DOI: 10.5281/zenodo.10682908

CHAPTER 18

Threats to Biodiversity

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Received: 10 January, 2024; Accepted: 29 January, 2024

Abstract

Loss of habitat and poaching the wildlife for fur, fear, feathers, flesh and finery are the major threats to biodiversity. Introduction of exotic plants and animals also threatens biodiversity in the Long run. Atmospheric pollution intensive agriculture & silviculture, use of wild animals for experimental purposes also impose a threat to biodiversity.

Keywords: biodiversity, habitat, wild life, agriculture, forestry

Introduction

Biodiversity means plants, animals & microbes occurring as an interacting system in a given habitat. It is also called biological diversity. Biodiversity is different in different natural habitats.

Unique and biologically rich ecosystems are being lost, fragmented, and degraded as a result of urbanization, industrialization, and population growth. Some of the industries, they are releasing polluted water without any proper treatment and this water ultimately reaches to the water bodies. We have a lot of our plants which were growing earlier in those water bodies. They have disappear sue to various types of pollutants which have harm their growth. Therefore air pollution and water pollution both are adversely affecting the biodiversity of our local area.

Natural resources are consumed non judiciously. Threat to biodiversity is world's most pressing crisis. Even before its exact magnitude is determined, biodiversity is disappearing from some places. Reduced biodiversity would test the biota's ability to evolve and adapt to changing environmental conditions.

Recently we have seen that climate change is taking place and this change can be defined in the form of sudden increase in mean temperature, abrupt rainfall as well as you know some time sudden storm and storm

ISBN: 978-93-95369-85-5

wells. So naturally the loss of biodiversity is directly concerned or related with the climate change. This climate change has shown at many places there are several plants and animal species which have disappear.

There was study made somewhere in northern region where they have found the during last 20 years more that 25% to 35% plant species, they have disappear from the natural habitats. Threat to biodiversity is one of the major challenges to science.

Threats to biodiversity are due to the following

1. **Habitat loss & fragmentation**

The biggest danger to biodiversity is this. A species' native habitat is altered or destroyed when people clear forests, fill marsh areas, plow grasslands, or set fire to forests. Just as a man becomes a refugee in the same way wild animals also become homeless and invade other areas where their survival is not certain. Several species became extinct. During the construction of dam on Narmada river of M.P. Persons of Harsood were offered land at Chhanera (New-Harsood) but nobody thought about the plants & animals. The result is that several species have been exterminated.

The interaction amongst various organisms is also disturbed. An example of fragmented habitat is a woodland patch encircled by urban areas, plantations, or orchards. The first species to go extinct are those found in the forest's lower reaches. When a species is overfished, its population size decreases to the point where the species is in risk of going extinct.

Deserts have replaced forests and grasslands as a result of overuse or mishandling of valuable plant species. The number of wastelands has expanded globally. The removal of mangroves for prawn farms and fuelwood has reduced the amount of habitat available for fish spawning. Drainage of wetlands has been done to expand agricultural land. At present tropical forests and coral reefs are facing the problem of habitat destruction. It is estimated that by 2050 about 10 million species of plants will be eliminated.

The number of known species of flowering plants at present is 250,000 (Two lac fifty thousands). If habitat loss continues at present rate then it is estimated that about 25% species will undergo extinction by the end of 21st century. It has also been estimated that extinction of one plant species of higher plants or flowering plant is related to the extinction of 20 to 30 animal species because green plants are producers while animals are consumers. Animals depend upon plants for their survival. A major part of extinction occurs due to the change in land use or loss of natural habitat to adjust to the increasing human population. Initiatives such as channelling rivers for irrigation and clearing wetlands for farming purposes have changed or even destroyed wild animals' natural habitat, significantly reducing their population. Preserving natural habitats such as forests, grasslands, mountain regions, wetlands, coral reefs, and other ancient ecosystems is crucial for safeguarding and maintaining biodiversity.

2. **Poaching of wild life or illegal killing of wild animals**

Poaching of wild life by man is done to obtain food, fat, finery (fur & feathers) & financial gain or for fun or out of fear. Without regard for the other species that share his habitat, man has attempted to manipulate every unfavorable aspect in order to ensure his own existence. One of the world's most profitable illegal markets is fueled by animals. Worldwide trade in animals takes a toll of roughly 40000 monkeys, 40 lac birds 35 crores of ornamental fishes and numerous reptiles & snakes.

Five crore furs, over 500 tonnes of ivory, one crore reptile skins, and three crore made leather goods are among the animal products trafficked. About 7500 crores are traded in wildlife worldwide year, with poaching of 20,000 distinct species being involved.

Because of horn poaching, roughly 95% of the Black Rhino population in Africa has been wiped out.

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A total of 3000 tonnes of ivory have been extracted from elephants throughout Africa. The scarlet Macaw, which was formerly widespread in South America, has disappeared from the majority of its range in Central America. Fur demand has put several spotted cat species in danger, including ocelots and jaguars.

Most of the snakes are non-poisonous but the moment any person observes a snake he kills it, out of fear.

Poaching is done for food requirements also. In Madagaskar, Dodo bird became extinct because its flesh was considered as delicacy by man. Bears are killed for their gall bladders. Musk deer is killed for perfume which has a good market in foreign countries.

On the beaches of Chennai, Kanyakumari & Andaman & Nicobar, shells are sold. For the pet trade, small animals like tortoises and exotic birds are smuggled into tiny containers. Ferns and orchids are used illegally in trade.

3. Introduction of non-native species

Species that are new to a place are referred to as exotic, foreign, alien, or invasive species. It's possible for a foreign species' niche to overlap with a native species'.

Native species may become extinct as a result of the newcomer outcompeting them. The degradation of habitat is thought to be the primary cause of species extinction, ahead of invasive species. Particularly in island ecosystems, which are home to a significant portion of the world's vulnerable biodiversity, exotic species have a significant influence. Even though species are frequently brought in on purpose to enhance hunting and fishing, they can also cause issues. Here are a few instances:

1. Nile Perch, a foreign predatory fish imported into South Africa's Lake Victoria, has jeopardized the lake's entire ecosystem by eradicating numerous native species of small Cichild fish that were natural to this fresh water aquatic ecosystem.

2. Originally imported as an exotic aquatic plant from tropical Africa and America, water hyacinth has developed into an annoying weed that is threatening the existence of numerous aquatic species in lakes and rivers. This is a free floating plant whose roots remain inside water, leaves are found above water surface, therefore it carries on transpiration and causes dystrophy of the Lake. The lakes at Bhopal & Sagar of M.P. and Dal lake of Srinagar reveal decrease in catchment area because of the rapid and heavy, dense growth of water hyacinth.

3. Lantana camara, a forest weed, is an exotic plant that has been introduced in India from America. It is now a great nuisance for local forest plants.

4. Over exploitation

Dodo a non-flying bird of Madagascar was hunted by man for its flesh to such an extent that the bird has now become extinct. Not only that, a plant known as Calveria major has also become extinct. When scientist tried to know the reason they were surprised to note that the seeds of Calveria could germinate only when the fruits of this tree were eaten by Dodo. When these seeds came out along with the faeces of Dodo they germinated. Since Dodo was over exploited as a delicacy the regeneration of Calveria stopped. By over exploiting one animal the biodiversity of a plant was also disturbed. Antelope is over exploited for its decorative horns. Cod fish is over exploited for cod liver oil.

In West Bengal, frogs were exported for their flesh. Within few years there was sudden outbreak of Malaria because number of mosquitoes increased in view of over exploitation of frogs. Govt. was forced to put ban on export of frogs.

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5. Soil, Water & atmospheric pollution

Pollution affects both plant and animal habitats and is a major factor in disrupting biodiversity. In estuaries and coastal zones, species are adversely affected by water pollution. Natural pollution agents such as forest fire, leaf fall and defoliation by insects also affects biodiversity.

Manmade pollution such as setting the large area of forest on fire is more dangerous than natural forest fire. Toxic waste added by man reaches the animals through food chain and has devastating effects on population. Spraying DDT is considered to be one of the reasons for reducing the number of Tigers because DDT, through grass, enters in herbivores like Rabbit or deer and from here it enters, Fox, then Wolf and ultimately in Tiger. Addition of detergent containing wastewater to lakes and ponds disturbs the biodiversity of swans, ducks & cranes because their wings are unable to function as the wax on their wings gets dissolved in the detergent in the water.

6. Intensive agriculture & forestry

India's grasslands are constantly being converted to agricultural land in order to meet the country's expanding population's demand for food.

Under silviculture and social forestry trees like Eucalyptus, Sal & rubber are cultivated after deforesting the natural forests. Growing several members of a single tree for obtaining timer or rubber or any other forest product is called monoculture. Monoculture plantations neither nourish the soil nor support the same biological diversity as a multi-stored forest with a canopy and a rich undergrowth of flora.

7. Use of animals for experimental purpose & for Zoo collection

A wide range of animals are used by researchers worldwide in their investigations. Frogs are dissected in laboratory for teaching anatomy. Monkey is used to prepare vaccine of polio. Chimpanzees are used for drug Trial. Rabbits are used for the trial of intravenous fluids and pharmacology of different drugs.

Animals like Lion, Tiger, Deer, Antelope, Monkey, Gorilla, Chimpanzee, Gibbon, Bear, Peacock are captured alive and kept in zoos. In general, animals kept in captivity do not reproduce. Additionally, they die young, leading to decreased biodiversity. It is estimated that in Delhi alone, out of 15 species of frogs 13 have become extinct.

8. Pest & predator relationship

The elderly, ill, and damaged individuals of the population of prey are eliminated by natural predators. On the other hand, mankind consistently eliminate the strongest specimens. This type of predation reduces the genetic vitality of a group. Thus, there are effects on the population of prey from both humans and natural predators. The population of prey is reduced by humans, whereas it is boosted by natural predators. Because pests and predators are significant biotic components of the ecosystem, handling them with the utmost caution is essential.

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ISBN: 978-93-95369-85-5