

PRINCIPLES OF LIFE-II

3(2+1)

Maj/Env-111

BS SEMESTER: 2

SESSION : 2019-23

Course Tutor: Dr Moneeza Abbas

Extinction: Types and causes of extinction

Introduction

Extinction is the termination of an organism or of a group of organisms, normally a species. The moment of extinction is generally considered to be the death of the last individual of the species. There are natural as well as human causes for extinction. Habitat loss is due to destruction , fragmentation or degradation of habitat. Habitat destruction, habitat fragmentation and habitat degradation are the major kinds of habitat loss. Biodiversity refers to the variety of life. The 3 types of biodiversity are genetic, species and ecosystem diversity.

- **In biology and ecology, extinction is the termination of an organism or of a group of organisms (taxon), normally a species.**
- **The moment of extinction is generally considered to be the death of the last individual of the species.**
- **More than 99 percentage of all species, amounting to over 5 billion species that ever lived on earth are estimated to be extinct.**

- **A typical species becomes extinct within millions of years of its first appearance, although some species called living fossils, survive with virtually no morphological change for hundreds of millions of years.**
- **Mass extinctions are relatively rare events; however isolated extinctions are quite common.**

- **In ecology , extinction is often used to refer local extinctions,in which a species ceases to exist in the chosen area of study, but may still exist elsewhere. This phenomenon is known as extirpation.**
- **Species which are not extinct are termed extant.**
- **Those that are extant but threatened by extinction are referred to as threatened or endangered species.**

Example of extinction

1.Dodo

- An extinct flightless bird that inhabited Mauritius, the Dodo was about one metre tall and may have weighed 10–18 kg. The bird was hunted to extinction by sailors and their domesticated animals, and invasive species. The last widely accepted sighting of a Dodo was in 1662.

2.Tasmanian Tiger

Native to Australia, Tasmania and New Guinea, the Tasmanian Tiger was a large carnivorous marsupial. Human encroachment into its habitat, the introduction of dogs and disease could also have contributed. The last wild Tasmanian Tiger was killed between 1910 and 1920, with the last captive one dying in Hobart Zoo, Tasmania in 1936

Types of species extinction

- **Diversity independent extinction**
- **Diversity dependent extinction**
- **Mass extinction**
- **Absolute extinction**
- **Pseudo extinction**

Diversity independent extinction

Extinction caused by environmental changes.

Diversity dependent extinction

Extinction caused by lowering of the species capacity.

Mass extinction

Disappearance of large number of species in limited time.

Absolute extinction

species exit to death without issues.

Pseudo extinction

One species evolve to other species
extinct.

Causes of Extinction

Natural causes of extinction

- **Climatic heating and cooling.**
- **Changes in sealevels or currents.**
- **Cosmic radiation.**
- **Acid rain.**
- **Disease /epidemic.**
- **Spread of invasive species.**

Human causes of extinction

- **Increased human population.**
- **Destruction or fragmentation of habitat pollution.**
- **Climatic change.**
- **Global warming.**

Loss of habitat

- Habitats the place where the organisms live.
- Habitat is the natural home or environment of animals, plants or other organisms.
- Habitat loss is the loss area or natural place of an organism.
- It is due to destruction, fragmentation or degradation of habitat.

Major kinds of habitat loss

- **Habitat destruction.**
- **Habitat fragmentation**
- **Habitat degradation**

Habitat destruction

- **People directly destroy habitat include filling in wetlands, dredging rivers, moving fields, and cutting down trees.**

Habitat fragmentation

- **Aquatic species habitats have been fragmented by dams and water diversions.**
- **These fragments of habitats may not be large enough to support species that need a large territory where they can find mates and food.**
- **The loss and fragmentation of habitats make it difficult for migratory species to find species to rest and feed along their migration routes.**

Habitat degradation

- **Pollution, invasive species and disruption of ecosystem processes are some of the ways habitats can become so degraded, they no longer support native wildlife.**

Main causes of habitat loss

- **Agriculture**
- **land conversion for development**
- **Water development**
- **Pollution**
- **Climate change**

Agriculture

- **Much of the habitat loss from agriculture was done long ago when settlers converted forests and prairies to cropland**

Land conversion for development

- **The conversion of lands that once provided wildlife habitat to housing developments, roads, office parks, strip malls, parking lots and industrial sites continues, even during the current economic crisis.**

Water development

- **Dams and other water diversions siphon off and disconnect waters, changing hydrology and water chemistry.**

Pollution

- **Freshwater wildlife are most impacted by pollution.**
- **Pollutants such as untreated sewage, mining waste, acid rain, fertilizers and pesticides concentrate in rivers, lakes and wetlands and eventually end up in estuaries and the food web**

Climate change

- **The emerging driver of habitat loss is climatic change.**

Impact of environment degradation

- **Ozone depletion**
- **Acid rain**
- **Depletion of marine life**
- **Loss of forests**
- **pollution of ground water**
- **Soil erosion**
- **Air pollution**
- **Global warming**

Thank You