introduce agricultural land restoration and improve water management.

In addition, EU legislation supports the prevention of biodiversity loss and ecosystem degradation through:

- the Birds Directive and the Habitats Directive,
- the Water Framework Directive,
- the Marine Strategy Framework Directive,
- legislation on pollution, invasive alien species and climate change, among others.

Since 1992, the LIFE Program has been the EU's main financial mechanism entirely dedicated to environmental protection.
International days dedicated to specific issues are established to draw attention to environmental problems, e.g. World Environment Day, Biodiversity Day ...

5. How can you influence these solutions - call to action - there is a chance if we all get involved!

We often make excuses for our greater or lesser failures to act 'green' thinking that one small act won't make a difference. It is worth imagining the pressure that 7 billion people put on the environment every day. Of course, industry has a much greater impact on destabilising the environmental balance, but it is we who, with our everyday choices, can resist the pressure of ownership by stimulating industry to produce more and more, or to slow down a little.
We have a good opportunity to redefine the way we want to build our cities, neighbourhoods, homes, create needs, ways of doing things! This opportunity is to include the opinion of young people in decision-making processes and transformation using their innovative and unconventional way of thinking.

You can support biodiversity with your daily actions:

- reduce your consumption of goods, energy, the resources
- consume locally and seasonally
- increase knowledge of the impact of your actions on the environment
- think and act creatively and with foresight
- perhaps you have other ideas!

Some global organisations dealing with nature conservation and climate change:

IPCC (Intergovernmental Panel on Climate Change) - a scientific and intergovernmental advisory body established in 1988 at the request of UN members, by two United Nations organisations - the World Meteorological Organisation and the United Nations Environment Programme.

WWF (World Wide Fund for Nature) - an international non-governmental and environmental organisation established in 1961. WWF's mission is to stop the degradation of the Earth's environment and to create a future in which people live in harmony with nature. Its headquarters are located in Switzerland.

IUCN (International Union for Conservation of Nature) - International Union for Conservation of Nature - an international conservation organisation founded in 1948 as the first global organisation focused on environmental issues. Its headquarters are located in Gland, Switzerland.

Sources:

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