



3.3 Threats to biodiversity



* find notes online (ask Ana)*

← on managebac files

Factors that help maintain biodiversity

1. complexity of the ecosystem
2. stage of succession
3. Limiting factors.
4. Inertia

Factors that lead to loss of biodiversity

1. Natural Events
2. Human actions

Natural Events

- Volcanic Activity
 - Droughts/Floods
 - Ice Ages
 - Meteor impact
- & + competition and predation

Human activity

- agricultural practices such as monoculture, use pesticides, GMO
- habitat degradation, fragmentation, and loss
- introduction of invasive species

- pollution
- population growth
- overhauling, collecting, and harvesting

(AND HIPPO)

A - agricultural practices

N - natural hazards & disasters ← not rly counts since it's natural

D - disease spread

H - habitat degradation and loss

I - invasive species

P - pollution

P - population growth

O - over exploitation

so (A HIPPO)

Practices of Agriculture

- Farming causes habitat loss and reduces biodiversity because of

- Mono culture: Farming of only one crop on a large scale

- Pesticides: often lethal to many non-pest species

- Herbicides: lethal to species other than weeds

Natural Disasters

- Naturally occurring events that may have a negative impact on the environment

Spread of Diseases

- Decreases biodiversity
- Diseases are usually species-specific but if they mutate they can infect across the species barrier

Habitat fragmentation and loss

- Degradation: reducing the quality of available habitat

↳ Ex: logging, agriculture, sewage

- Loss: disappearing of an entire habitat

↳ Ex: paving natural area for building sites, converting prairie into farmland or buildings

- Fragmentation: large area divided up into smaller areas

- Fragments separated by roads, power lines, fields, etc.

- Fragments act as 'green' islands surrounded usually by urbanization

- Diseases can be passed

Introduction to Alien Species

- organisms that are living in an environment outside of its normal range or natural environment

↳ sometimes it works, not always

Pollution

- Local pollution e.g. oil spill killing seabirds
- Environmental pollution e.g. emissions from factories and transport lead to acid deposition or photochemical smog
- Run off fertilizer into waterways
- Climate change alters weather patterns and shifts biomes

Overexploitation

- Technology has allowed humans to become better at catching, hunting, and harvesting

assignment.

1. extinct

2. human endangered

3. animals that have gotten better to intervention

Small population size

- Low genetic diversity
- Less variation so less resilient to change

Low population densities and large territories

- Reduced chance of individuals meeting for reproduction
- Requires very large area to support few organisms

Few populations

- If there is only one population of a species then that is their only chance of survival

A large body

- 10% rule means predators are rare
- Usually large range, low population densities and need lots of food
- Compete with humans for food
- Hunting trophies
- Danger to humans

Low reproductive potential

- Reproducing slowly and infrequently means populations take a long time to recover
- Albatrosses produce one egg per pair per year and take several years to become

fecund

Seasonal migrants

- long hazardous journeys
- Reliant on multiple habitats
- Many salmon species swim upriver to spawn

Poor dispersers

- Species that cannot easily move to new habitats
- Plants rely on seed dispersal meaning they can die out before it can move
- Non-flying animals
- Flightless birds of New Zealand

Specialised feeder or niche requirements

- single food source can be destroyed
- Koala bear and Eucalyptus

Vocabulary

Extinct (Ex)

- no reasonable doubt that the last individual has died. Determined after exhaustive surveys of animals known range and expected habitats

-Endangered (E)

- survival is unlikely if causal factors continue operating.

- Drastically reduced populations & habitat

-Critically Endangered (CR)

- considered to be facing an extremely high risk of extinction in the wild

-Vulnerable (V)

- near endangered if causal factors continue. Numbers are abundant but are under threat from serious factors (overexploitation, habitat destruction)

-Near Threatened (NT)

- small world populations that are at risk. Unexpected threat could easily cause a critical decline (small geographic disturbance)

-Least Concern (LC)

-Unknown (K)

- suspected to fit in one of the above categories but there is a lack of information

Tropical biomes

- contain some of the most globally biodiverse areas and their unsustainable exploitation results

in massive losses in biodiversity and their ability to perform globally important ecological services

- once covered 14%, now it's 6%.

- shifting cultivation can work as long as there is enough time for the forests to regenerate

- but as population size increases and the demand for resources rises too many areas are cleared before they had time to re-grow

↳ leads to a gradual degradation to nutrients and of biodiversity

Deforestation v. Forest Degradation

- Deforestation

- occurs when forests are converted to non-forest uses, such as agriculture and road construction

- Forest degradation

- occurs when forest ecosystems lose their capacity to provide important goods & services to people and nature

Why is it important?

- Biodiversity
- Sustainable livelihoods
- Climate mitigation and adaptation

Biodiversity

- The degradation and loss of forests threatens the survival of many species, and reduce the ability of forests to provide essential services such as clean air and water, healthy soils for agriculture

Sustainable livelihoods

- deforestation and forest degradation impact the lives of 1.6 billion people whose livelihoods depend on forests
- one billion of them are among the world's poorest

Climate mitigation and adaptation

- World's forests absorb 2.4 billion tonnes of CO_2 per year
- protecting and restoring this vast carbon sink is essential for mitigating climate change

- forests play a crucial role in climate change adaption efforts

- act as food safety net during climate shocks, reduce risks from disasters like coastal flooding, and help regulate water flows and microclimate

- improving the health of these forest ecosystems and introducing sustainable management practices increase the resilience of human and natural systems to the impacts of climate change.

- most tropical biomes occur in less economically developed countries (LEDs) and therefore there is conflict between exploitation, sustainable development and conservation