



Branching Out

Biodiversity

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**Biodiversity describes the richness and variety of life on earth. It is the most complex and important feature of our planet. Without biodiversity, life would not sustain.**

## BIODIVERSITY AND ITS TYPES

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The Learning App



1 Genetic diversity | 2 Species diversity | 3 Ecological diversity

### Genetic Diversity

Genetic diversity refers to the variations among the genetic resources of the organisms. Every individual of a particular species differs from each other in their genetic constitution. That is why every human looks different from each other. Similarly, there are different varieties in the same species of rice, wheat, maize, barley, etc.



### Species Diversity

Species diversity refers to the variety of different types of species found in a particular area. It is the biodiversity at the most basic level. It includes all the species ranging from plants to different microorganisms. As an example, there are an estimated 1100 species of insects sharing this rare Oak Savannah forest that we all enjoy here in Huron Woods.

### Ecological Diversity

Ecosystems are collections of living and non-living organisms and their interaction with each other. Ecological biodiversity refers to the variations in the plant and animal species living together, and connected by food chains or food webs.

## **Threats to Biodiversity and why Biodiversity is important**

**Rich biodiversity provides us with basic necessities like food, good soil, clean air/water, and energy, while enhancing our quality of life. While the Earth has always experienced changes and extinctions, today they are occurring at an unprecedented rate. Major direct threats to biodiversity include habitat loss and fragmentation, unsustainable resource use, invasive species, pollution, and global climate change. The following is why biodiversity is important:**

### **1. Food Security**

**When biodiversity is lacking, the critical plants and animals making up the food chain become more vulnerable to pests and disease. Pollinators play an important and often underestimated role in this equation. As their numbers diminish, it will become increasingly difficult to produce the fruits, vegetables, and nuts that we rely on for sustenance. Scientists estimate that over one-third of global crops rely on animal pollinators (including thousands of species of bees, butterflies, moths, and some small mammals). Manual pollination measures can help, but they are a lot less efficient when our miracle workers disappear from the landscape.**

### **2. Job Creation and Economic impact**

**Biodiversity generates job opportunities from forestry to agriculture and even medicine. Loss of biodiversity is most urgent in the agricultural sector, but worrisome business implications exist across many other sectors.**

### **3. Climate Change Resistance**

**Climate change and biodiversity loss are inextricably linked. Many species can only withstand certain climate conditions, and few can adapt quickly enough to keep up with the rapid pace of climate change.**

### **4. Treatment of Diseases**

**The medical profession relies on biodiversity to develop promising new treatments. As this diminishes, so do the raw materials required for effective drug discovery and biotechnology breakthroughs.**

### **5. Human Protection**

**It is suggested that exposure to diverse habitats can have a hugely positive impact on our mental health. When we are part of a diverse and healthy ecosystem, we thrive**

## **The Good News**

**The good news is that it is within our power to change our actions to help ensure the survival of species as well as the health and integrity of ecological systems. The planet has a great ability to restore itself. Conservation efforts of the last decades have made a significant difference in the state of biodiversity today. Over 100,000 protected areas—including national parks, wildlife refuges, game reserves, and marine protected areas, managed both by governments and local communities—provide habitat for wildlife, and help keep deforestation in check. Restoration, reintroduction, and the control of invasive species, have also had positive impacts. The lifestyle choices of individuals and communities can have a large impact on biodiversity and the environment.**