

INTRODUCING TOPIC

According to the Natural History Museum (<http://www.nhm.ac.uk/index.html>), it is believed that the first human beings lived on earth 6 or 7 million years ago. Until this day, the earth has been through changes and it is sure that it is not the same as then. Still, earth has not given up. But for how long can this situation continue? Each day, more and more biodiversity is being lost. As a result, animals cannot live in their habitat, which leads to their extinction.

We are all connected.



From the smallest ant to the tallest tree,
FROM THE BIRDS ROAMING THE SKIES TO THE FISH SWIMMING IN THE SEA,
Each and every creature is part of the biodiversity family.
LET'S PROTECT OUR FAMILY.
Conserve biodiversity now.
FOR MORE INFORMATION ON BIODIVERSITY CONSERVATION, LOG ON TO
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Biodiversity, the short term for biological diversity, is easily defined as the amount of variation of life in a habitat. Specifically, it refers to the amount, type and variability of fauna and flora in a precise environment. In the past 35 years it has decreased by a third and numbers of species are constantly falling. Although it is not noticeable, humans rely upon biodiversity daily, in order to maintain the economic, environmental and cultural success. It also provides a variation of food, which is vital to sustain human life. Humans have learned to use the diversity of organisms in order to satisfy their needs for food, medicines, fibers, and other renewable resources.

The complete eradication (extinction) of a species is the worst reality of nature. It cannot be undone; it is something that lasts forever. The world has faced 5 great extinctions until this day and all of them were caused by nature. This shows that extinction is a natural process of nature which many species will probably face. Some researchers believe that right now, our world is facing the sixth great extinction, but this time it is caused by human actions. Humans are killing species thousands of times quicker than nature can create them. If this situation continues like this, we will have to face nature's consequences, which will surely not have a good result.

DEFINITION OF KEY-TERMS

Biodiversity

Biological diversity–biodiversity- refers to the assortment of life on Earth. It contains all kinds of living organisms -animals, plants, micro-organisms, etc. - and, also, the ecosystems they live in.

Loss of biodiversity

The term loss of biodiversity means the reduction of a species within a specific ecosystem.

Ecosystem

The structure, in which all living organisms in a specific area, as well as its physical environment, are included where they work together as a whole.

Species

A species is the group of distinctive organisms which possess similar characteristics, anatomy, genetics and physiology.

Endangered species

All species subject of extinction during all or an important portion of its range.

Extinction

Extinction is the event where one or more animal species or plant stops existing, which means that not a single animal or plant of that species lives.

Exotic species

An exotic species is any species that is accidentally or deliberately transferred and released by man into an environment foreign to its present range.

Genetically Modified Organism (GMO)

A GMO or transgenic organism is a microorganism or an organism whose genetic material has been modified through genetic engineering. It is likely to create an organism with specific desired characteristics.

BACKGROUND INFORMATION

Causes of biodiversity loss

1. **Alteration and loss of habitats:** As a result of overpopulation and industrial development, humans had to modify territories in order to satisfy their needs. In the course of the last century, territorial changes primarily involved the increase in the area taken by farming and agriculture. Other alterations were caused by the increase in urban areas, the increase of road networks and relevant infrastructures, exploitation of underground deposits and changes in the fishing

methods. By cause of these changes, natural environments are destroyed, changed and subdivided, which lead to the division and loss of habitats.

2. Introduction of Exotic Species and Genetically Modified Organisms (GMO):

- a. When an exotic species is introduced to new environments, it can lead to various forms of imbalance in the ecological equilibrium. For example, an exotic species may interfere with the genetic code of the native species and therefore affect the existing biodiversity.
 - b. A GMO has specific characteristics, e.g. some animals become more productive. Although the idea of a GMO is very appealing to humans, it is still a very wide subject with unknown information. Therefore, although there may be positive effects of their use for medicine and society, environmental consequences are still issues. Some of them, such as the expanded use of herbicides or the disappearance of species lead to the loss of biodiversity.
- 3. Pollution:** All human activity has an influence on the environment with negative, either direct or indirect, effects. These change the flow of energy, physical and chemical structure of the natural habitat and plethora of species.
- 4. Climate change:** The heating of the Earth's can disturb biodiversity. For example, species that are adapted to colder weather are endangered, because temperatures rise constantly and these species cannot easily adapt to new temperatures.

Effects of biodiversity loss

Although it may not be obvious, biodiversity loss affects everyone regardless of their location. It has an influence on the ecosystems and their properties and, hence, the advantages that humans have from them. As we lose biodiversity, we also lose genes and chemicals, many of which have helped improve the health sector. More specifically, biodiversity ensures the continuous productivity of soils and it supplies genetic resources which are harvested for food. The use of fertilizer or pesticides and irrigation, all of which have as a result the increased food production, affect biodiversity. Thus, human health and global nutritional status are influenced. Moreover, disturbances in the functions and structure of ecosystems reduce and increase the numbers of organisms, change cooperation between them, and alter the interactions between the organisms and their chemical and physical environments. Patterns of infectious diseases are responsive to such disturbances, which make the human body more sensible to pathogens resulting in serious illnesses.

Causes of extinction of endangered species

In the past, natural causes, such as climate change in a specific region led to animal extinction. However, nowadays, human actions are the main source of effects causing extinction.

Many reasons animals become extinct are the same as the ones mentioned previously. Habitat destruction, pollution, climate change and the introduction of exotic species are some of the main causes of this phenomenon. Other reasons why this is happening are illegal hunting or even natural causes.

Illegal Hunting

Poaching, also known as illegal hunting, has negative results, mainly because hunters do not take into consideration the governmental rules that control the number of animals that should be hunted, and therefore species become endangered, due to the reduction of their population.

Overexploitation

Overexploitation includes the intensive extraction of minerals and other geological resources, the excessive harvesting of wild fauna (animal life) and flora (vegetable life), fishing, hunting or even killing endangered fauna.

Natural Causes

In the past 200 years, humans have changed natural environments all over the planet. Most of them have had a negative impact on the wildlife, which leads to the extinction of species. Nevertheless, it must be mentioned that extinction is a natural biological process, seeing as it has been part of the species' evolution through time.

Effects of extinction of endangered species

A food web usually specifies the relationships that happen between predators and prey in an ecosystem. When a species becomes extinct the food web is affected and therefore the whole ecosystem changes or is even destroyed whereas an extinction of a specific species can cause the endangerment of another to which it might have functioned as nourishment or as a symbiotic partner. This chain of effects perfectly shows how sensitive an ecosystem is and how fast it may be destroyed and its habitants with it whilst the chain of endangerment due to extinction of various species applies to mankind as well. For example, polar bears depend on seals. If the Arctic cod, important food for seals, diminishes, then the seal population may lessen. Cod eat zooplankton, and zooplankton consume ice algae. But if the climate change leads to the melting of the ice, then the ice algae population will drop, which will affect all other organisms and at the end, reduce the polar bear population.

HISTORICAL INFORMATION

Convention on Biological Diversity (CBD)

The Convention on Biological Diversity (CBD) was firstly opened for signature on 5 June 1992 at the United Nations Conference on Environment and Development (Rio “Earth Summit”) and it remained like this until 4 June 1993. Until then, it had received 168 signatures. On 29 December 1993, 30 days after the 30th ratification, it came into force.

Its 3 main objectives are the conservation of biodiversity, the viable use of its components and the proper sharing of benefits that arise out of the usage of genetic resources.

In the text of the convention it is also mentioned that each Contracting Party must establish national strategies, programs or plans on the conservation and sustainable use of biodiversity and incorporate the conservation and sustainable use of biodiversity in applicable sectors, policies or programs. Concerning incentive measures, each contracting party is expected to support socially and economically measures that serve as motivation for the protection and sustainable use of biodiversity.

United Nations Decade on Biodiversity

The decade of 2011-2020 was declared as the United Nations Decade on Biodiversity by the UN General Assembly. The UN Decade on Biodiversity serves to protect biodiversity on many levels. Throughout the decade, countries are invited to develop, enforce and communicate the results of national strategies for implementation of the Strategic Plan for Biodiversity. Another goal that needs to be achieved during this time period is the accomplishment of the Aichi Biodiversity Targets, which concern the preservation and the protection of biodiversity.

Lima Climate Change Conference - December 2014

From the 1st to the 14th of December the 20th session of the Conference of the Parties and the 10th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol was enacted in Lima, Peru. More than 190 countries participated in the making of the decision concerning important topics.

UN Framework Convention on Climate Change COP 21/ CMP 11

From the 30th of November to the 11th of December 2015 the twenty first session of the COP and the eleventh session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol will take place in Paris, France. The aim of the conference is to accomplish a legally binding and universal agreement on climate.

UN Millennium Development Goals

The Millennium Development Goals (MDGs) are eight international development goals. They were established in 2000 and all UN member states and at least 23 organizations were expected to have achieved these goals by 2015. The seventh MDG concerns the environment. More specifically, the goal is to *ensure environmental sustainability*.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement between governments and its goal is to make sure that international trade in specimens of wild animals and plants does not become a threat to their survival. It is an international protocol to which countries comply deliberately. Although parties have to implement the convention, it does not replace the laws of a country, which means that it presents a framework that has to be adapted to the national laws of each country. The text of the Convention was conceded at a meeting of delegates of 80 countries on 3 March 1973 and on 1 July 1975 entered into force.

COUNTRIES AND ORGANIZATIONS INVOLVED IN THE ISSUE

Australia

Although Australia is mainly covered by deserts or semi-arid lands, it has a great range of habitats. Due to the country's variable climates, 85% of the flowering plants, 84% of the mammals, over 45% of the birds, and 90% of the fish from the temperate coastal regions (where the most bio-diversity is contained) are endemic. Australia is one of the 17 countries in the world recognized as "megadiverse", which means that it protects a high number of the Earth's species. The country's biodiversity is valuable both nationally and globally and thus it's an obligation to conserve biodiversity.

Australia has adopted a variety of policies and programs that address the loss of biodiversity. Some progress, such as that in the field of the adoption of sustainable agriculture practices, can already be noticed.

Brazil

Brazil is the country with the largest biodiversity of flora and fauna in the world. It is thought that Brazil hosts between 15-20% of the world's biodiversity. It is in constant expansion, with a modal of 700 new animal species discovered each year. Moreover, the biggest part of Brazil is covered by the Amazon rainforest. It is home to 10% of the world's known biodiversity and it is the only rainforest that we have left in terms of diversity and size. Humans depend on it, as it produces most of the oxygen that the world needs to survive. If the deforestation continues uncontrolled like it has been the case the last couple of decades, the Amazon may soon emit more carbon dioxide into the atmosphere than it absorbs.

Colombia

Colombia is known for having about 54.871 diverse species, which make up one of the richest bio-diversities of the world. 53% of the country's territory is covered by forests and they have 324 varied ecosystems. Now, up to 1.500 species are in danger of extinction. Illegal drug trade, armed conflict and social inequality are some of the factors that contribute to habitat degradation, increased existence of invasive species, climate change and changes in land use.

India

According to the UN, 6.5% of the world's wildlife species can be found in India. Illegal trade in wildlife products has as a result the danger of extinction to some species. A report published by the International Consortium on Combating Wildlife Crime (ICWC) indicates that poaching, uncontrolled exploitation of natural resources and illicit logging of trees, are the main factors that have contributed to the increase of this issue.

TIMELINE OF EVENTS

Date	Description of event
July 1975	CITES enters into force.
June 1992	The CBD is open for signatories during the United Nations Conference on Environment and Development (Rio “Earth Summit”)
January 2000	The Cartagena Protocol on Biosafety to the Convention on Biological Diversity was adopted in the course of a meeting of the Conference of the Convention’s Parties held in Montreal.
December 2010	The UN General Assembly recognizes 2011-2020 as the Decade on Biodiversity.
December 2014	The Lima Climate Change Conference took place in Lima, Peru, and nations discussed for 2 weeks important problems of the world.
November-December 2015	The UNFCCC will take place in Paris, France.
2015	UN Millennium Development Goal nr. 7

UN INVOLVEMENT

The GA adopted a resolution on December 20, 2010, which acknowledged the years 2011-2020 as the United Nations Decade on Biodiversity and it also requested nations to increase their attempts in order to carry out the Strategic Plan for Biodiversity (Convention on Biological Diversity, A/RES/65/161 (2010))

POSSIBLE SOLUTIONS

The fate of the whole planet depends on a single species, humans. It is in our hands to fix the situation, but serious action needs to be taken. Governments should propose laws that will protect any endangered species or habitats. Concerning protected areas, rules have to be stricter in order to protect the biodiversity of an area. Consequences to those who violate the rules have to be harsh and without exception. At the same time, new protected zones have to be created in order to stop overexploitation and the violation of an area. Moreover, raising awareness about the crucial situation can

be helpful towards finding a solution. In addition to that national and international monitoring organizations could be a major help to tackle this issue by over-viewing ecosystems and the food web as well as preventing poaching by the establishment of “security staff”.

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