

# Conservation of Biodiversity

April 13, 2015  
Mr. Alvarez

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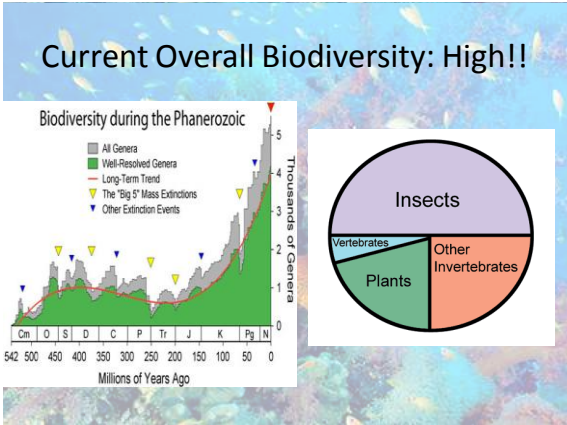
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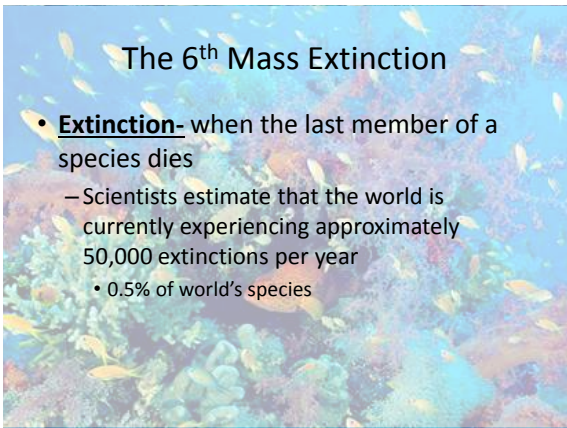
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## The 6<sup>th</sup> Mass Extinction

- **Extinction**- when the last member of a species dies
  - Scientists estimate that the world is currently experiencing approximately 50,000 extinctions per year
    - 0.5% of world's species

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## Genetic Diversity

- ❖ Scientists want to conserve genetic diversity so that the species can survive environmental change and inbreeding will not occur.
- ❖ **Inbreeding**- Occurs when individuals with similar genotypes, generally relatives, breed with each other

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## Categories of Endangerment

- ❖ **Extinct**- no known species exist today
- ❖ **Threatened**- species with a high risk of extinction in the future
- ❖ **Near-threatened**- species that are likely to become threatened in the future
- ❖ **Least concern**- species are widespread and abundant

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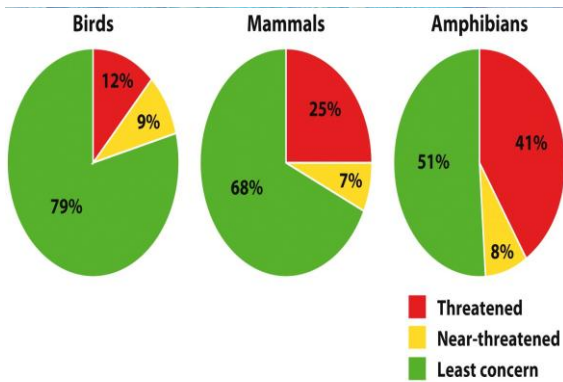


Figure 18.4  
Environmental Science  
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### Characteristics of Endangered Species

- Extremely localized range or require a **LARGE** territory
- Low reproductive success
- Island species or *extreme specialists*
- **Low adaptability**



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### Where are extinctions occurring?



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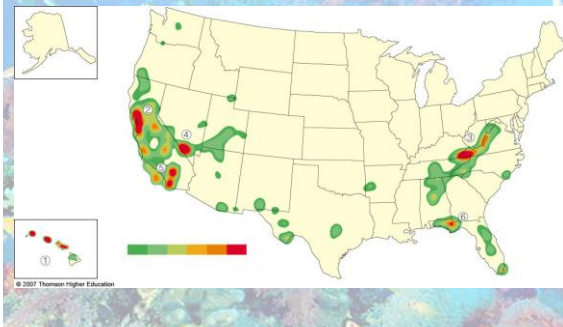
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### Where are the Biodiversity "Hot Spots" in America?



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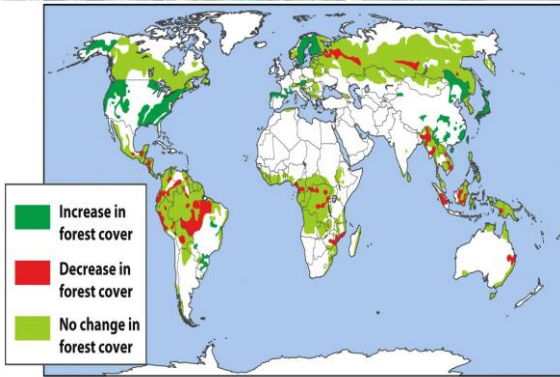


Figure 18.6  
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Figure 18.5a  
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Figure 18.5b  
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### Fragmentation

- Causes edge effects
- Patches = too small to support large species
- Barriers to dispersal between patches

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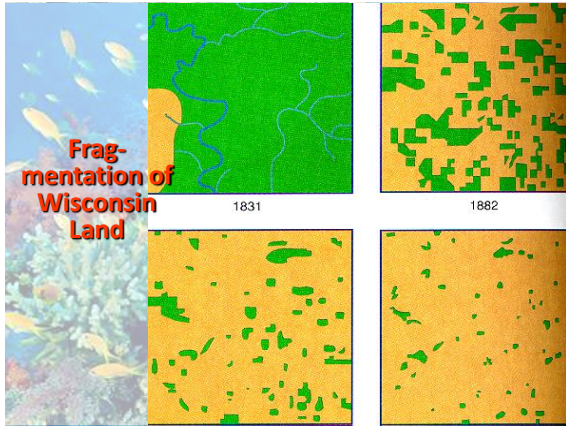
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### Deliberately Introduced Species

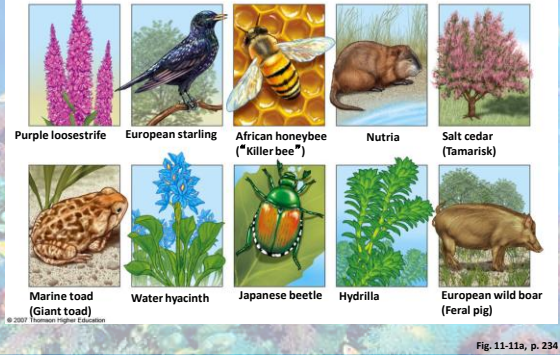


Fig. 11-11a, p. 234

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### An Invasive Vine (Kudzu)




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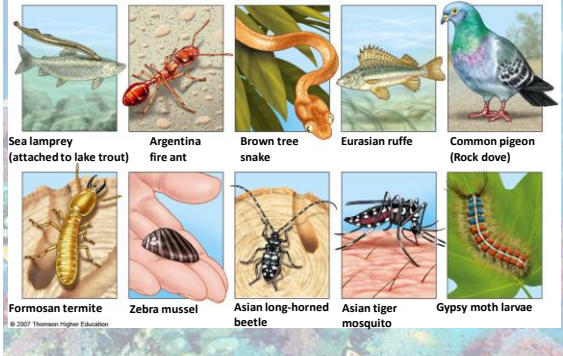
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### Accidentally Introduced Species




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## Pollution

- Threats to biodiversity can come from toxic contaminants such as pesticides, heavy metals, acids, and oil spills



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## Climate Change

- The concern is how climate change will affect temperature and precipitation around the world, and how this will impact biodiversity.



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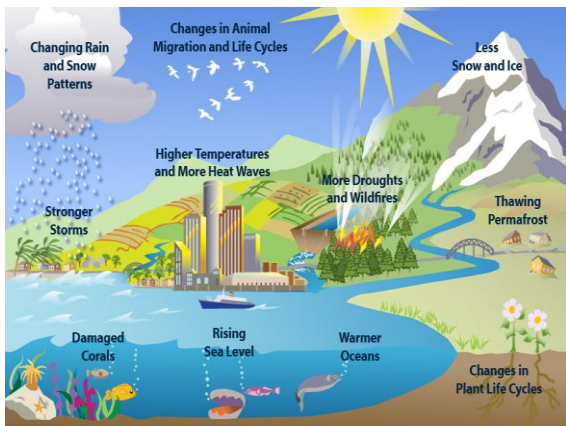
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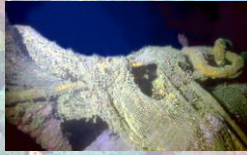
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## Overfishing

- Fishing methods kill many non-target species
  - drift net/gill net
- **34%** fish at risk
- Biggest problems =
  - Europe (86% risk)
  - Asia (69% at risk)




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## Harvesting Corals

- Coral collection destabilizes reefs and decreases habitat




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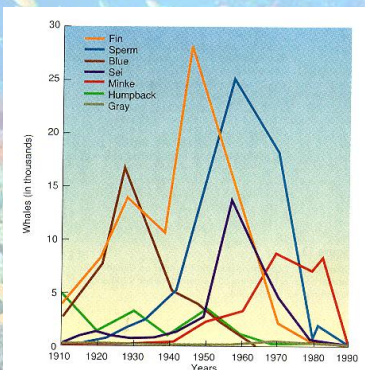
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## Effects of Whaling




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### Harvesting Tropical Fish

- Cyanide for fish-collecting
- Only 1 out of every 5 fish collected makes it to the store alive.



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### Conservation Legislation

- **Marine Mammal Protection Act**- prohibits the killing of all marine mammals in the U.S. and prohibits the import or export of any marine mammal body parts.



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### Endangered Species Act

- **Endangered Species Act**- first passed in 1973, it authorizes the U.S. Fish and Wildlife Service to determine which species can be listed as threatened or endangered and prohibits the harming of these species.
  - Trading these species is also illegal.
  - The act also authorizes the government to purchase habitat that is critical to the species.

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### Size, Shape and Connectedness

- ❖ When designing and managing protected areas we must consider how close to another area they should be, how large the area is, and the amount of edge habitat the area contains.
- ❖ **Edge habitat**- the area where two different communities come together, typically forming an abrupt transition.
  - ❖ Example: A grassy field meeting a forest.
  - ❖ SLOSS
  - ❖ Habitat Corridors

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### Brown-Headed Cowbird




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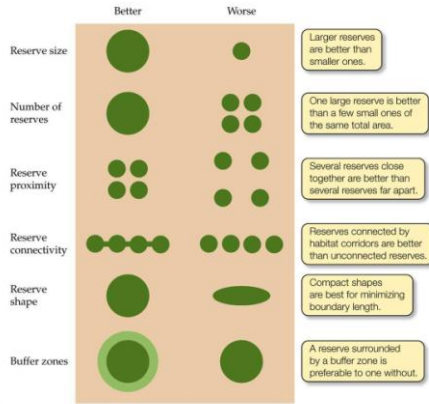
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ECOLOGY, Figure 23.17

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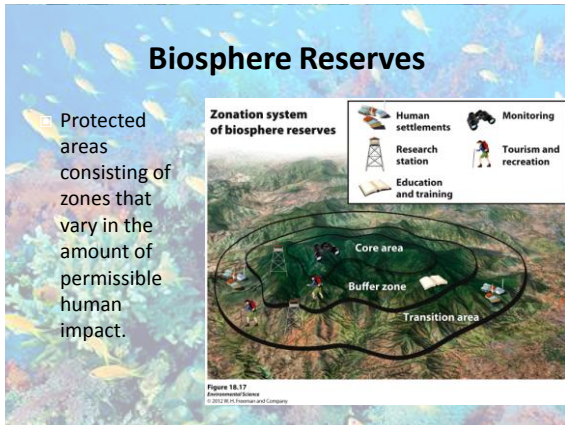
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