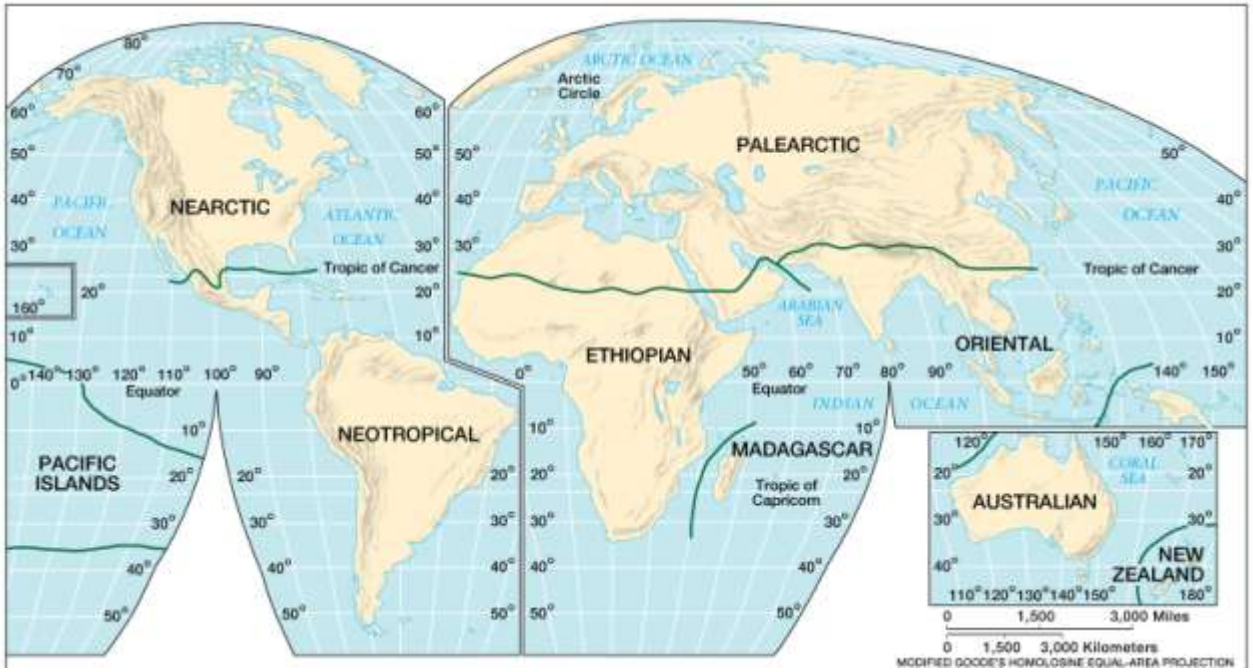
Terrestrial Flora & Fauna

Part II

In short, the animal and vegetable lines, diverging widely above, join below in a loop.
—Asa Gray

❖ Zoogeographic Regions

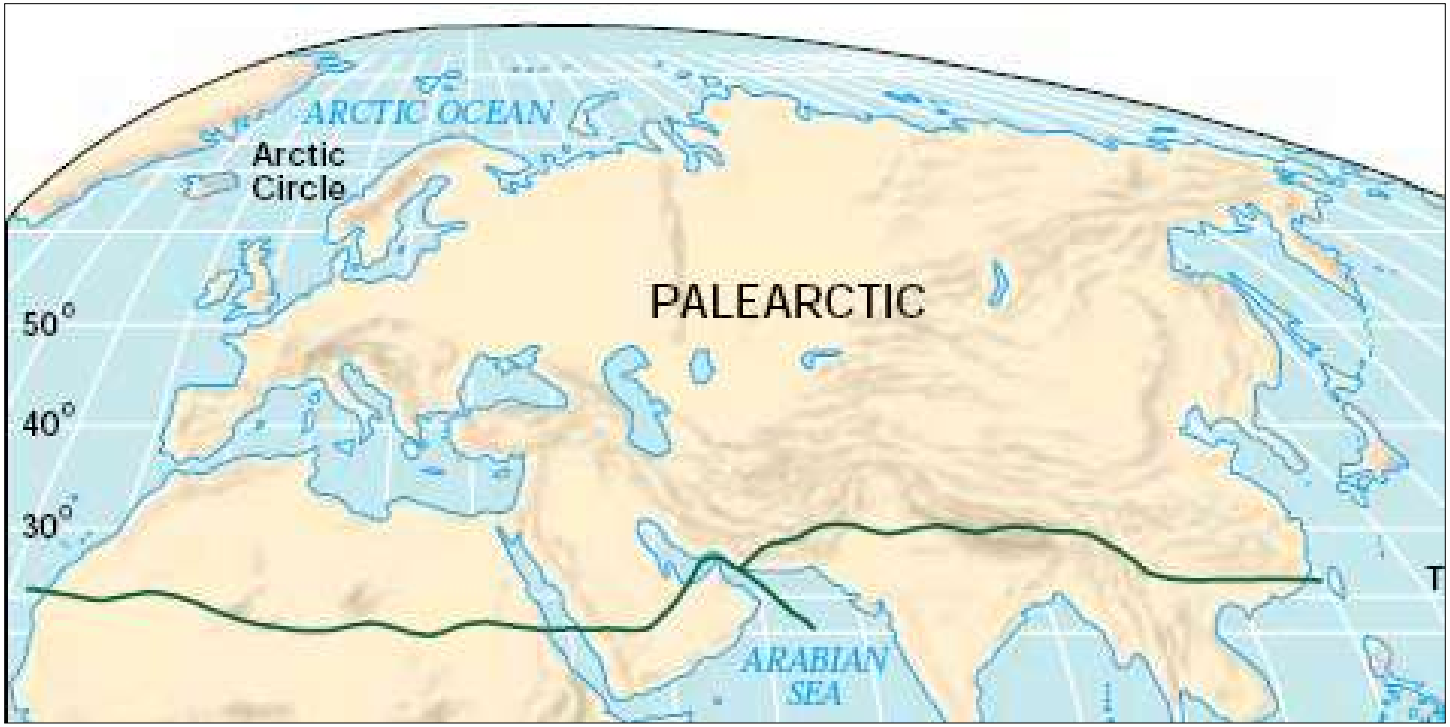
- Reflective of the general distribution of energy and richness of food chemistry



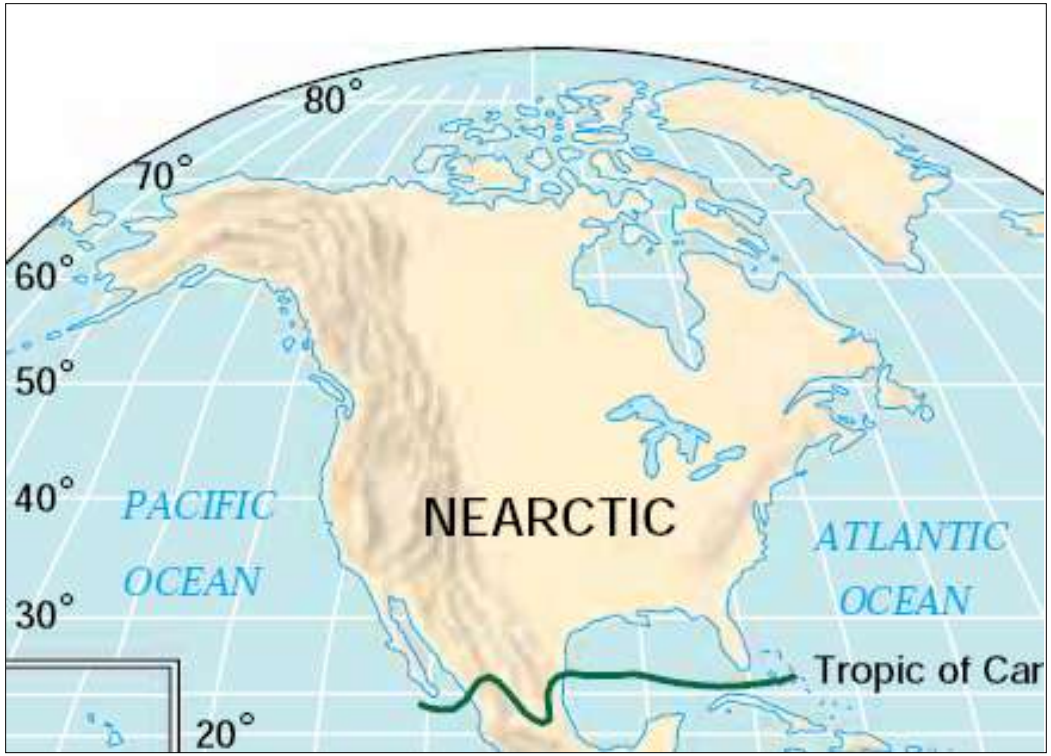
- Ethiopian Region
  - Bounded by oceanic barriers on three sides and broad desert on the fourth.
  - Greatest number of mammalian families

- Oriental Region
  - Separated from rest of Eurasia by mountains
  - Large number of reptiles and venomous snakes

- Palearctic Region
  - Separated from rest of Eurasia by mountains
  - Few endemic species, fewer species than in tropics



- Nearctic Region
  - Non-tropical portions of North America
  - Similar to Palearctic due to Bering land bridge



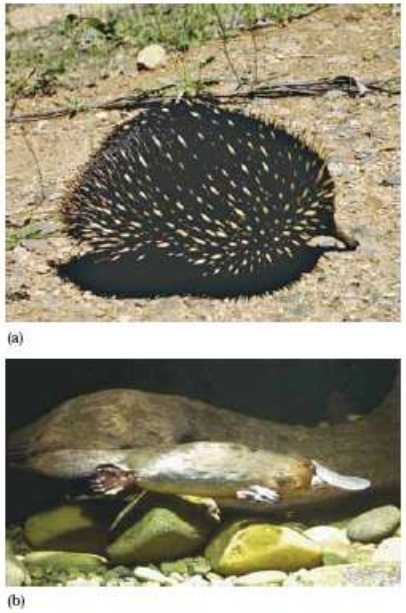
– Bering Land Bridge

- Neotropical Region
  - Geographical isolation and variety of habitats
  - Rich assemblage, largest number of endemic mammal families

- Other Regions
  - All noted for their geographical isolation and resulting endemic species
  - Madagascar Region
    - Primitive primates (lemurs)
  - New Zealand Region
    - Large proportion of birds, some flightless
    - No mammals, few reptiles and amphibians
  - Pacific Islands Region
    - Limited fauna assemblage

- Australia Region
  - Australia and adjacent islands
  - Most distinctive fauna of any region due to the region's lengthy isolation
    - Few placental mammals
  - Its unique biota are also primarily a result of isolation

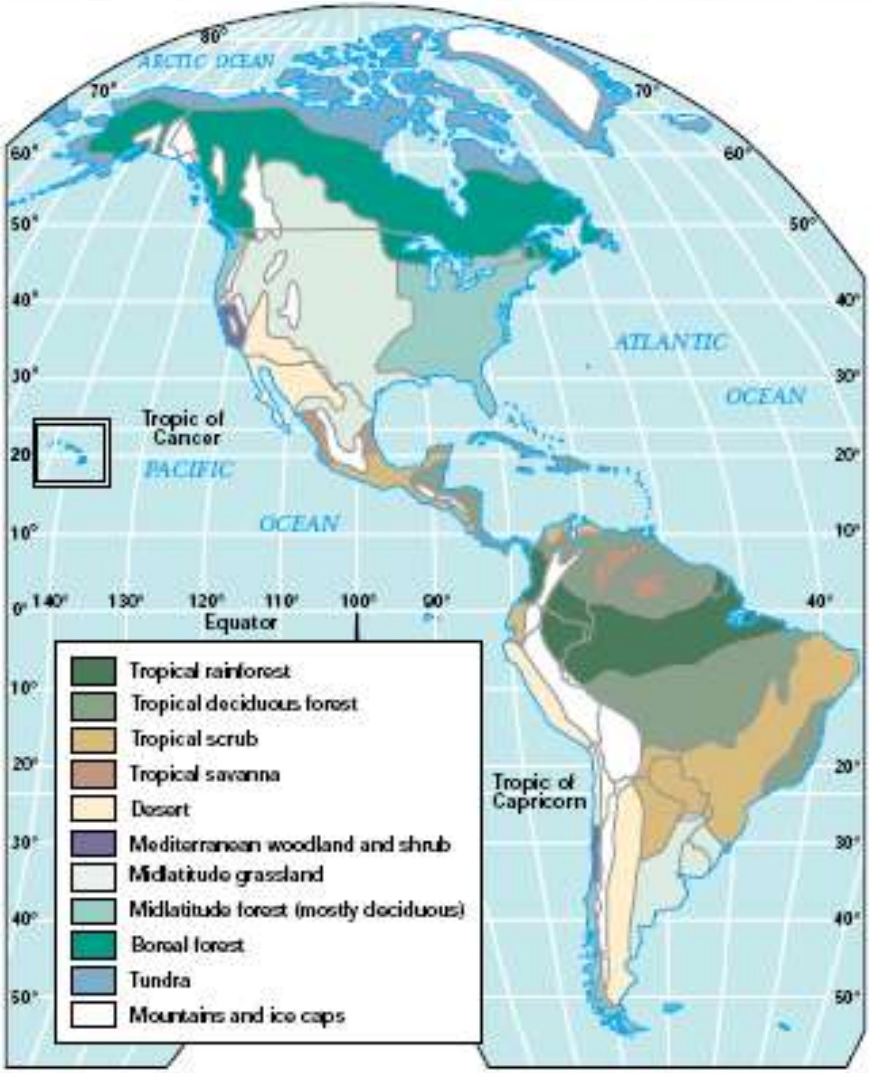
Kangaroo

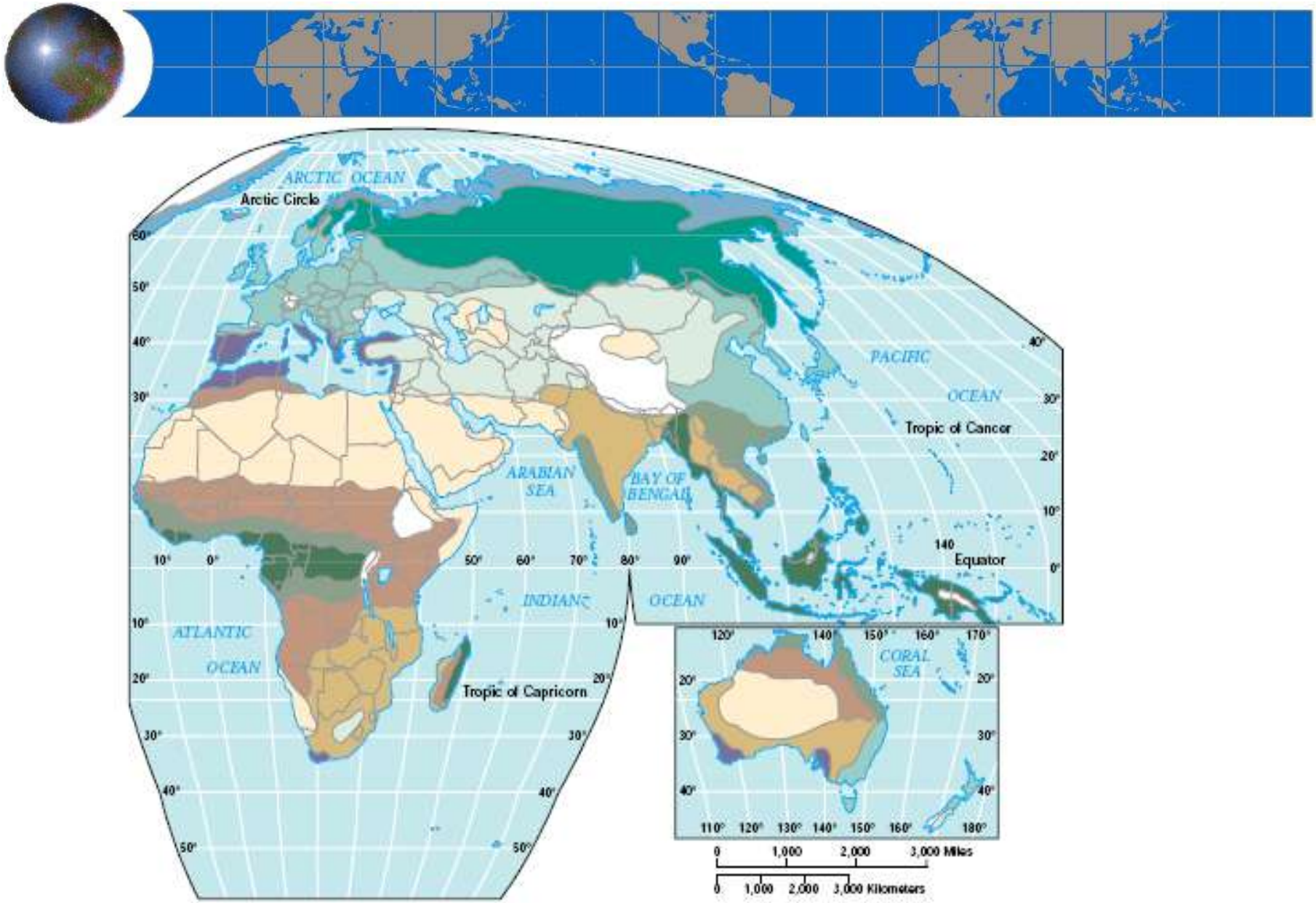


Monotremes (egg-laying mammals)
Echidna and duckbill platypus.

❖ Major Biomes

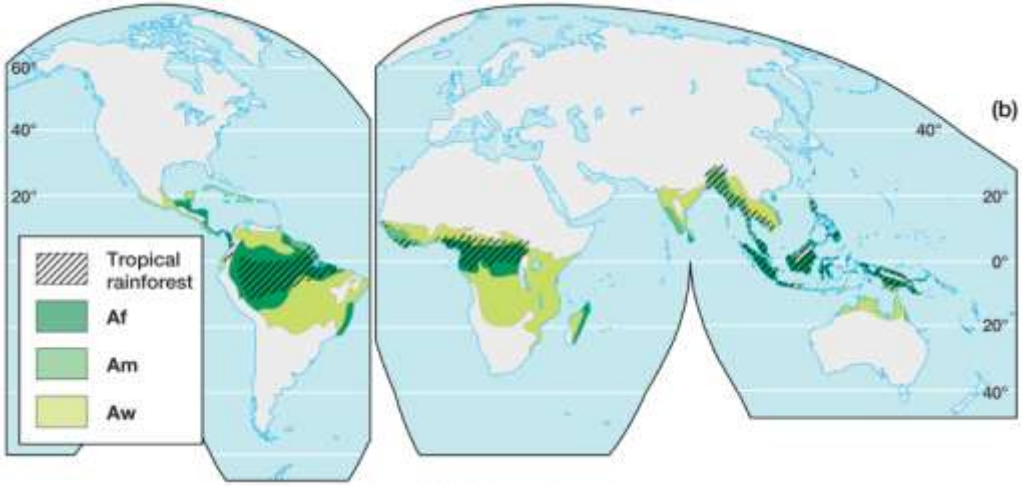
- Summary of each biome follows…
  - Distribution (map)
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna




ARCTIC OCEAN
Arctic Circle
PACIFIC
OCEAN
Tropic of Cancer
ARABIAN
SEA
BAY OF
BENGAL
Equator
INDIAN
OCEAN
ATLANTIC
OCEAN
Tropic of Capricorn
CORAL
SEA
0 1,000 2,000 3,000 Miles
0 1,000 2,000 3,000 Kilometers

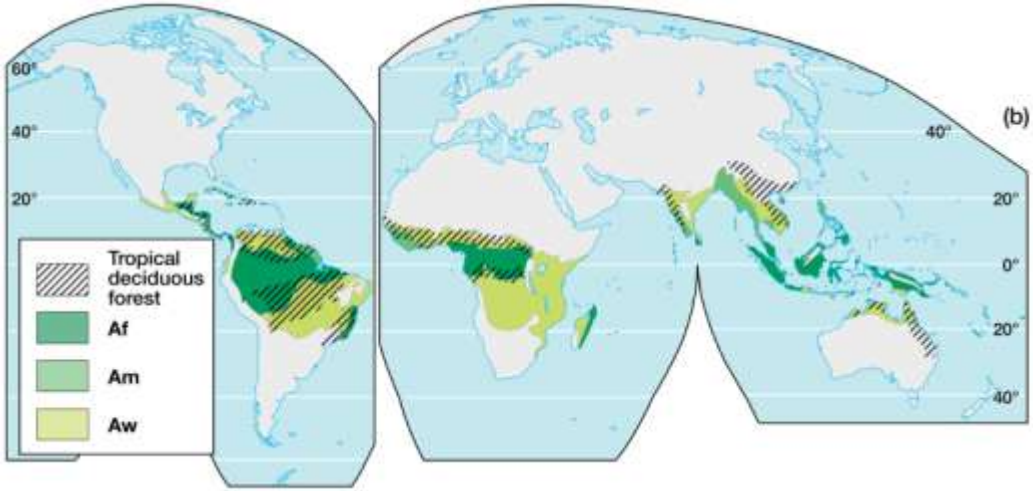
- Tropical Rainforest
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna

(a)



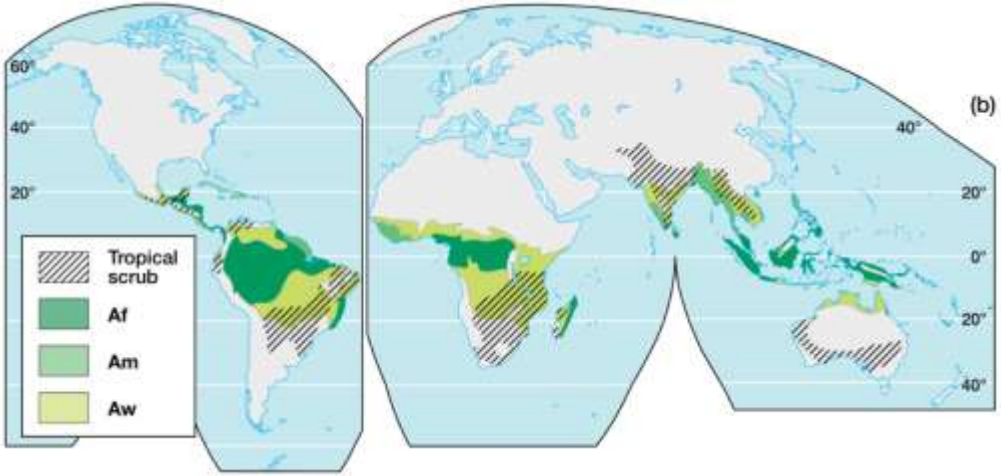
(b)

- Tropical Deciduous Forest
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna



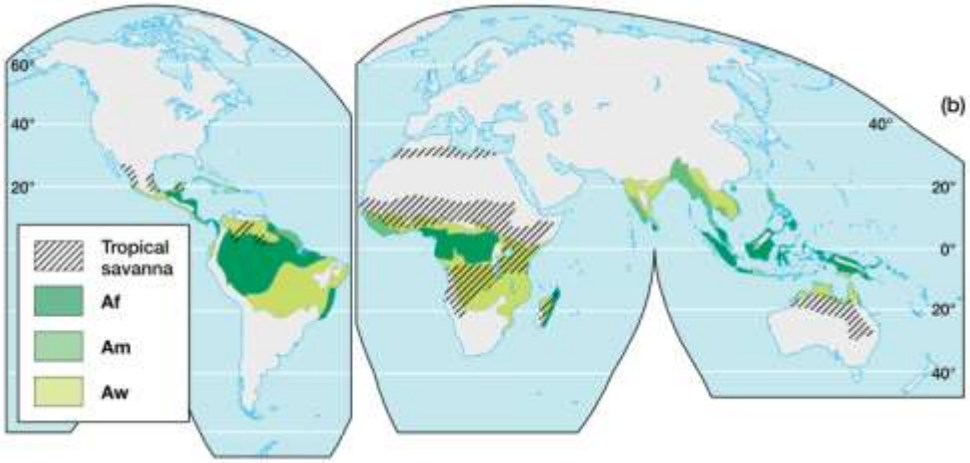
- Tropical Scrub
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna

(a)

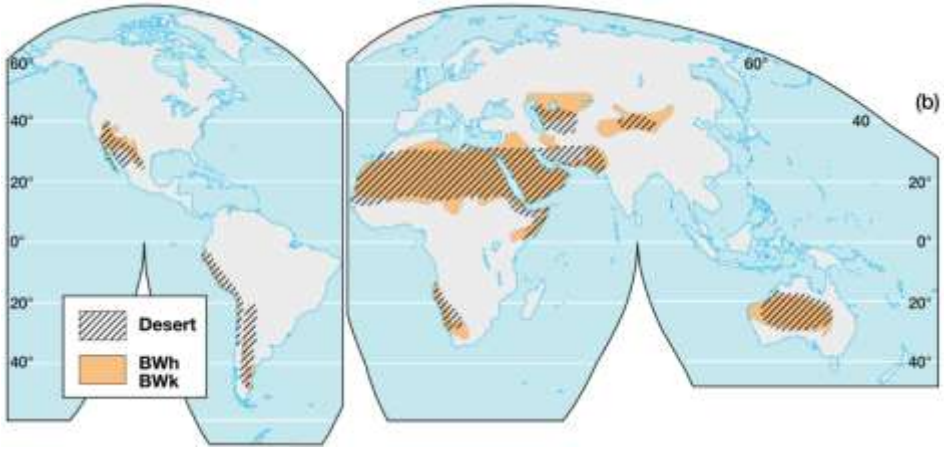


(b)

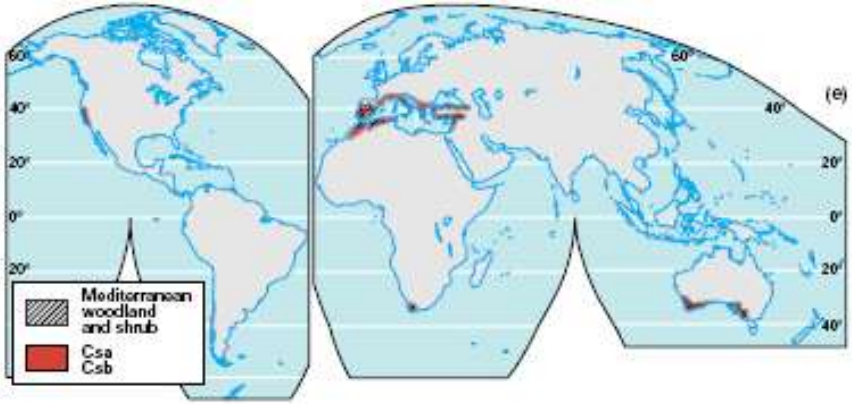
- Tropical Savanna
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna



- Desert
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna

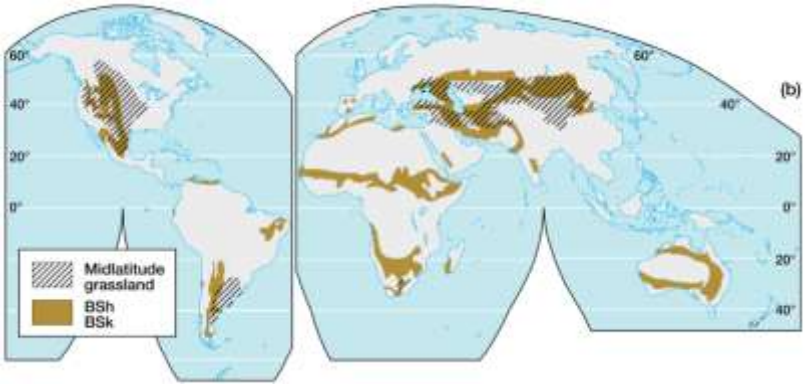


- Mediterranean Woodland and Shrub
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna

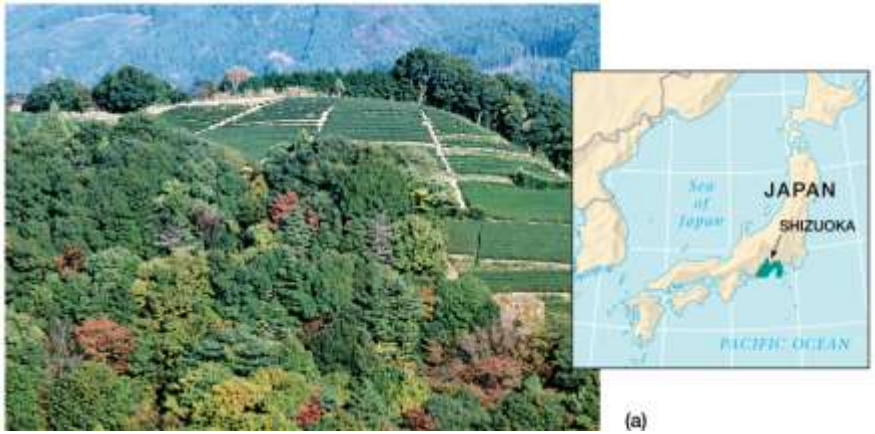


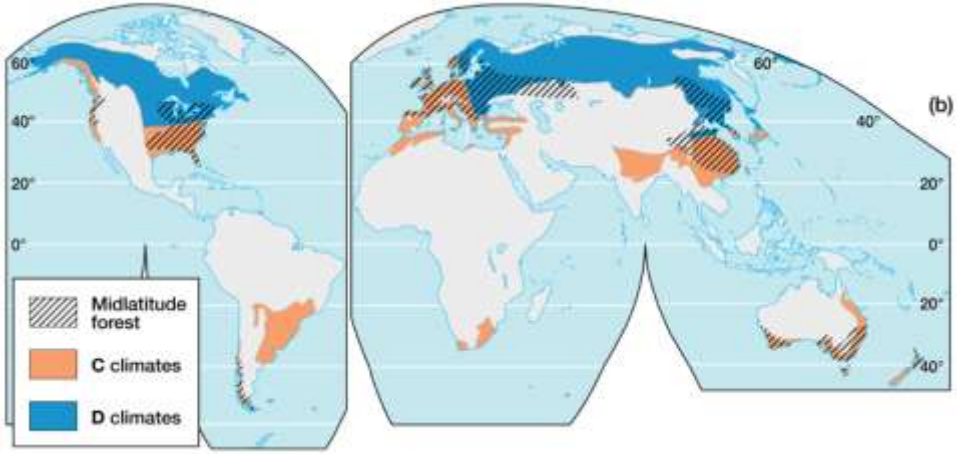
a. Moist winter
b. Early summer, hot
c. Summer fire season
d. Fire aftermath

- Midlatitude Grassland
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna

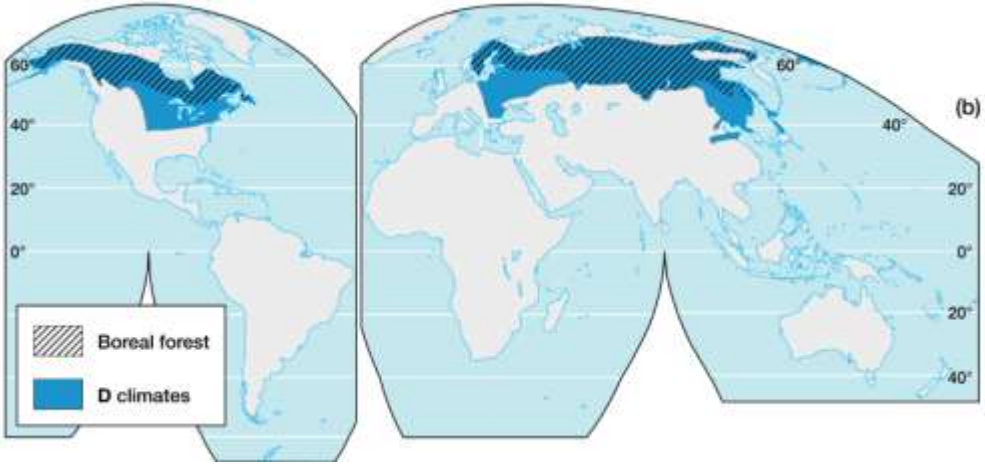


- Midlatitude Deciduous Forest
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna





- Boreal Forest
  - Distribution
  - Climate types
  - Main vegetation types
  - Limiting factors to flora and fauna



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

Central America – one of the highest rates of deforestation (due mainly to expansion of cattle ranching)

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

- Artificial Translocation of Organisms
  - Example: Feral burros from mining days in the US southwestern desert.

– 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.
- Example:

Walking catfish from Southeas Asia

❖ Summary

- The natural distribution of any biotic group due to the group's evolutionary development, migration — dispersal history, reproductive success and trend toward extinction.
- Most organisms have evolved adaptations to the four main limiting factors of an ecosystem: light, water, shelter and nutrients.
- Competition is critical to an organism's survival.

- Plants are categorized into four groups: bryophytes and pteridophytes, which are relatively simple spore-bearing plants, and gymnosperms and angiosperms, which are more complex seed-bearing plants.
- The principle major floristic associations include forests, woodlands, shrub lands, grasslands, deserts, tundra, wetlands and mountains.

- Terrestrial fauna has developed physiological, behavioral, reproductive adaptations to cope with the limiting factors of landscapes.
- For general geographical studies, useful faunal groups are invertebrates, fishes, amphibians, reptiles, birds and mammals.
- Competition among animals involves rivalry for territory and resources.
- Among some animals, there are mutually beneficial relationships called symbiotic relationships.

- Worldwide, nine zoogeographical regions and ten major biomes are generally recognized.
- Natural distributions of biota are often severely altered by human activities through physical removal, habitat modification and artificial translocation.