




# Aim: What is conservation biology?

*Conservation biology is a goal-oriented science that seeks to counter the **biodiversity crisis**, the current rapid decrease in Earth's variety of life.*

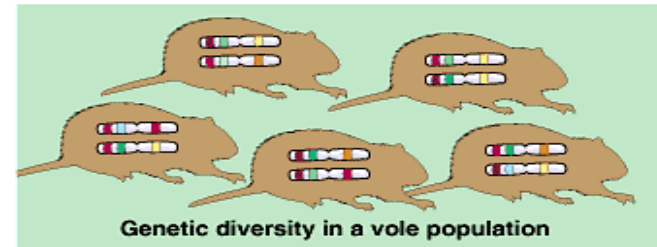


# Extinction

- Extinction is a natural phenomenon that has been occurring since life evolved on earth.
  - The current *rate* of extinction is what underlies the biodiversity crisis.
  - A high rate of species extinction is being caused by humans.

# Biodiversity

- The three levels of biodiversity are genetic diversity, species diversity, and ecosystem diversity



# Loss of species diversity

- The U.S. Endangered Species Act (ESA) defines an **endangered species** as one in danger of extinction throughout its range, and a **threatened species** as those likely to become endangered in the foreseeable future.
- 13% of the known 9,040 bird species are threatened with extinction.
- About 20% of the known freshwater species of fish in the world have become extinct or are seriously threatened.



# Loss of ecosystem diversity.

- The local extinction of one species, like a keystone predator, can affect an entire community.
- Some ecosystems are being erased from the Earth at an unbelievable pace.
  - For example, an area the size of the state of West Virginia is lost from tropical forests each year.

# Why should we care about biodiversity?

- 1) some species provide crops, fibers, and medicines.
- 2) lost genes
- 3) sentimental value

# Threats to biodiversity

- **The four major threats to biodiversity are habitat destruction, introduced species, overexploitation and food chain disruption**

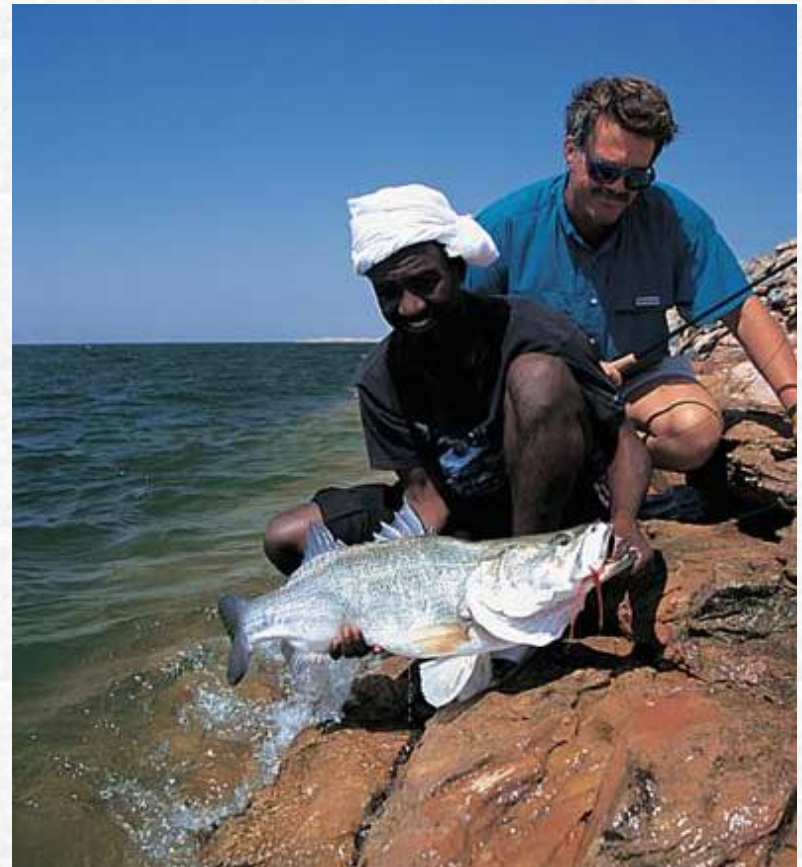
# Habitat Destruction

- Caused mostly by human alteration
- responsible for the 73% of species designated extinct, endangered, vulnerable, or rare.
- About 93% of the world's coral reefs have been damaged by humans.
- fragmentation of many natural landscapes



# Introduced Species

- **Introduced species** are those that humans move from native locations to new geographic regions.
- Example: Nile perch introduced to Lake Victoria – death to many native species



# Over-exploitation

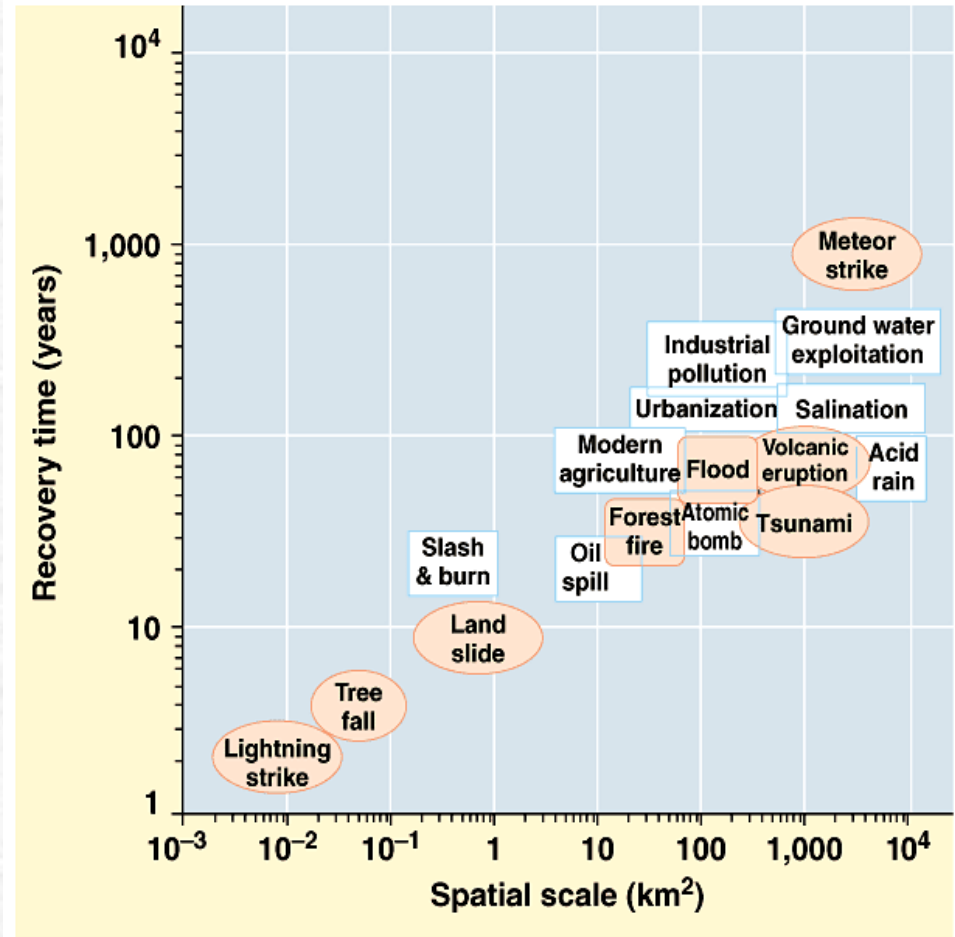


Great Auk

- human harvesting of wild plants and animals at rates that exceed the ability of those populations to rebound.
- African Elephant
- Blue-fin tuna

# Recovery

- Restoration **ecology** applies ecological principles in developing ways to return degraded areas to natural conditions.





# Bioremediation



- **Bioremediation** is the use of living organisms to detoxify polluted ecosystems.



# Biophilia – a love of life

- We should be motivated to preserve biodiversity because we depend on it for many resources.

