

Importance to Nature

- Biodiversity is important to health of all species due to species interactions.
- Species themselves also play a major role in providing ecosystem services such as:

Example: Pollination

- 30% of human crops depend on pollinators; replacement value estimated billions of dollars/year in US alone

Without bees they'll all be off the menu

Importance to People

- Food
- Building Materials
- Fuel
- Paper Products
- Fiber (clothing, textiles)
- Industrial products (waxes, rubber, oils)
- Medicine

Example: Medicine

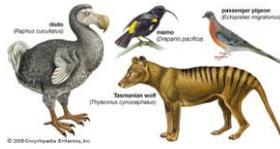
- About 80% of the people in developing countries use plants as a primary source of medicine.
- 57% of the 150 most-prescribed drugs have origins in biodiversity

Source: © AMNH-CBG

Loss of Biodiversity

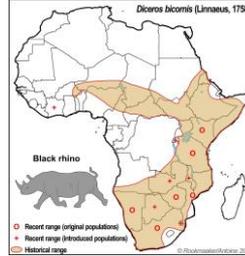
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- Extinction refers to the death of a life form
 - Natural event
 - 5-6 mass extinctions in earth's history



- Current rate of extinction is unprecedented; 100–1000 times natural rate due to human activities

- A species is considered endangered when its numbers are so low that extinction is possible.



- Example: The Black Rhino is at risk due to poaching and black-market trafficking of its horn.

- Threatened species are those likely to become endangered if factors that make it vulnerable are not reversed.



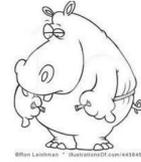
- Example: The African Elephant is at risk due to poaching, habitat loss, and human-wildlife conflict.

Threats to Biodiversity

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THE HIPPO DILEMMA (The 5 Main Threats To Biodiversity)

- H** - habitat loss
- I** - introduced species
- P** - population growth
- P** - pollution
- O** - over-consumption



Habitat Loss

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- Refers to habitat that is no longer suitable for organisms to live in.
- Due to humans changing land cover and land use



Habitat Loss

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- Largest threat to biodiversity.
- Species are adapted to their habitats for food and shelter. Changes to habitats can threaten organisms with extinction.
- Includes habitat fragmentation and degradation

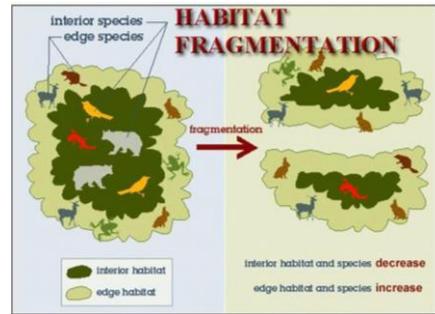
(a) Habitat Fragmentation

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- Breaking up large habitats into smaller habitats.
 - Roads, railways, pipelines
- Isolated patches won't do



- Edge Effects: Habitat fragmentation creates an "edge" habitat where "inner" habitat used to be.



(b) Habitat Degradation

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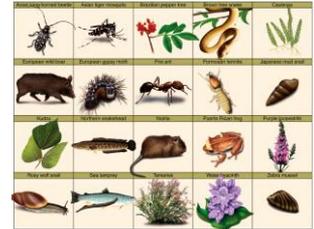


- Refers to the damage to habitats caused by pollution
 - Acid precipitation
 - Destruction of the ozone layer
 - Eutrophication

Invasive Species

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- Any organism that has been introduced somewhere other than its original habitat and is causing harm.



- Often have no natural predators and tend to out-compete and out-reproduce native species

- Example: Purple Loosestrife is an ornamental flower that takes over wetlands, roadsides, and disturbed areas.



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- Not eaten by native animals.
- Forms dense stands that reduce nutrients and space for native plants and degrade habitat for wildlife.

- Example: Zebra and quagga mussels are mussels that clog and impair water infrastructure.

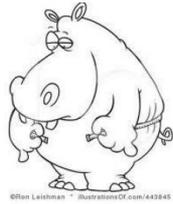


- Threaten aquatic habitats, fisheries, recreational and infrastructure resources.

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Over-Consumption

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- Individuals using more resources than needed to survive.
- Industrialized nations make up 25% of the world's population, but use 75% of its resources.

Who consumes most?
Global use of natural resources
Global hectares (gha) used per person in 2014



The global hectare is a unit that is used to describe the human consumption footprint.
Source: WWF Living Planet Report 2016

Over-Consumption



- Commercial harvest
- Poaching
- Bush meat trade
- Exotic medicines
- Zoos, laboratories, circuses, pet stores

Conclusions

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What's Happening to Biodiversity?

WE'RE LOSING IT

Biodiversity—the variety of plants, animals, and ecosystems in the world—is a measure of our planet's health. Overexploitation, habitat destruction, and the introduction of invasive species are threatening Earth's biodiversity. It's time to turn the tide.

ONCE A SPECIES IS EXTINCT, IT IS LOST FOREVER

