**Threats to global biodiversity** is a global concern these days. In recent years, extinction rates have increased dramatically. Human activity has led to the extinction of thousands of species and variations every year. Over the last 150 years, the rate of extinction has increased significantly. If current trends continue, we could lose 1/3rd to 2/3rd of our current biodiversity by the middle of the 21st century. The main causes of biodiversity loss include invasive alien species, unsustainable natural resource use and exploitation, pollution, and land use changes. Human activities are the main cause of biodiversity loss.

[**What is Biodiversity?**](https://www.geeksforgeeks.org/what-is-biodiversity-why-is-biodiversity-important-for-human-lives/)

The term biodiversity was coined as a contraction of biological diversity by **E.O. Wilson (father of biodiversity) in 1985.** If we split the word biodiversity into two what we get is **bio (life) and diversity (variability).** That is all the variety of species present on the earth constitute biodiversity. It includes organisms like plants, animals, and microorganisms, as well as the genes and ecosystems they generate. An area's biological structure influences biodiversity and cannot be measured purely by numbers. **Whittaker (1972)** identified three distinct categories of diversity: **alpha, beta, and gamma.** Alpha diversity refers to variability within a geographical group, beta diversity is the fraction of diversity attributable to variations between geographical populations, and gamma diversity is the overall diversity within plants.

In the **Convention of Biological Diversity (1992),** biodiversity has been defined as the variability among living organisms from all sources including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part.

**Why is Biodiversity Important?**

Earth's living species are diverse and important for human survival, supplying food, shelter, clothes, and medicines. Some important points are given below for biodiversity-

* **Productive values:** Biodiversity provides a variety of products gathered from nature and sold in commercial markets. It indirectly supports people economically by protecting water quality and soil, balancing the climate, monitoring the environment, conducting scientific research, and providing recreational opportunities.
* **Consumptive value:** The consumptive value can be attributed to things such as fuel woods, leaves, forest products, etc. which may be consumed locally and do not figure in national and worldwide markets.
* **Social value:** The loss of biodiversity has a direct impact on the country's social life, presumably by impacting ecological processes (energy flow and the biogeochemical cycle).
* **Aesthetic value:** Aesthetic values such as the refreshing aroma of flowers, the taste of berries, the softness of leaves, the melodic voices of birds, and so on drive humans to protect them.
* **Legal values:** Because the planet is the home of all living organisms, everyone has an equal right to coexist on its surface and enjoy all of its benefits. Unless biodiversity has a legal value, it will be impossible to safeguard species from extinction.
* **Ethical value:** Biodiversity must be viewed in the context of ethical worth. Because man is the most intelligent of all living organisms, it should be his primary responsibility and moral imperative to protect and conserve other organisms that will directly or indirectly benefit his own life.
* **Ecological value:** Any disruption in the precisely crafted ecological balance maintained by many organisms may result in serious issues, perhaps endangering human survival.
* **Economic value:** Biodiversity has significant economic worth since economic progress is dependent on the efficient and cost-effective management of biotic resources.

**What Are the Major Threats to Biodiversity?**

The major threats to biodiversity are **Habitat loss or destruction, Invasive species, Pollution, Climate change, and Overexploitation.**

**Habitat Loss and Degradation**

Habitat loss can be divided into two types. These are **Habitat destruction and Habitat fragmentation.**

***Habitat Destruction***

* It is the complete elimination of a localized or regional ecosystem. Now this can happen by two types of activities. These are either anthropogenic or natural activities.
* Anthropogenic activities that destroy the habitat are buildings, factories, or agricultural land for that we require space and that space comes through the destruction of certain habitat.
* Natural activities are forest fires or Vulcans. All of this activity can destroy a regional ecosystem. Now due to this complete elimination of a localized ecosystem, this leads to a total loss of biological ecosystem residing there. By biological ecosystem I mean all the species, all the flora and fauna residing there, it gets destructed.

***Habitat Fragmentation***

* It is a secondary effect of habitat destruction and this happens because of the destruction of habitat patches due to which the remaining population are isolated from their group.
* For example- We construct a road in the middle of a forest or grassland. What happens is that the species residing there gets divided into two groups because their habitat is fragmented. Now, since they are divided into two groups the reproductive ability will decrease and the number will decrease.

**Invasive Species**

* Before we know what an invasive species is let us first understand what is an endemic species. Endemic species is an ecological state of a species being unique to a definite geographical location. That means that this particular species is definite to a geographical location. These are the actual inhabitants of an area, these are the species that belong to that area, and these are the original native species of an area (the original inhabitants).
* Invasive species are not native to a specific location and that is why they can grow outside their normal distribution. Though they might be native to certain areas they can grow outside their normal distribution. They have a tendency to grow rapidly and since they can grow rapidly these are also known as aggressive species.
* These compete with the endemic species for resources. This is the main point where invasive species, compete with the endemic species for the resources, and the endemic species are depleted of the resources. This leads to the loss of endemic species and the spread of more invasive species.
* Invasive species are also reproductive more. They reproduce more rapidly due to which their progenies grow faster. Also, they are introduced by human activities often unintentionally. These are also known as exotic species because they have arrived from somewhere outside the environment.

**Pollution**

* Pollution means any substance which is present in the environment having harmful effects. Pollution is of three types- **air pollution, soil pollution, and water pollution.**
  + **Air pollution** is caused by solid and liquid particles and certain gases that are suspended in the air. These particles and gases often come from anthropogenic sources that as man-made sources like cars and trucks, exhaust factories, burning of waste in landfills, dust, and natural sources like that is pollen from flowers, mold spores fungal spores, volcanoes, and wildfires.
  + **Soil pollution or soil contamination** as part of land degradation is caused by the presence of xenobiotic chemicals or other alterations in the natural soil environment. So when there is an alteration in the natural soil environment due to chemicals then it is called soil pollution. Industrial waste, excessive use of fertilizers and pesticides, garbage pollution, leaching, and chemicals all lead to soil pollution.
  + **Water pollution** is the contamination of water bodies like lakes, rivers, and oceans usually as a result of human activities. Things that cause water pollution are the discharge of domestic and industrial effluent waste, leakage from water tanks, marine dumping, radioactive waste, atmospheric deposition, leaking of pesticides, etc.
* Pollution produces polluting gases like sulfur dioxide, carbon dioxide, methane, carbon monoxide, oxides of nitrogen, etc. Excessive polluting gases lead to a highly polluted environment in which they are living.
* This is bound to cause diseases in humans, and animals and both can suffer from several problems. When we talk about humans there is always an increased risk of heart attack, coughing, breathing problems, and irritation of the eyes, mouth, and throat.
* Pollution can also cause worsening of existing heart problems, asthma, and other lung complications.

**Climate Change**

* A rising threat to biodiversity is climate change, which is brought on by an accumulation of greenhouse gases like carbon dioxide in the earth's atmosphere.
* The temperature patterns and ecosystems that species have evolved in and rely on are altered by climate change.
* Climate change is altering the customary ranges of species by modifying the temperature and precipitation patterns to which they have grown accustomed. This compels animals to either relocate in search of more favorable living environments or adapt to their new environment.

**Overexploitation of Natural Resources**

* Overexploitation is also called over-harvesting. It is exploiting something continuously because of its importance in daily life. When we as men know that this particular thing is very important, we try to collect it much and much and this leads to over exploitation so this refers to harvesting a renewable source to the point of diminishing returns.
* The overuse of natural resources is a result of the economy's globalization, rapid technical advancement, and rising rural poverty. Numerous species' extinction may be caused by the combination of all these reasons. When biodiversity is destroyed more quickly than it can be restored, it is referred to as overexploitation or unsustainable use, which over time may lead to the extinction of entire species.

**Conclusion**

Despite significant biodiversity loss, individuals around the world are making choices and taking measures to protect biodiversity. Additional work is necessary to prevent further biodiversity loss. Consider the impact of your actions and encourage others, including corporations and governments, to follow suit.

**Also Read**

* [Biological Diversity Act 2002](https://www.geeksforgeeks.org/biological-diversity-act-2002/)
* [Differentiate between Direct and Indirect Use of Biodiversity](https://www.geeksforgeeks.org/differentiate-between-direct-and-indirect-use-of-biodiversity/)
* [Biodiversity Conservation](https://www.geeksforgeeks.org/biodiversity-conservation/)
* [Biodiversity and Conservation Notes](https://www.geeksforgeeks.org/biodiversity-and-conservation-notes-class-12-chapter-13/)
* [Pattern of Biodiversity](https://www.geeksforgeeks.org/patterns-of-biodiversity/)

**FAQs on Threats to Biodiversity**

**1. What are the 5 Main Threats to Biodiversity?**

The five main threats to biodiversity are **habitat loss, pollution, overexploitation, invasive species, and climate change.**

**2. How can we Mitigate Biodiversity Threats?**

The ways that prevent Biodiversity Loss are- **Buy Sustainable products, ditching Lawn And Garden Chemicals, planting a Tree With Our Biodiversity Projects, Protect Local Habitats**, Eating local and organic whenever possible.

**3. Why is the Loss of Biodiversity a Problem?**

The loss create the conditions responsible for morbidity or mortality. Biodiversity supports human and societal needs, including food and nutrition security, energy, development of medicines and pharmaceuticals and freshwater, which together underpin good health.

**4. What are the Top 4 Threats to Biodiversity?**

According to the UN's Convention on Biological Diversity, there are five main threats to biodiversity. These are **changes in land and sea use; direct exploitation of natural resources; climate change; pollution,invasive species.**

**5. Is Habitat Loss a Threat to Biodiversity?**

Habitat loss and fragmentation are the single greatest threats to biodiversity worldwide, and this certainly holds for mammals today.