Plant Conservation and Biodiversity – An Overview

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The best friend on earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources on the earth."

- Frank Lloyd Wright

Abstract: I

Human conservation efforts do concentrate on preserving the conditions in which plants thrive as well as to avoid the death of plants. The main intention behind this is to protect future resources. The economic opportunity pushes the humans to modify habitats and exploit plants species, often to the brink of extinction. During this time there will be a clash arises between nature of economics as well as conservation. One of the main reason is scarcity makes a resource more desirable.

Key words: Natural resources, Concept of Biodiversity, Ecosystem services, Genetic Erosion, Biodiversity and climate change.

Introduction: II

Plants are the fabric which covers and hold the soil to reduce the erosion and improve water quality. There are many things which are useful to the human beings from the plants like food, shelter, fuel to warm us, and the air we breathe. Plants also provide food for animals and also habitat for wildlife. The environment should be conserved and preserved for future generations. Global warming should be reduced. More number of trees should be planted in a larger way.

Sources of data: III

For secondary data Books, Journals and various websites have been referred

Concept of Biodiversity: IV

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[[2]](#footnote-2). The species are the components of ecosystems. It is also a central to the concept of biodiversity. The study of biodiversity can be seen in three hierarchical levels.

* Genetic diversity: The genetic variation existing within a species is called genetic diversity.
* Species diversity: Species diversity refers to the variety of species within a region.
* Ecological diversity: Ecological diversity refers to the variations in the plant and animal species living together and connected by food chains and food webs.

Importance and human dependence on biodiversity: V

Biosphere is a life support system to the human being. Biodiversity is vital to biosphere’s health, stability and proper functioning. There are some biodiversity products which are harvested and consumed directly like food, drugs and fuel etc. When we come to the concept of food a large number of wild plants are consumed by human beings as food. Nearly 80- 90% of food crops have been domesticated only from the tropical wild plants.

Around 70% of modern medicines are used from plants as drugs. 20,000 plant species are believed to be used medicinally. For example, Germany alone uses more than 2,500 species of plants for medicinal purposes in homeopathy and other systems of medicines. As biodiversity products to be used drugs plays an important role by using medicinal plants more. When we focus on fuel the villagers and tribal consume more the fire woods. Coal, petroleum and natural gas are also the products of fossilized[[3]](#footnote-3) biodiversity.

Human interaction with biodiversity and the need for conservation: VI

* The causes of extinction is not a recent one but it has been caused over a decades. The earliest human beings who were used the hunting with the invention of fire.
* The human beings are interfering with the nature and destroying the environment by one or the other way.
* One of the main reasons is that of change in habitat, change in climate condition, sustainability and development of agriculture, rise in civilization.

Genetic Erosion: VII

Changes in modern agriculture are also responsible for loss of genetic diversity. Farmers are focusing towards growing limited number of commercial crops. There is a reduction in many crop varieties compare to traditional farming. Genetic erosion can represent the loss of entire populations genetically differentiated from others. The major driving forces behind genetic erosion in crops are variety replacement, land clearing[[4]](#footnote-4), over exploitation of species, population pressure, environmental degradation[[5]](#footnote-5), overgrazing, governmental policy, and changing agricultural systems.

Why is biodiversity in crisis? : VIII

The rapid increase in the extinction crisis shows that the diversity of nature cannot support the current pressure that humanity is placing on the planet. Everyday species extinctions are continuing at up to 1,000 times or more the natural rate. The extinction of individual species, but also habitat destruction[[6]](#footnote-6), land conversion for agriculture and development, climate change, pollution and the spread of invasive[[7]](#footnote-7) species are only some of the threats responsible for today’s crisis. With the loss of biodiversity many plant varieties and other species are in danger position. Not only are these extinctions irreversible, but they also posing a serious threat to our health and wellbeing.

Biodiversity and Climate change: IX

* Biodiversity and climate change both are in issues. Biodiversity has been affected by climate change. So we have to make some efforts to minimize the negative influence of other factors, such as over exploitation, habitat loss and fragmentation[[8]](#footnote-8), pollution, and the spread of invasive alien species. This way we can ensure that ecosystems are less Vulnerable and more resilient[[9]](#footnote-9) to the increasing threat posed by climate change. Climate change can also be largely benefit from conserved biodiversity in the recent years the severe global climate change has altered the habitats of plenty of creatures.
* The main reason for biodiversity loss is the humans’ use of land especially for food production. When the land is converted for agriculture, many species loss their habitat and face extinction.
* Climate change is playing an important role as it has altered marine, terrestrial, and fresh water ecosystems around the world.

Biodiversity Dynamics: Loss and Threats: X

It is the analysis of dynamic models that arise from biological processes ranging from the level of individual organisms to that of populations, communities, and ecosystems. Extinction of species is a normal process to be done through nature. Replacement is a process not only in human beings but also in all kind of species which are all born in earth. That everyone has to accept and should move in a positive way to protect the environment. The rate of extinction, in undisturbed ecosystems, is estimated to be about one species per decade. In the last many decades, however, human impacts on populations and ecosystems have accelerated that rate, causing hundreds of species, subspecies and varieties to become extinct every year. And, if same thing continues, millions of kinds of plants, animals and microbes may be destroyed in the next few decades. The Major Biodiversity threats are: Habitat loss and Degradation, Invasive species, Pollution, Climate change, Overexploitation of Natural resources, Human activity and population.

Causes of Extinction: XI

Random variations in population rates (i.e. birth rates and death rates) can cause a species in low abundance to become extinct. Variation in the physical or biological environment, including variations in predator[[10]](#footnote-10), prey, symbiotic[[11]](#footnote-11) or competitor species can also cause extinction. [[12]](#footnote-12): A natural catastrophe[[13]](#footnote-13) is a sudden change in the environment (not as a result of human action) can also cause extinction. The important causes of extinction include: Climate change, Loss of habitat, Lack of Genetic Diversity, Better adapted Competition, Pollution.

Need for Reformation: XII

* As we are aware of the benefits we get from plants, we have to preserve them for future generation. We know that plants have a deep impact on the ecosystem. So if they are not conserved and protected properly there will be an imbalance in the ecosystem, which will directly affect human beings. Humans are dependent on plants, so they need to be conserved in a right way.
* There should be protected areas for them like wild life sanctuaries, biosphere reserves and national parks in a country. Another way to protect the plants is to prohibit grazing, like activities that may cause the extinction of plants. Moreover, converting the cultivation area into construction area should be prohibited.

Conclusion: XIII

Conservation of plants is very important for enriched biodiversity that helps in balancing the

ecosystem. Plants are the backbone of life on Earth and depend on the environment in many ways. It is our responsibility to conserve plants and save them from extinction. We should recover from all deforestation activities done by humans by planting trees. In order to achieve a more satisfactory relationship between society and its environment, timely provision should be made for the changes that human activities and competition over use of resources may bring about in order to minimize potential conflicts. It is important to conserve non-renewable resources, because if we use them too quickly there will not be enough. Most natural resources are limited. This means they will eventually run out. A perpetual resource has a never-ending supply.

Be as useful as a tree! Give life to others; be shelter to everyone; grant fruits to all! Be good like a tree!

Mehmet Murat ildan

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1. B.A.L,LL.B,LL.M ,Guest faculty of School of Law, University of Mysore [↑](#footnote-ref-1)
2. Sustain – To give support or relief to; [↑](#footnote-ref-2)
3. Fossilized – Any preserved evidence of life from a past geological age. [↑](#footnote-ref-3)
4. Land clearing – Land clearing refers to the process of removing trees, plants, and other vegetation from an area of land. [↑](#footnote-ref-4)
5. Environmental degradation - Any change or disturbance to the environment perceived to be deleterious or undesirable. [↑](#footnote-ref-5)
6. Habitat destruction – It is the process by which a natural habitat becomes incapable of supporting its native species. [↑](#footnote-ref-6)
7. Invasive – Tending to spread very quickly and undesirably or harmfully. [↑](#footnote-ref-7)
8. Fragmentation - When an organism breaks down into several fragments is known as fragmentation.  [↑](#footnote-ref-8)
9. Resilient – able to withstand or recover quickly from difficult conditions. [↑](#footnote-ref-9)
10. Predator *-* It isan organism that primarily obtains food by the killing and consuming of other*organisms* [↑](#footnote-ref-10)
11. Symbiotic - a close, prolonged association between two or more different biological species. [↑](#footnote-ref-11)
12. Natural catastrophe - Violent, sudden and destructive change in the environment without cause from human activity, due to phenomena such as floods, earthquakes, fire and hurricanes. [↑](#footnote-ref-12)
13. Catastrophe – An event causing great and usually sudden damage or suffering; a disaster. [↑](#footnote-ref-13)