

# Climate change and Biodiversity



Part 2

**Biodiversity** is about **living things** and their relationships with each other. This includes species, ecosystems and the ecological processes of which they are a part. Every species worldwide is impacted by climate change. Rising temperatures and sea levels, less rain and more droughts. By 2100, an estimated 50% of all the world's species could go extinct.



**Climate change** is **affecting our wildlife** as it is changing species distribution through shifting habitat, changing life cycles, and development of new physical traits.



Many species won't be able to **adapt** quickly enough to changes in their **environment**.

## Habitat fragmentation

occurs when construction such as river dams and highways which disrupt migration paths breaks up natural landscapes.

More **CO<sub>2</sub>** and **increased temperatures** in the atmosphere could lead to long forest seasons.

A **shift in the range** of a species can mean the introduction of new rivalries and the unraveling of ecosystems.

## Habitat destructions

Further droughts are likely to harm natural grassland growth. Extreme storms and rising sea levels may lead to coastal squeezing.



Climate change can cause **Range contraction** when already limited habitats change and shrink further.

## Phenological mismatches

happen when the life cycles of dependent species change and no longer match up. E.g., migratory species arrive at a site after their prey has passed.



The **earlier arrival** of spring changes the **life cycles** of many plants that provide food and habitat for other species.

## Global Warming

prevents the mixing of these layers to impact nutrient exchange, heat and CO<sub>2</sub>. In some regions, the water does not contain any oxygen that is damaging to marine life.

## Ocean acidification

– Too much CO<sub>2</sub> is absorbed into the water, making it difficult for some species to build shells and skeletal structures. Some waters are already considered 'corrosive' to these organisms.



Climate change is responsible for damaging the development of **marine ecosystems** that are also at danger of pollution, commercial fishing and drainage of wetlands.



Compiled and designed by **Latha G. Ravikumar, ZOO**

# IMPACTS OF CLIMATE CHANGE

## Agriculture Impacts

- ✘ Crop yields decrease --> will affect food supply
- ✘ Irrigation demands
- ✘ Less efficiency of hydropower plants --> Growing risks to electricity supply



## Water Resource Impacts

- ✘ Changes in water supply
- ✘ Water quality
- ✘ Demand for water



## Impacts on Coastal Ecosystems

- ✘ Sea level rise could erode and inundate coastal ecosystems and eliminate wetlands.
- ✘ Warmer and more acidic oceans are likely to disrupt coastal and marine ecosystems.
- ✘ Inundate coastal lands
- ✘ Costs to defend coastal communities



## Forest and Species Impacts

- ✘ Change in forest compositions and shift geographic range of forests
- ✘ Widespread forest death
- ✘ Wildfires
- ✘ Invasion of pests and strong species Extinction of vulnerable plants and animals.
- ✘ Some warm weather species are expanding, and those that rely on cooler weather are declining habitats and potential extinction.



## Health Impacts

- ✘ Weather-related mortality
- ✘ Infectious diseases
- ✘ Respiratory illnesses
- ✘ Increase in diseases transferred by mosquitoes, rats and ticks



# MITIGATION

Action to reduce and curb greenhouse gas emissions



# ADAPTATION

Actions to reduce vulnerability to climate change



## Goal

Cut down greenhouse gas emissions

## Goals

Enhance our adaptability

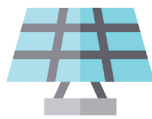
Improving our ability to thrive on various climate conditions

Develop resilience against extreme climate and climate change

Energy efficient technology



Greater use of renewable energy



Electrification of Industrial processes



Efficient (Sustainable) transport (electric, public, bicycles, etc.)



Increasing local agriculture Capacity -> reduce imports and, therefore, the use of fossil fuel over long distance



Carbon tax and emissions markets



Design of building and infrastructure

Forest protection - Landscape restoration (natural landscape) and reforestation



Changing agriculture practices - Flexible and diverse cultivation to be prepared for natural catastrophes



Conservation of water and energy



Research and development on possible catastrophes, temperature behaviour etc



Preventive and precautionary measures (evacuation plans, health issues etc.)



**Mitigation aims to reduce the causes of climate change  
Adaptation includes changing our choices, actions  
and approaches to adapt to climate change.**