Essential Question

How do human activities reduce biodiversity?

Biodiversity and Its Threats

- Biodiversity: the variety of life
- Genetic, species, and ecosystem diversity
- Human activities can reduce it
- Six common threats

Habitat loss

Natural areas cleared for farms, cities, and roads

Fragmentation

Habitat is split into smaller, isolated pieces

Invasive species

Species moved to new places that spread and harm natives

Pollution

Chemicals and extra nutrients harm ecosystems

Overharvesting

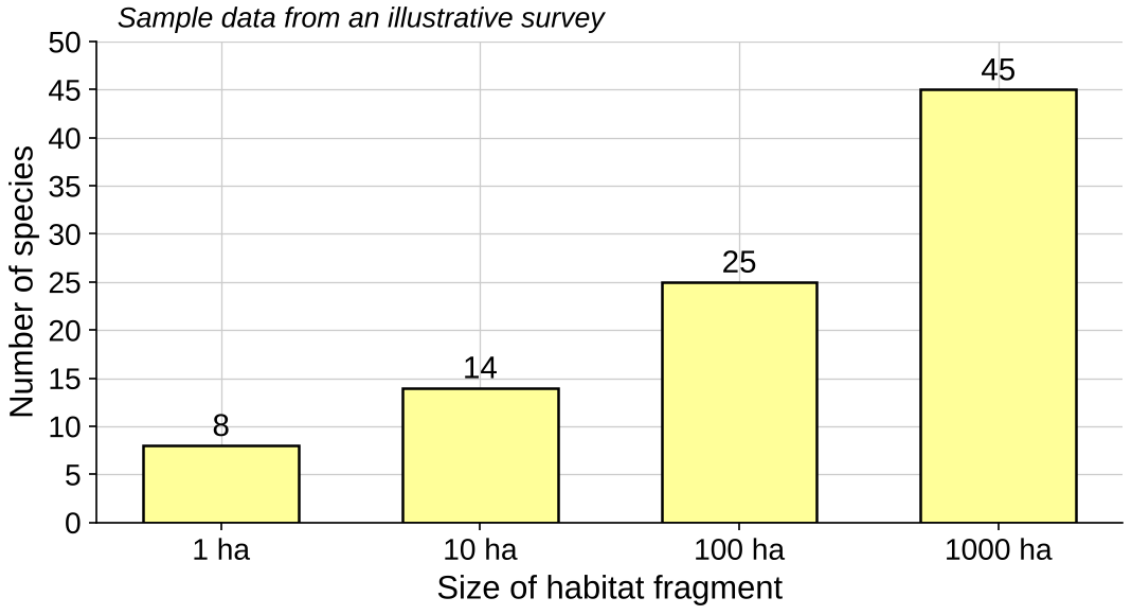
Hunting or fishing faster than populations can recover

Climate change

Warming shifts where species can live and when events occur

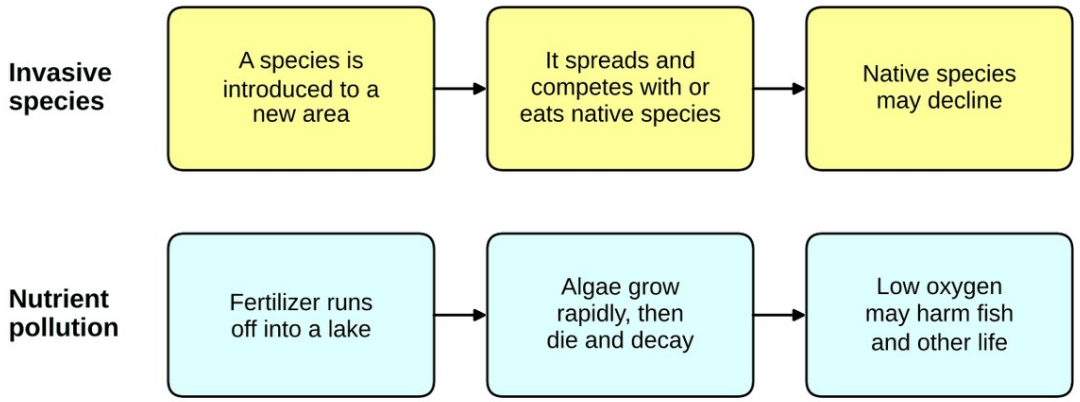
Habitat Loss and Fragmentation

- Habitat loss removes living space
- Fragmentation splits habitat into small pieces
- Smaller areas usually hold fewer species
- Isolated populations can be more vulnerable



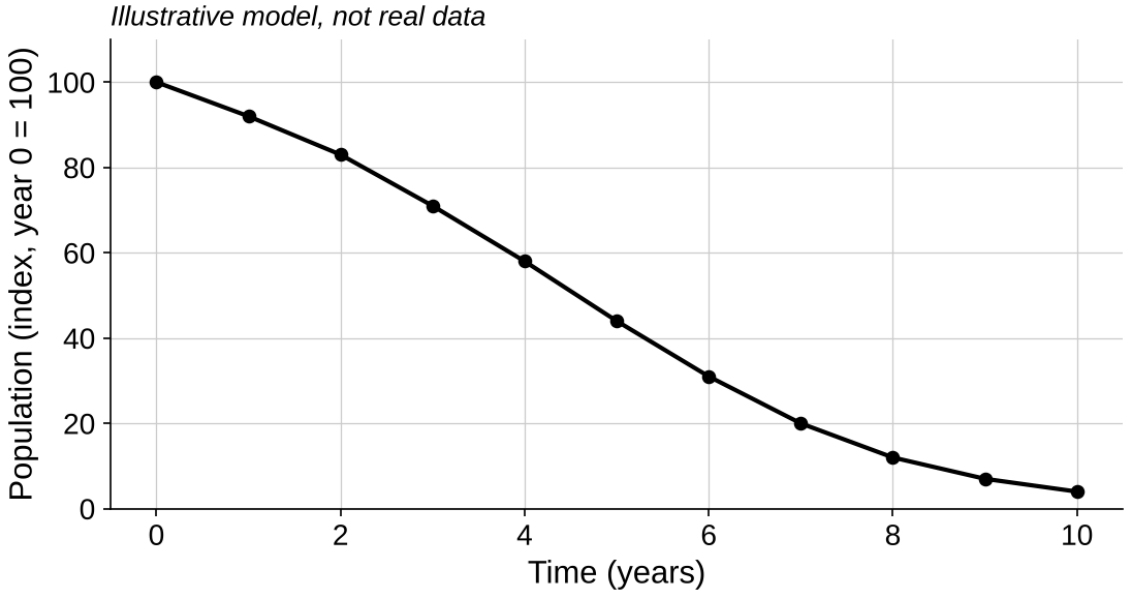
Invasive Species and Pollution

- Invasive species spread and harm natives
- They may lack natural predators or competitors
- Extra nutrients can cause algal blooms
- Decay of algae can lower oxygen



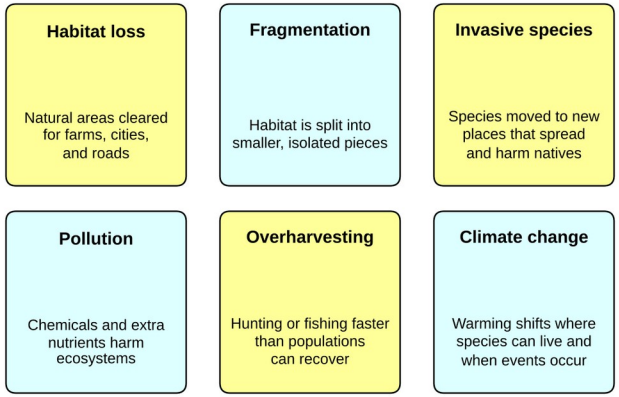
Overharvesting and Climate Change

- Overharvesting: taking species faster than they recover
- Population can fall sharply
- Climate change shifts ranges and timing
- Species respond at different rates



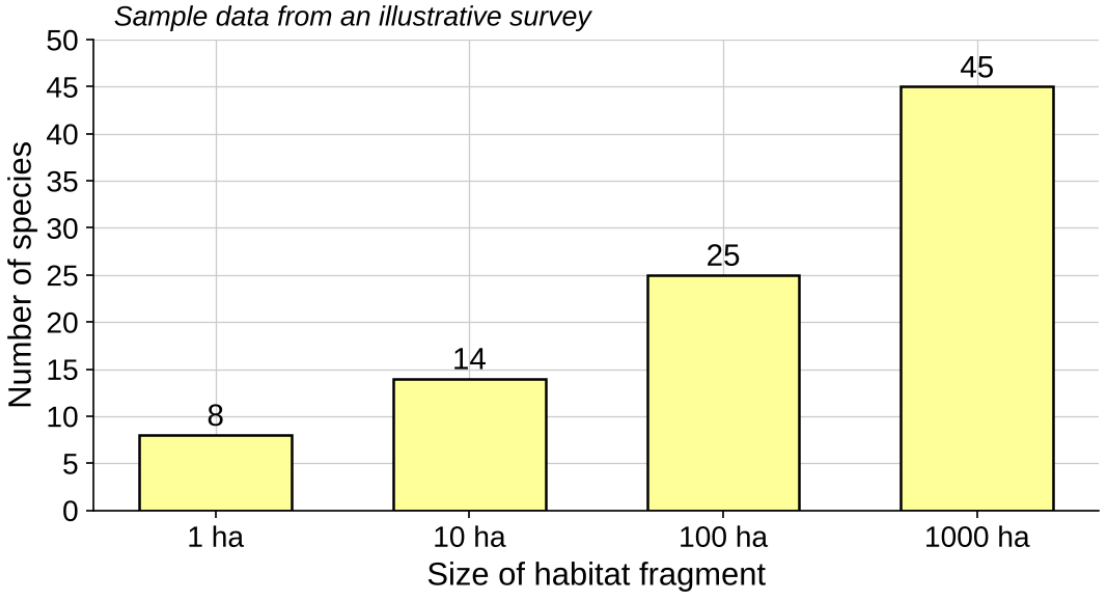
Example: Name the Threat

Use the six threats to biodiversity. Name the main threat in each case: (a) a forest is cleared for farmland and divided by new roads, (b) fertilizer runs off into a lake and algae grow rapidly, (c) a plant brought from another continent spreads and crowds out native plants, (d) a fish is caught faster than it can reproduce.



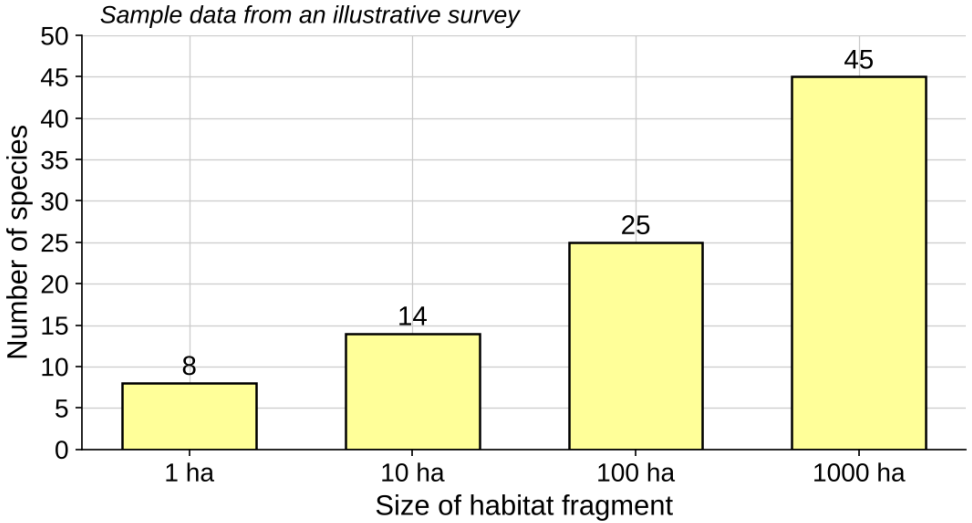
Example: Habitat Size and Species

Use the graph. Do larger habitat fragments hold more species? Write a claim, evidence, and reasoning.



Example: How Much More at 100 ha?

A 10 ha fragment had 14 species and a 100 ha fragment had 25 species. Calculate the percent increase in the number of species. Round to the nearest tenth of a percent.



Human Impacts on Biodiversity

Big Ideas

- Biodiversity is the variety of life at the genetic, species, and ecosystem levels
- Habitat loss, fragmentation, invasive species, pollution, overharvesting, and climate change can reduce it
- Larger habitat areas generally hold more species
- Harvesting faster than a population can recover can cause a sharp decline
- Threats often act together