PHYSICAL GEOGRAPHY

By Brett Lucas

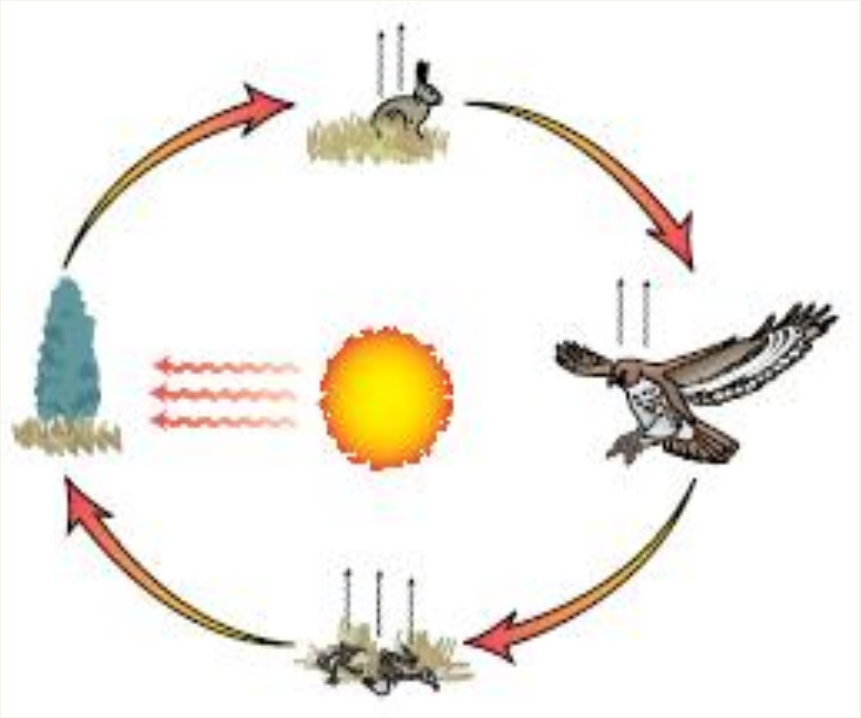
TERRESTRIAL FLORA AND FAUNA

Terrestrial Flora and Fauna

- Ecosystems and Biomes
- Terrestrial Flora & Fauna
- Zoogeographic Regions
- The Major Biomes
- Human Modification of Natural Distribution Patterns

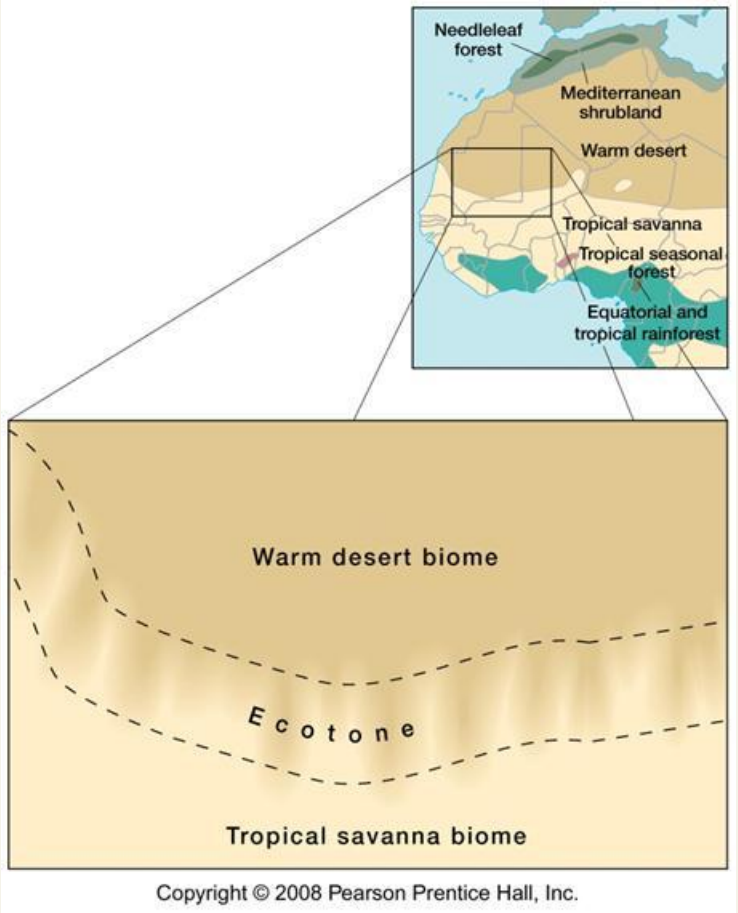
Ecosystems and Biomes

- Ecosystem
  - Meaning: Interactions among organisms and between organisms and their non-living environment.
  - Scale: Underside of a rock to a large area of a continent.



Biomes

- Introduction
  - Large terrestrial ecosystem
  - Recognizable assemblage of plants and animals
  - **Ecotone – transitional boundary between adjacent biomes**
  - Dominant vegetation – Basis for biome names (see next slide)



Biomes

- Ten major biomes
  1. Tropical rainforest
  2. Tropical deciduous forest
  3. Tropical scrub
  4. Tropical savanna
  5. Desert
  6. Mediterranean woodland and shrub
  7. Midlatitude grassland
  8. Midlatitude deciduous forest
  9. Boreal forest
  10. Tundra

Environmental Adaptations

- **Annual versus perennial life cycle:** those that perish during harsh climatic stress vs. those that don't
- Xerophytic adaptations (hot climate)
  - Root, stems, leaf (e.g. Cactus)
  - Reproductive: some complete a whole life cycle right after a heavy rain! (ephemeral plants)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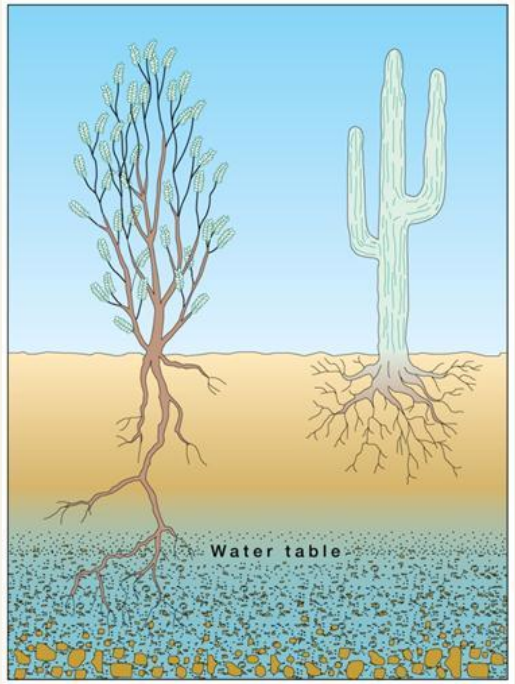

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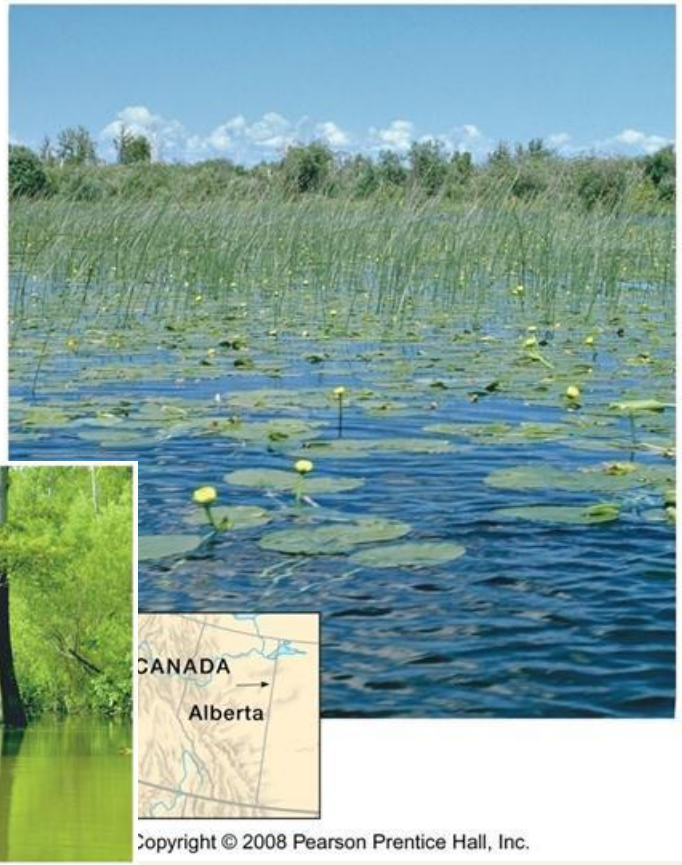
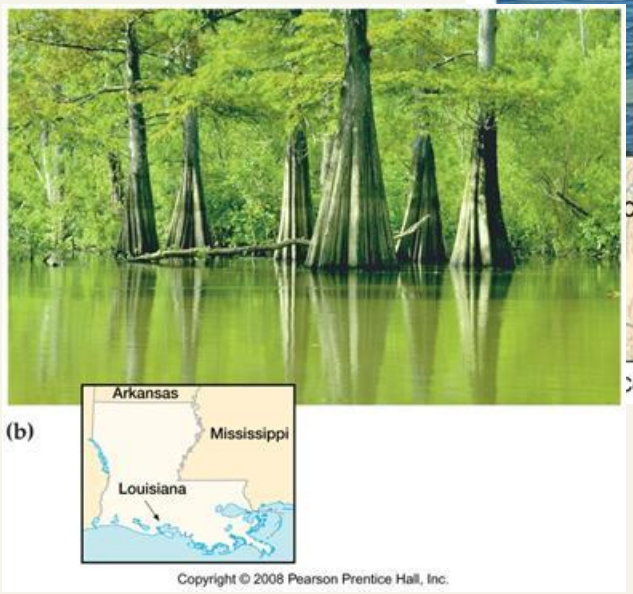
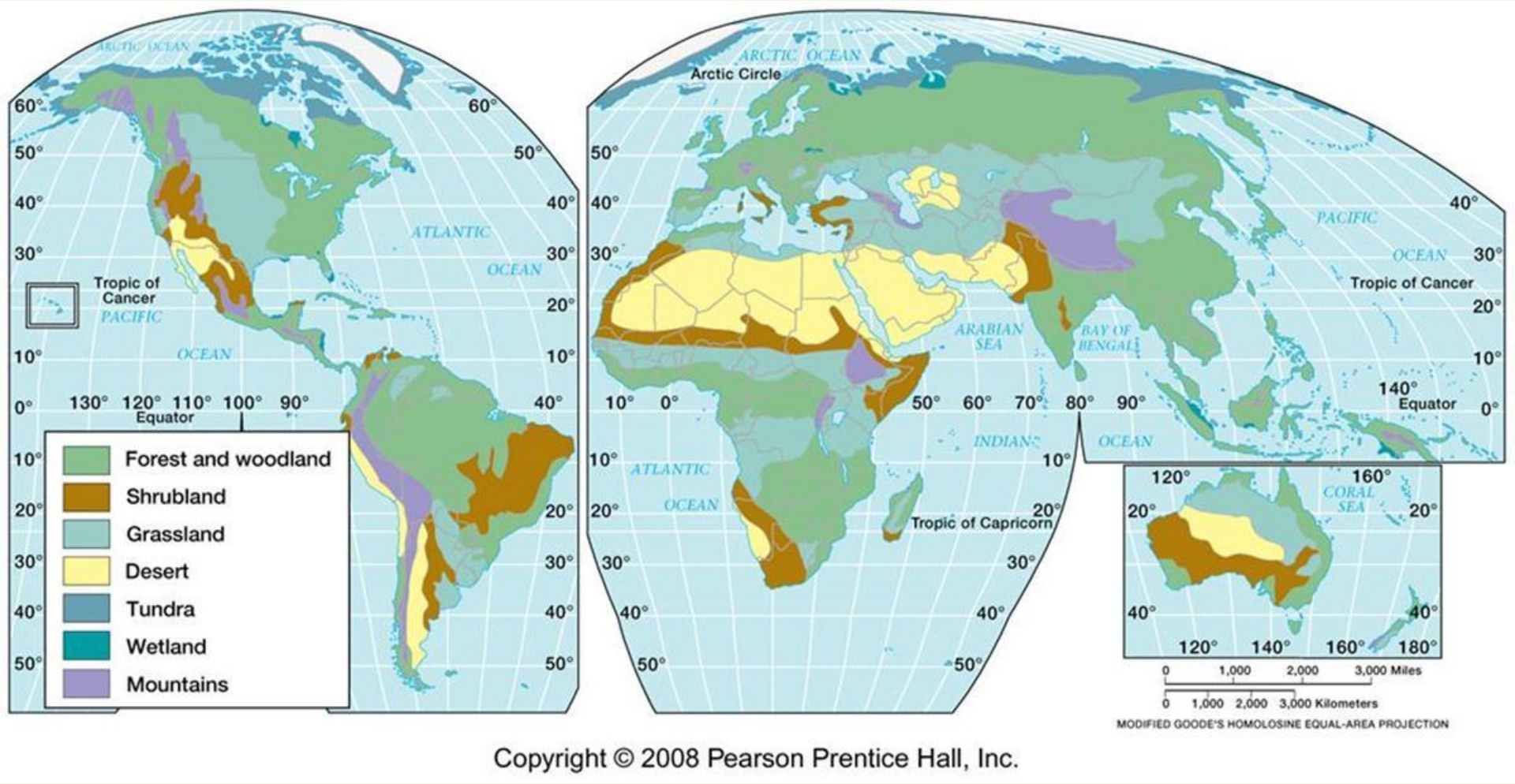
Hygrophytic adaptations

- Moisture-loving
  - Some species require permanent immersion in water (Hydrophytes)
  - Some species require frequent soakings with water (hygrophytes)





Major natural vegetation associations



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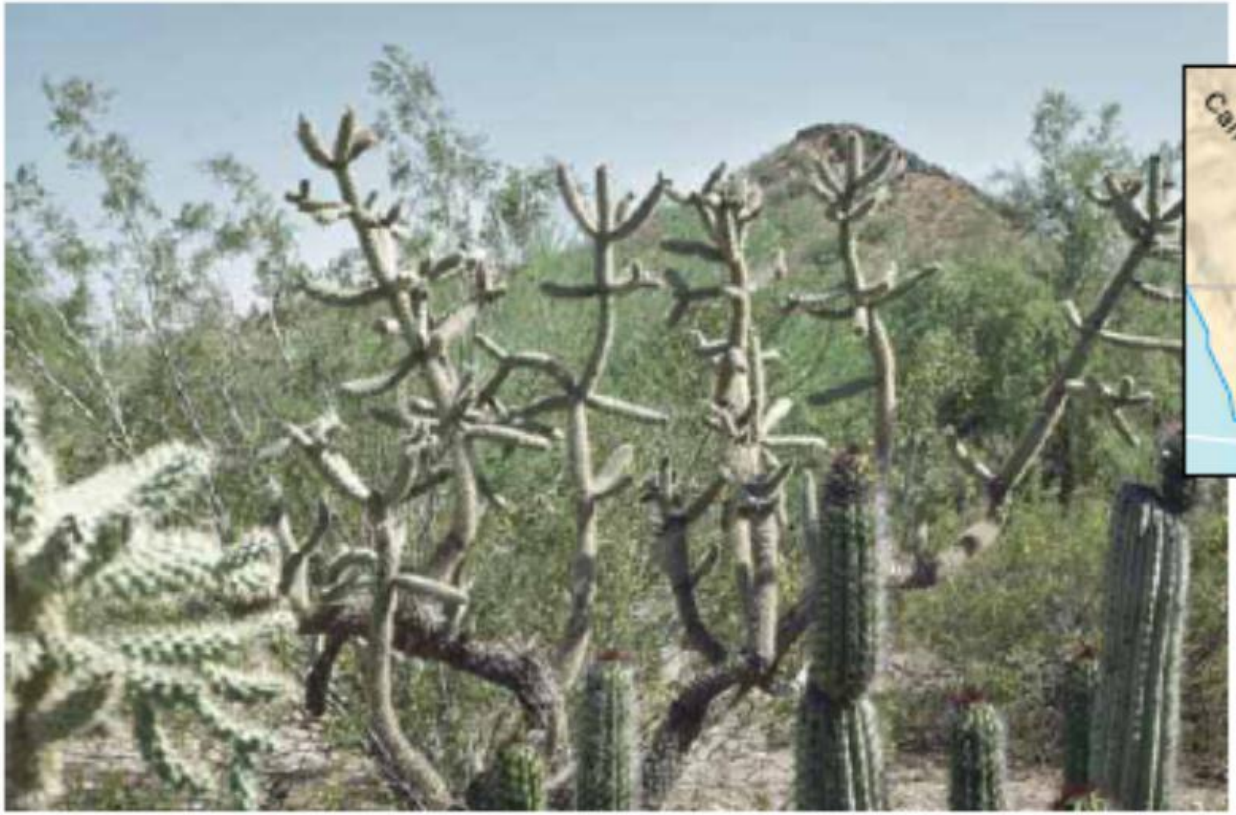
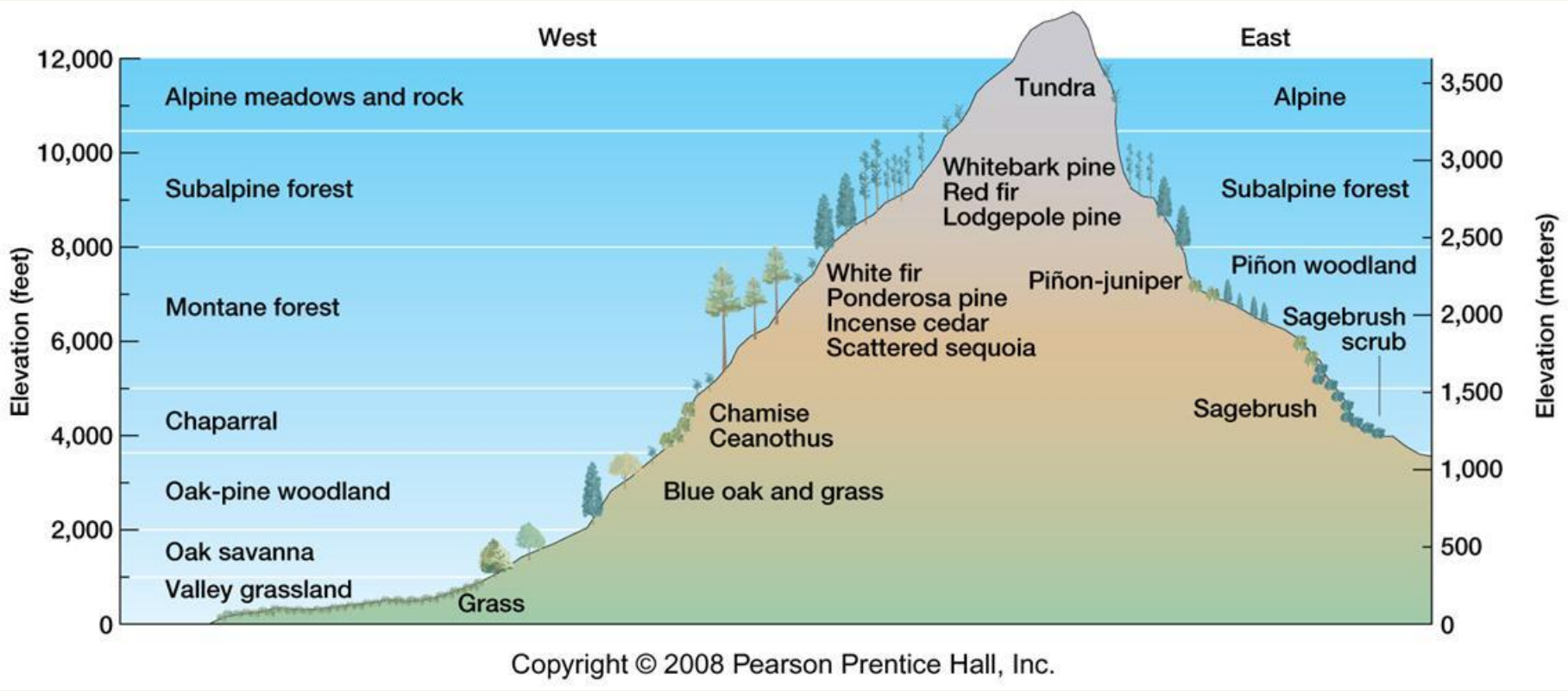
Example: Woodland

Example: Desert



Vertical Zonation

- Most apparent in mountains due to changes in elevations over short distances

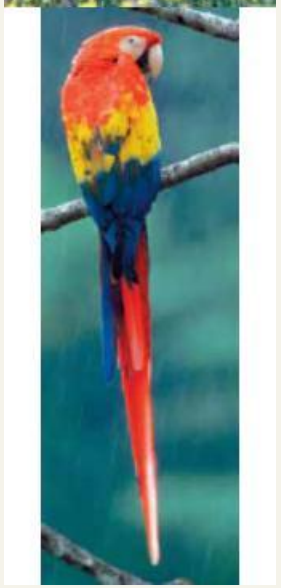


Terrestrial Fauna

- Often ignored as a geographical object of study
- Less prominent than vegetation
- More adaptable to environmental variability (animals move). And they're found beyond the D zone "treeline". E.g. Polar bears, penguins, etc.

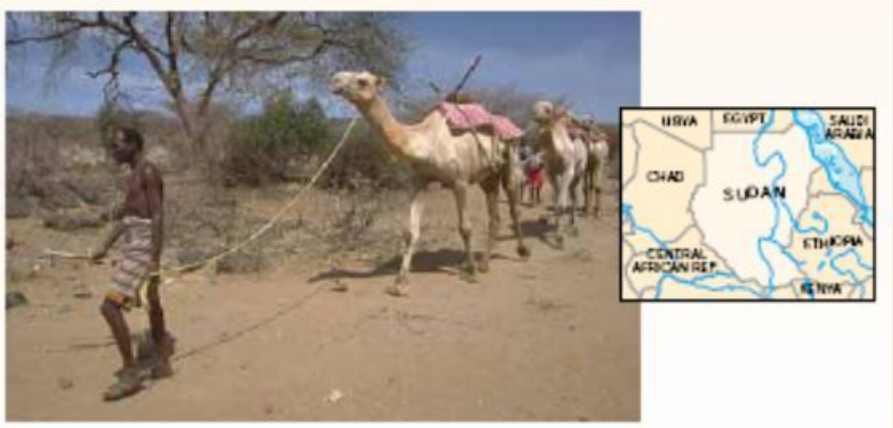
Characteristics of Animals

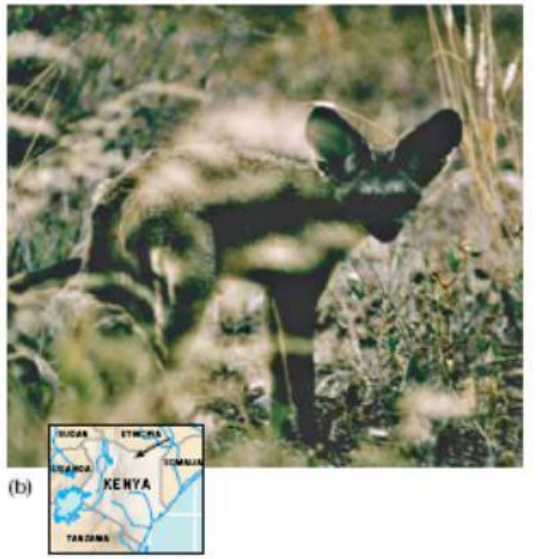
- Characteristics of Animals
  - Two universal features
    - Motile (capable of self-generated movement)
    - Heterotrophs (not autotrophs)
      - Consumers (incapable of manufacturing food from air, water and sunlight like plants do)



Environmental Adaptations

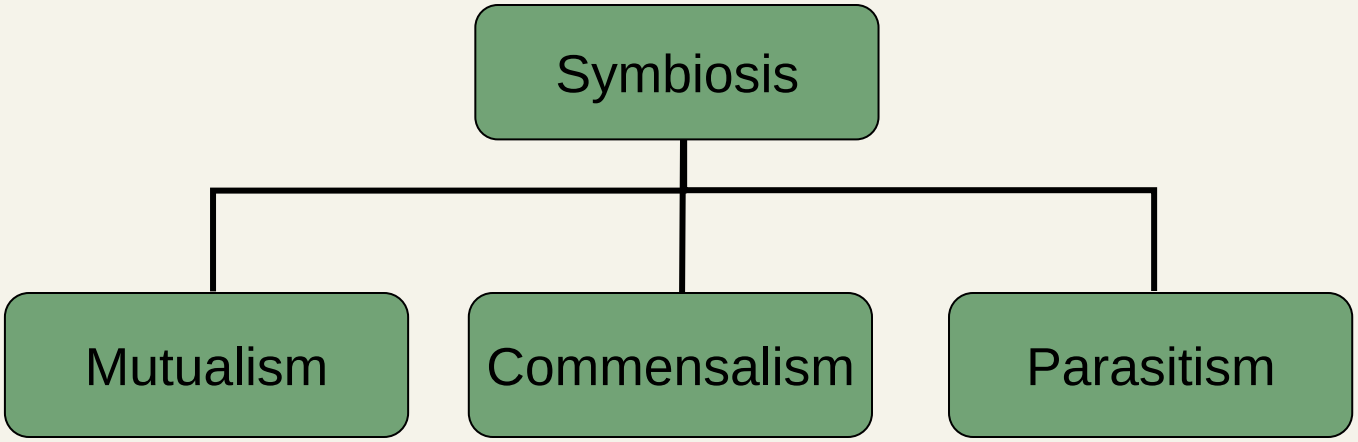
- Physiological e.g. Dromedary (one-humped camel)
  - Behavioral, reproductive





Symbiosis

- Cooperation among Animals
  - Symbiosis (Two dissimilar organisms living together). E.g. Cattle and birds (see next slide).



Mutualism

- Mutualism – mutually beneficial relationship between two organisms

Commensalism

- Commensalism – two dissimilar organisms just living together with no injury to either
  - Example: Barnacle living on the shell of a green mussel.

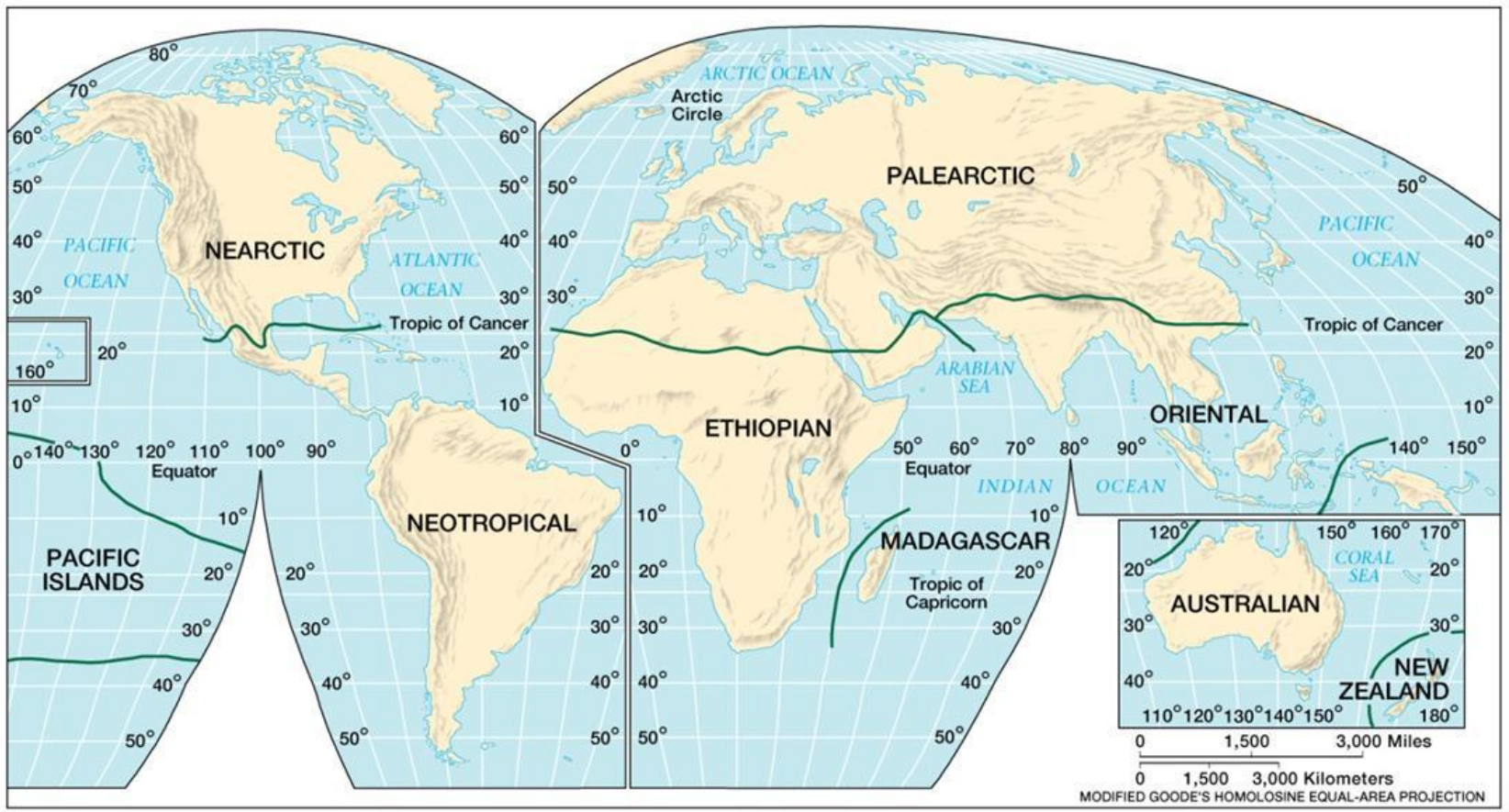
Photo source: U.S.G.S. (http://cars.er.usgs.gov/posters/Nonindigenous/Green_Mussels/green_mussels.html

Parasitism

- Parasitism – one organism obtaining nourishment from a host, which the parasite usually weakens or kills in the process.
  - Example: Mistletoe, a parasite of forest trees that are widespread in North America and Europe.

- Photo source: http://sco.wikipedia.org/wiki/Messeldeu (This file is a shared upload and may be used by other projects.)

9 Zoogeographic Regions



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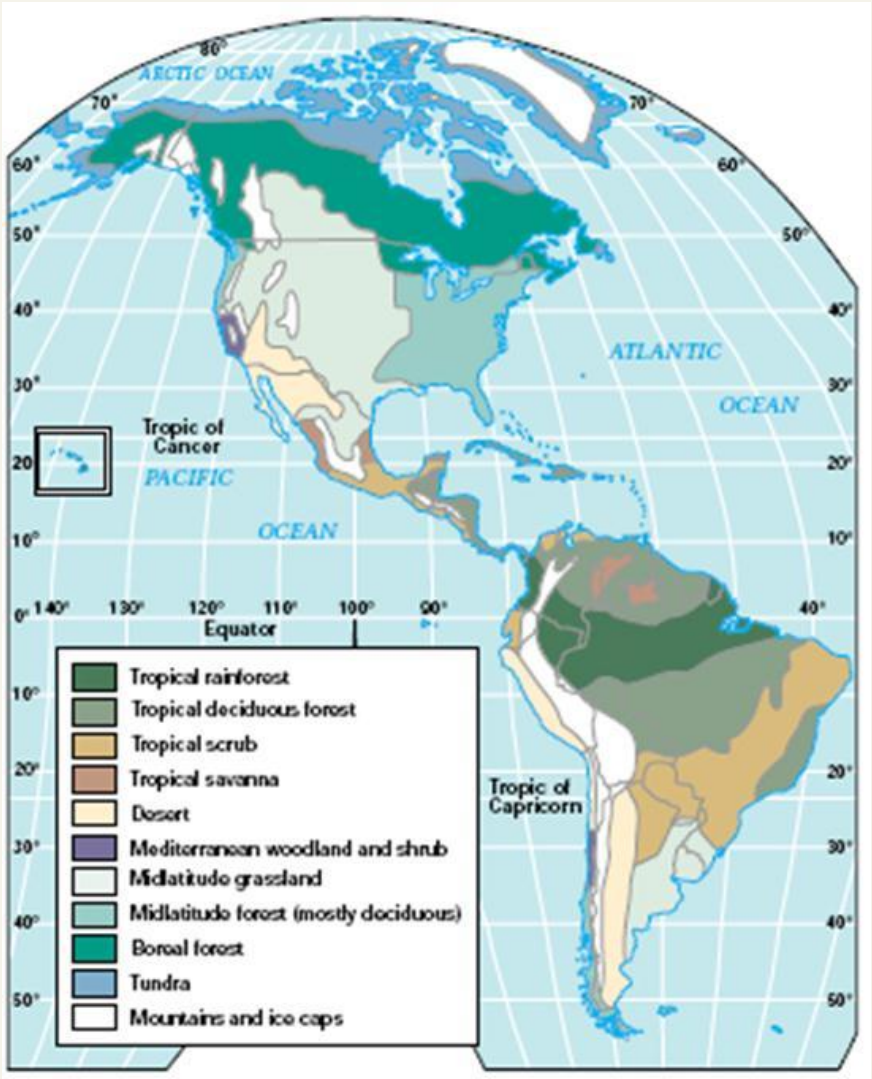
Australia Region

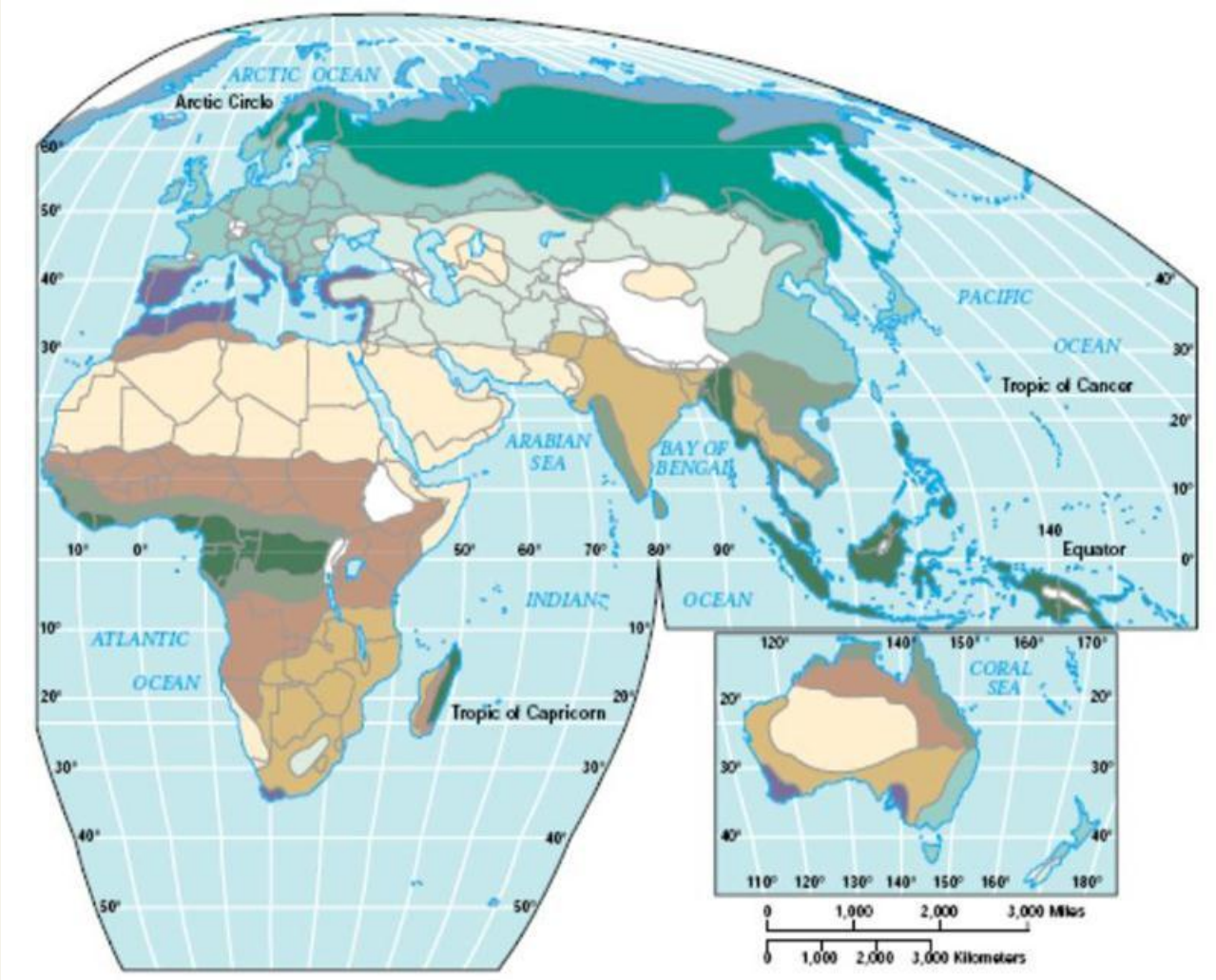
- Australia Region
  - Australia and adjacent islands
  - Most distinctive fauna of any region due to the region's lengthy isolation. Same for plants.
    - Few placental mammals
- Kangaroo, Monotremes (egg-laying mammals) Echidna and duckbill platypus.

Major Biomes

- Summary of each biome follows…
  - Distribution (map)
  - Climate types
  - Main vegetation types

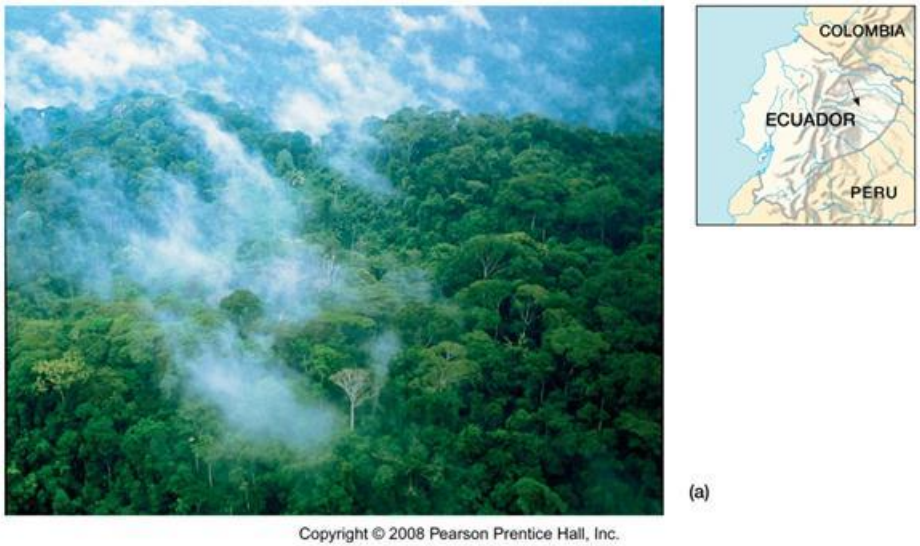


Major Biomes



Tropical Rainforest

- Tropical Rainforest
  - Distribution
  - Climate types
  - Main vegetation types



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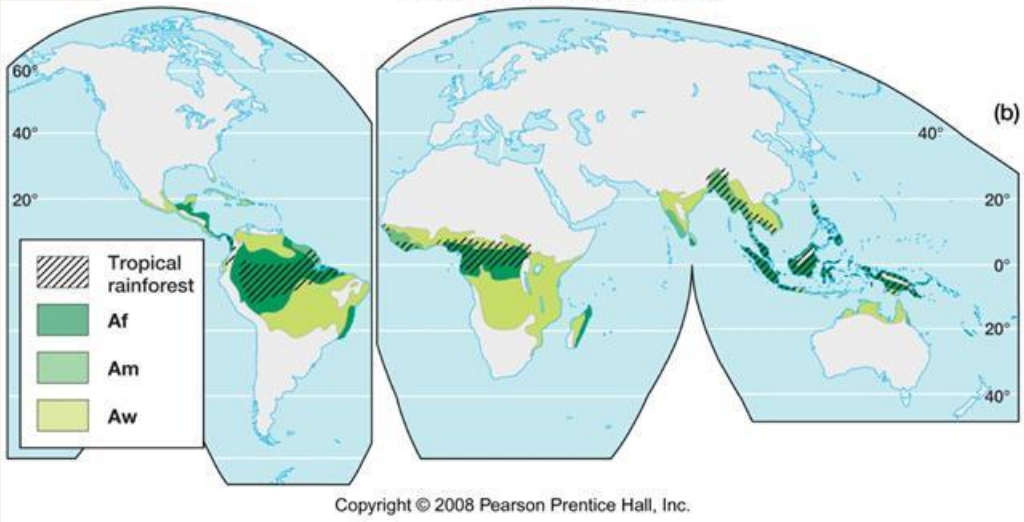

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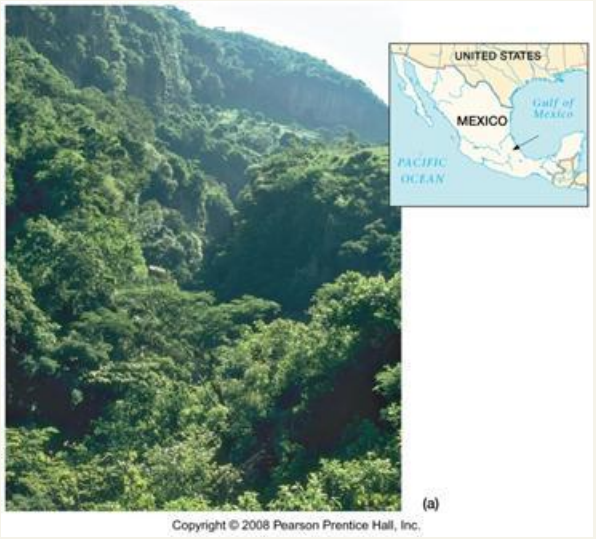
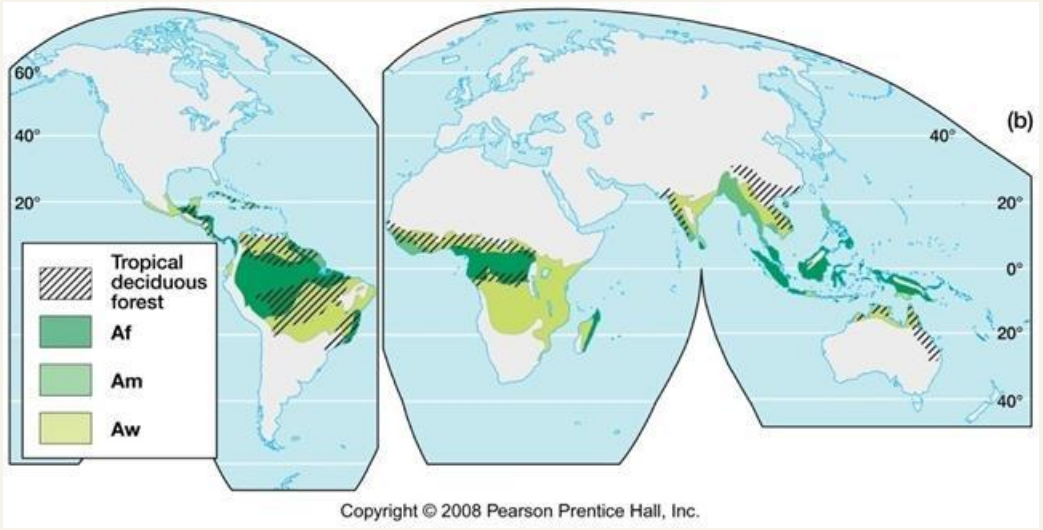
Tropical Deciduous Forest

- Tropical Deciduous Forest
  - Distribution
  - Climate types
  - Main vegetation types





Tropical Scrub

- Tropical Scrub
  - Distribution
  - Climate types
  - Main vegetation types

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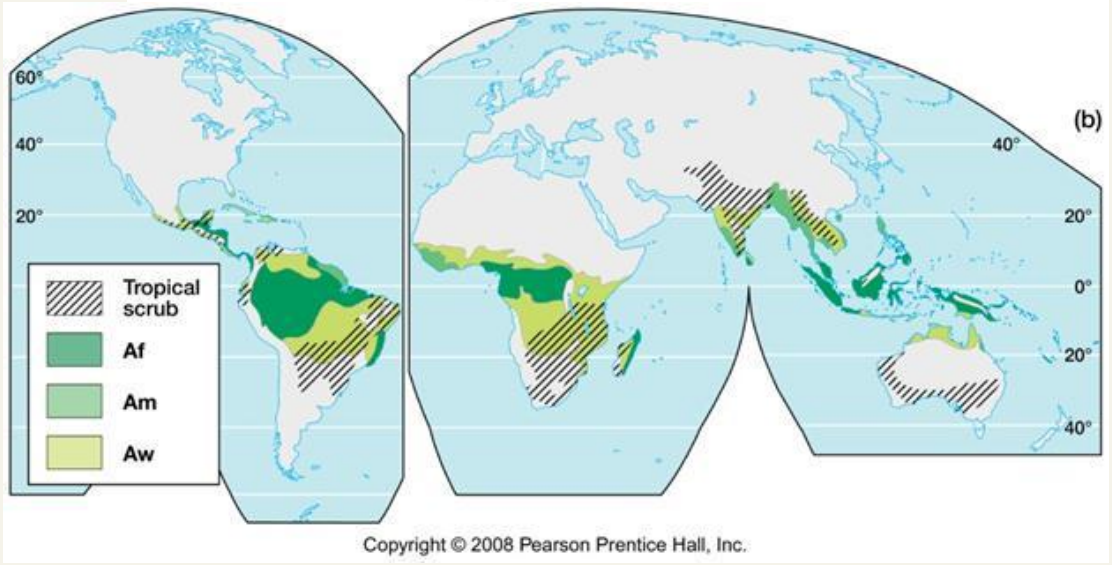

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Tropical Savanna

- Tropical Savanna
  - Distribution
  - Climate types
  - Main vegetation types

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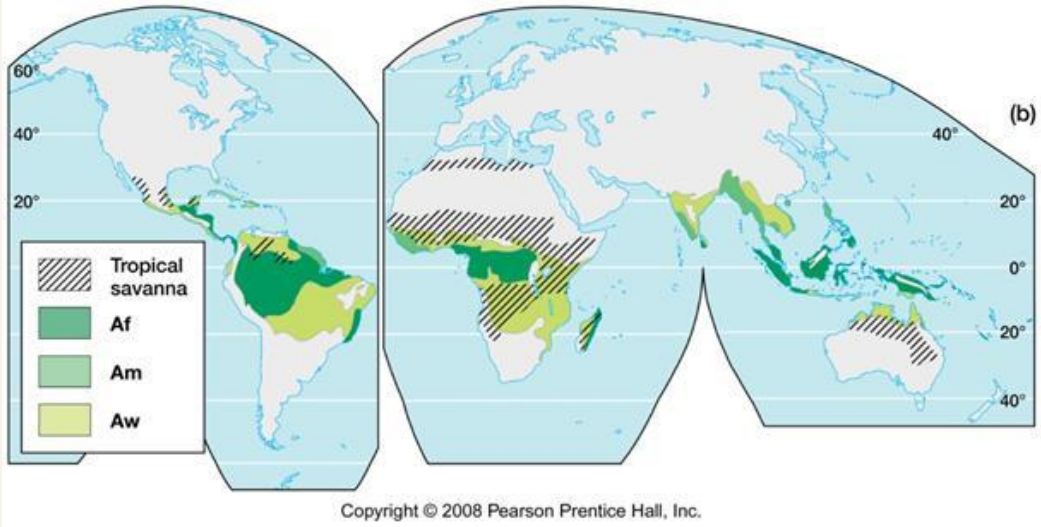

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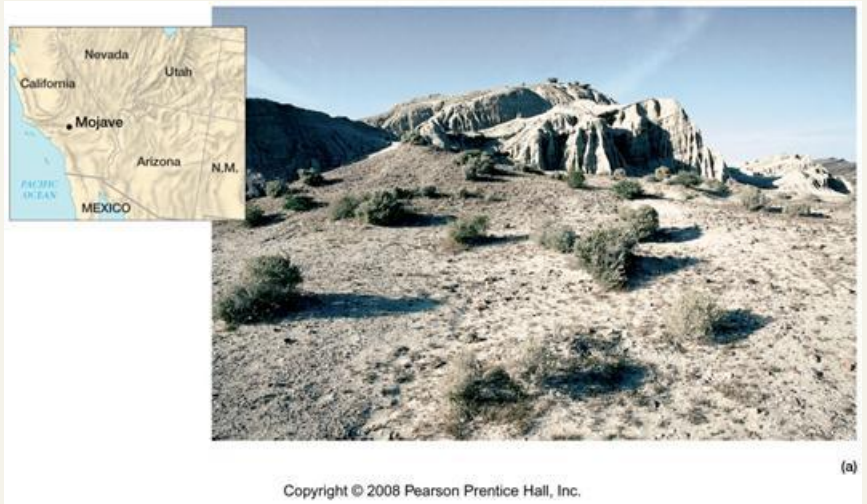
Desert

- Desert
  - Distribution
  - Climate types
  - Main vegetation types



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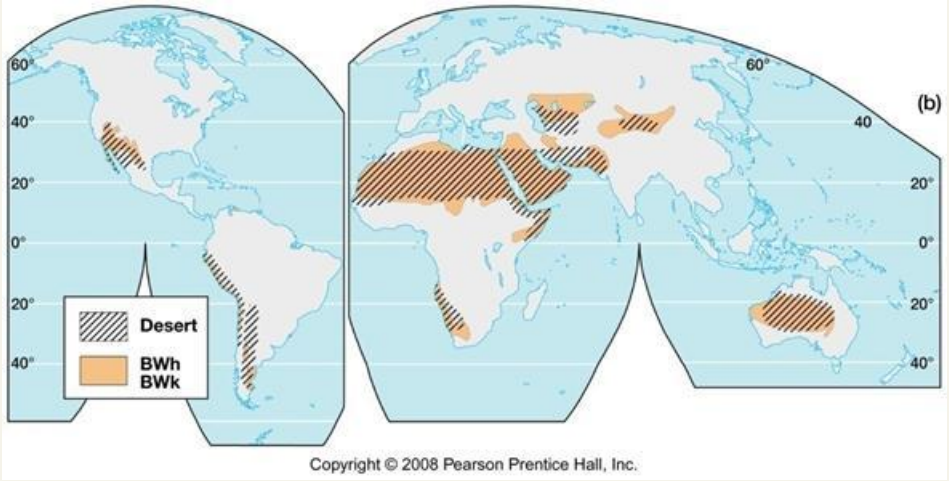

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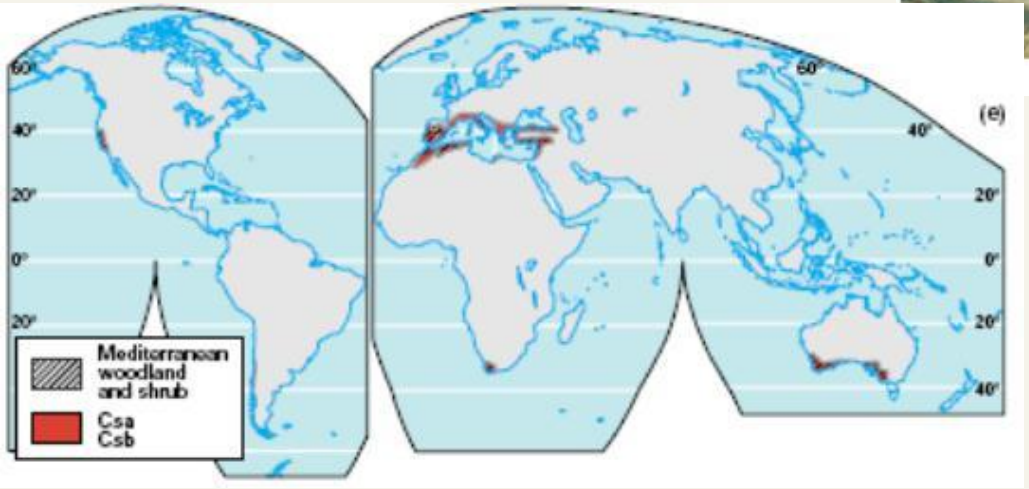
Mediterranean Woodland and Shrub

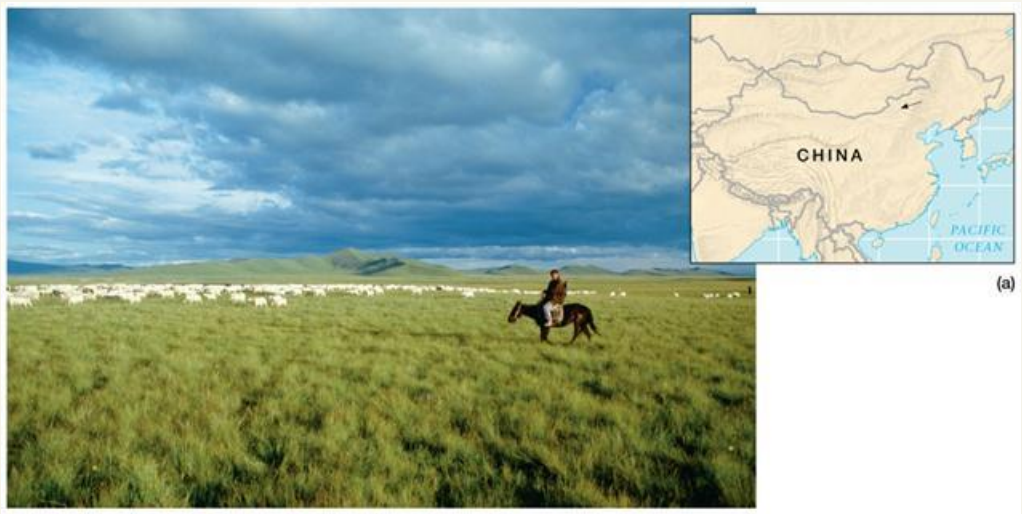
- Mediterranean Woodland and Shrub
  - Distribution
  - Climate types
  - Main vegetation types



a. Moist winter
b. Hot early summer
c. Summer fire season
d. Fire aftermath

Midlatitude Grassland

- Midlatitude Grassland
  - Distribution
  - Climate types
  - Main vegetation types



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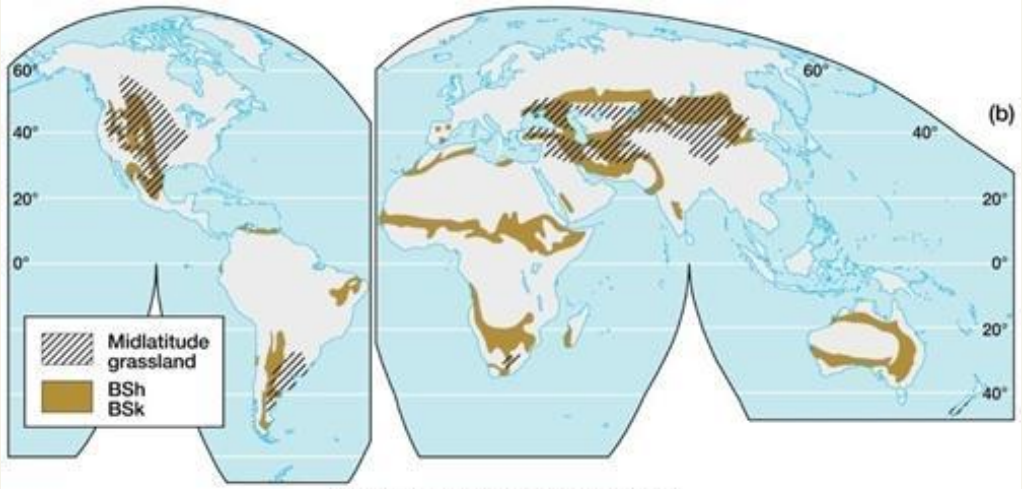

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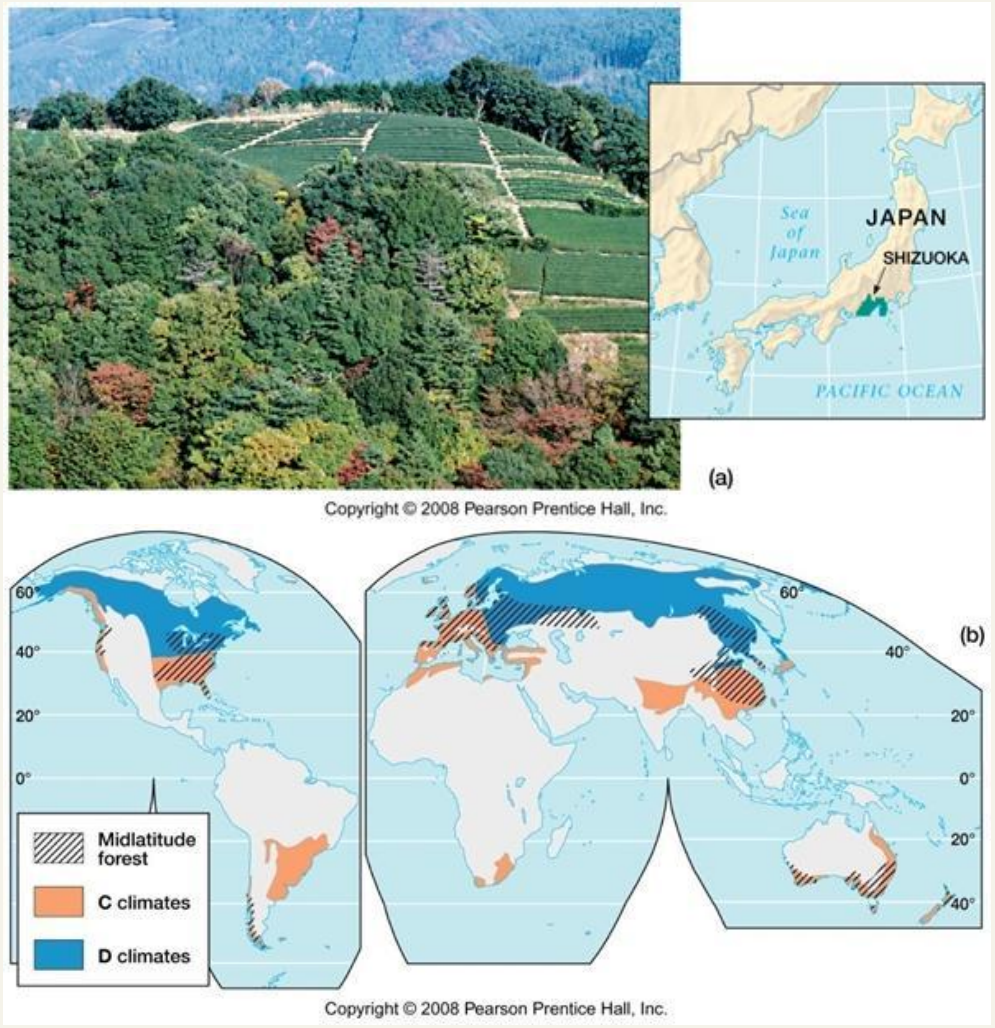
Midlatitude Deciduous Forest

- Midlatitude Deciduous Forest
  - Distribution
  - Climate types
  - Main vegetation types



Boreal Forest

- Boreal Forest
  - Distribution
  - Climate types
  - Main vegetation types (needle leaf)

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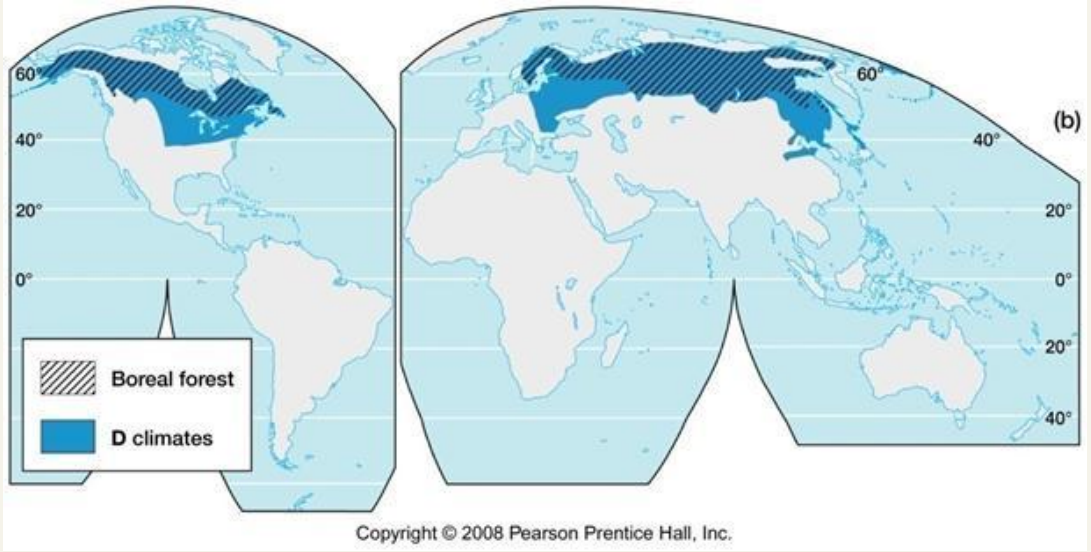

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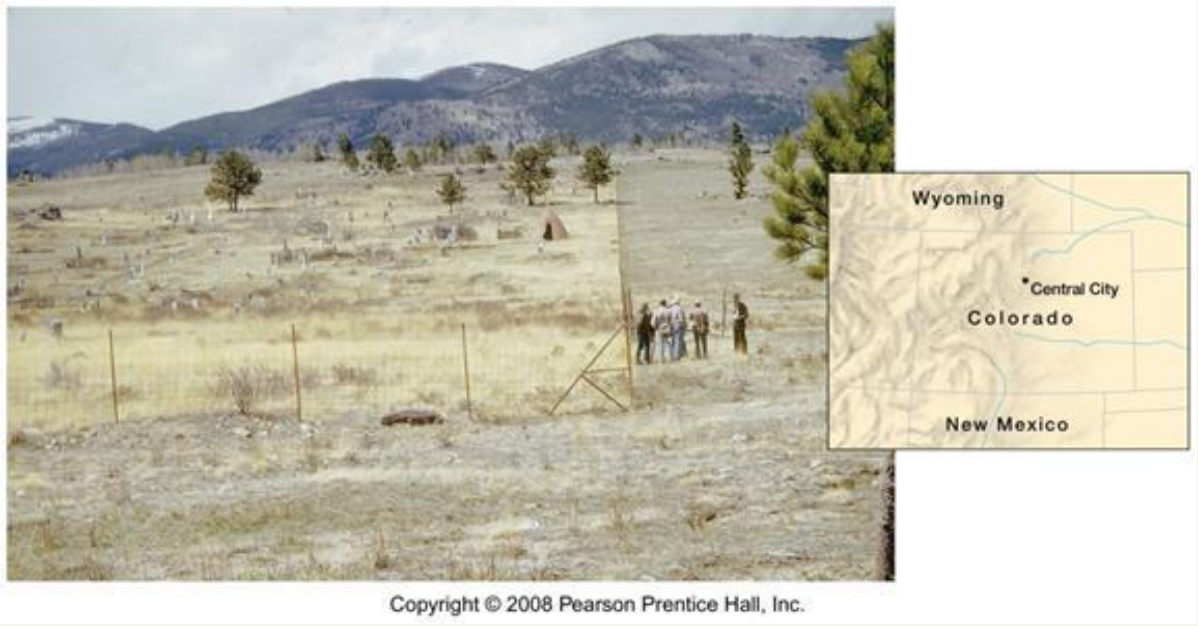
Human Modification of Natural Distribution Patterns

- Physical Removal of Organisms
  - Plowed, paved over, cut down, overgrazed, burned, poisoned, shot, or trapped to extinction



  - An overgrazed range (on left) in Colorado

Habitat Modification

- Habitat Modification
  - Rates
    - Vary within the five major rainforest regions
    - Highest removal rates in southern and southeastern Asia (teak and mahogany, especially)

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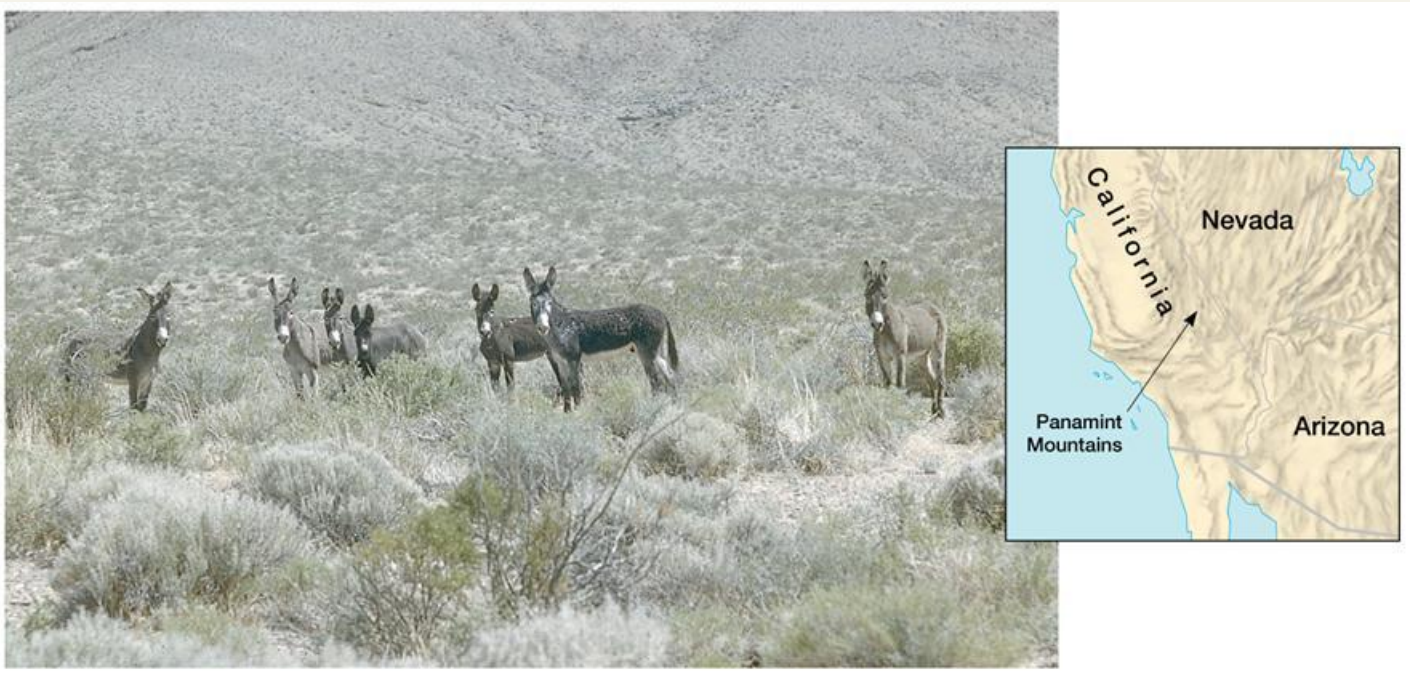
Habitat Modification

- Removal for agriculture often results in soil erosion and low crop yields as well as wildlife habitat destruction.

Artificial Translocation of Organisms

- Example: Feral ("wild") burros from mining days the U.S. southwestern desert.
- Kudzu invasive plants, found in Georgia, etc. Giant African snails in Brazil.



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Biotic Rearrangement: The Sad Case of Florida

- Major world center for plant and animal import industry
- Many exotic species have spread to the natural ecosystems of the state, upsetting their balance and causing extinction of native organisms.
- Examples: Walking catfish from Southeast Asia


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