



Biodiversity: Importance, Types & Losses

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Abstract:

Biodiversity refers to the range of living forms on earth, including the many plants, animals, and microorganisms as well as the genes and ecosystems they support. Biodiversity is an attribute of ecosystems or a gauge of a portfolio of assets. The increasing loss of biological diversity is turning into a significant danger. The way the western world views, understands and manages biodiversity has changed as a result of several historical crises. There is a great deal of uncertainty around the biodiversity issue, particularly about the negative effects of mass extinction, including their biological, ecological, and economic effects. Because of human activities, including habitat degradation and greenhouse gas emissions that cause climate change, the diversity of the Earth's living species has decreased. Many research methodologies in cultural history analyse the rise of biodiversity. This paper analyzes the dynamics and crisis of biodiversity.

Keywords: Diversity, Biological, Biodiversity, Ecosystem

Introduction:

Walter G. Rosen first used the word "biodiversity" in 1986. The biosphere is made up of intricate arrangements of countless organisms, collectively known as the biodiversity, which is essential to the existence of the human civilization.

Biodiversity, also known as biological variety, is the collection of all living things, including unicellular fungi, protozoa, bacteria, and multicellular creatures like plants, fish, and mammals, at all levels of the biological hierarchy, including genus, environment, and ecology.

All living forms, ecosystems, and ecological processes are included in the concept of biodiversity. Biodiversity is the fundamental component of human survival and economic well-being. The variety of life on earth is enormous, ranging from tiny organisms like bacteria, complex plants and animals.

Humanity has evolved into a weapon of global extinction, and this must be reversed. Human action has damaged 97 percent of the world's biodiversity. As we rely on biodiversity for the food we eat, the water we drink, carbon sequestration, and the medicines we take; for example, 70 percent of cancer therapies are derived from biodiversity or nature.

India is regarded as one of the most varied nations in the globe. India ranks ninth overall in terms of the number of various plant types that are present. India is renowned for having a rich and varied wildlife. There are 91,000 different mammal types in the country. However, variety is steadily disappearing, and in order to stop this, a number of programmes on biodiversity protection are periodically introduced. For sustainable growth to be possible and to provide advantages to both current and future generations, it is essential to preserve the natural world.

Importance Of Biodiversity:

The conservation of biodiversity is crucial for preserving the ecosystem's natural equilibrium. It alludes to the variety of animals found in a specific area. Each species in an environment plays a significant part in variety.

➤ Ecological Role of Biodiversity:

Each species of biodiversity serves an important role in the ecology, in addition to maintaining natural equilibrium in the surrounding area. They have a significant impact on the creation and breakdown of biological wastes, the removal of atmospheric gases, and the control of water and minerals across the

environment. With greater species variety, the environment is more stable.

➤ **Economical Role of Biodiversity:**

In addition to serving as a source of energy, biodiversity plays a significant part in supplying the basic materials for commercial goods like paper, rubber, wax, oils, lubricants, fragrances, and dyes. Since ancient times, different plant types have been valued for their therapeutic properties. More than 70% of anti-cancer medications, it has been reported, come from flora found in tropical jungles.

➤ **Scientific Role of Biodiversity:**

Every species in the ecosystem adds to the body of knowledge about how life developed on Earth and how important each species is to the ecosystem's survival.

Types Of Biodiversity:

Biodiversity is critical to sustaining the ecosystem's ecological equilibrium. It refers to the number of distinct species found in a certain area. There are three main categories of biodiversity:



Figure: Types of Biodiversity

a) Genetic Biodiversity:

Genetic Biodiversity also known as Diversity within species. Genetic biodiversity explains how various species differ in their chromosome makeup, gene composition, and number. The entire amount of genetic data found in the genes of all living things on earth, including plants, animals, and microorganisms, is known as genetic variety.

(b) Species Biodiversity:

Species biodiversity also known as Diversity between species. The most fundamental categorization element is species diversity, which encompasses all species from vegetation to microorganisms. Species diversity is determined not only by the number of species existing in a community, but also by the proportional abundance of each species and its function in the community. The overall number of various species of plants and animals found in a region creates this sort of diversity, which is similar to species diversity found in natural and farming environments.

(c) Ecological Biodiversity:

Ecological biodiversity also known as Diversity between ecosystem. The term "ecosystem diversity" describes the variety of environments found in a given geographic region. Ecosystem diversity, in contrast to genetic and species variety, takes into

account both biological and non-biological sources of heterogeneity, such as climate and sunlight. The intricate web of various species found in nearby ecosystems and their dynamic relationships is known as ecological variety.

Loss Of Biodiversity:

Biodiversity loss is a decline in biodiversity within a species, an ecosystem, a specific geographic area, or the earth as a whole. Biodiversity deficit refers to the decline or vanishing of biological variety, assumed as the difference of living belongings that inhabit the sphere, glamour various levels of organic organisation and their respective hereditary instability, in addition to the normal patterns present in ecosystems. The ability of ecosystems to function effectively and efficiently is threatened by biodiversity loss, undermining nature's capacity to give us a safe environment.

In recent years, it has experienced the largest decline in biodiversity, at 94%. The populations of fish, reptiles, and amphibians are all dropping. It is important to take into account the reports of biodiversity loss and even the extinction of species from many different countries.

According to the World-Wide Fund for Nature's Living Planet Report 2022, wildlife numbers of mammals, birds, amphibians,

reptiles, and fish have declined by 69% globally in the last 50 years. India is a biodiverse nation, with over 45,000 plant species in only 2.4 percent of the world's land area. Over 12% of the country's wild animal species are on the verge of extinction.

The disappearance or decline of biological variety is referred to as biodiversity loss. It can happen for a variety of causes, including:

- **Habitat Loss:** The fragmentation, thinning, or outright annihilation of an ecosystem's plant, nutrient, soil, and hydrological supplies is referred to as habitat loss. Plant and animal species are threatened by habitat loss because they may not be able to live in alien environments.
- **Overexploitation:** Overexploitation is the practice of harvesting an excessive number of terrestrial or aquatic creatures. As a consequence, some species become extinct or lose all of their members. Overfishing and overhunting are two examples of overexploitation.
- **Invasive species:** Invasive species are also referred to as non-native species. They are introduced into an environment to threaten native species, eventually resulting to extinction.
- **Climate change:** Climate change also known as global warming, is to blame for rising worldwide temperatures. It is also accountable for increasing global greenhouse gas levels. Increased carbon dioxide amounts in the atmosphere may have an impact on biodiversity.
- **Pollution:** Pollution of water, air, and soil causes a slew of issues that exacerbate biodiversity loss.

Conclusion:

The diversity of living things, including those found in terrestrial, marine, and other aquatic habitats as well as the ecological systems to which they belong, is known as biodiversity. Thus the, biodiversity essentially reflects all life and all of its diversity. The key component of biological diversity is that the focus has shifted from species to ecosystem and that the functional importance of variety has been emphasized. At this point, it is imperative to preserve such environments and biodiversity. Hence, population, community, and landscape ecology should present the most useful theoretical framework for analyzing what might be referred to as "Biodiversity Dynamics".

Overexploitation (intense pressure from hunting and fishing), habitat loss, invasive species, climate change (linked to global warming), and pollution are the five main causes of biodiversity loss. These reasons may be organic or man-made. However, the decline in biodiversity is directly related to human activity.

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