Terrestrial Flora & Fauna

Part I

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

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

- **Ecosystem: A Concept for All Scales**
  - Meaning: Interactions among organisms and between organisms and their non-living environment.
  - Function: Depends on flow of energy among components of the ecosystem.
  - Scale: Underside of a rock to a large area of a continent.
• Biome: A Scale for All Biogeographers
  – Introduction
    • Large terrestrial ecosystem
    • Recognizable assemblage of plants and animals
    • Ecotone – transitional boundary between adjacent biomes
    • Vegetation – Basis for biome names
- 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
Terrestrial Flora

- Significance
  - A biome’s main landscape component.
  - An indicator of other environmental attributes.
  - A prominent influence on human settlement.

- Characteristics of Plants
  - Represent survival adaptations to the environment’s limiting factors
    - Perennial versus annual life cycle
    - Root system
    - Stems
    - Leaves
    - Reproductive organs
Floristic Terminology
- Types based on reproductive methods

- Spores
  - Bryophytes
  - Pteridophytes

- Seeds
  - Gymnosperms
  - Angiosperms
– Other terms

- Trees
  - Gymnosperms
    - Softwood
    - Coniferous
    - Needleleaf
  - Angiosperms
    - Hardwood
    - Deciduous
    - Broadleaf
• Environmental Adaptations
  – Xerophytic adaptations
    • Root
    • Stems
    • Leaf
    • Reproductive
- Hygrophytic adaptations
  - Moisture-loving
    - Some species require permanent immersion in water
    - Some species require frequent soakings with water
• Example: Woodland
• Example: Desert
- Vertical Zonation
  - Most apparent in mountains due to changes in elevations over short distances
- Local Variations
  - Exposure to sunlight
    - Mountainous landscapes
– Local Variation (continued)
  • Valley-bottom location
Terrestrial Fauna

- Introduction
  - Often ignored as a geographical object of study
    - Less prominent than vegetation
    - More adaptable to environmental variability
  - Significance
    - Prominent landscape element in certain cases
    - Sensitive indicators of the health of ecosystems

Grizzly bears live in diverse habitats.
• Characteristics of Animals
  – Great diversity
  – Two universal features
    • Motile
    • Heterotrophs
      – Consumers (incapable of manufacturing food from air, water and sunlight like plants do)
• Kinds of Animals
  – Invertebrates
  – Vertebrates
    • Fishes
    • Amphibians
    • Reptiles
    • Birds
    • Mammals
• Environmental Adaptations
  – Physiological
  – Behavioral
  – Reproductive
  – Example: Dromedary

Physiological adaptation
Large vs. small ears

Camels
• Competition Among Animals
  – Rivalry for space and resources (light, water, shelter and nutrients)
  – Social groups (e.g., herds, flocks or colonies)
  – Competition within social groups for survival is rule
• Cooperation among Animals
  – Symbiosis (Two dissimilar organisms live together)

  ![Diagram of Symbiosis]

  Three types of symbiosis

  - Mutualism
  - Commensalism
  - Parasitism
– Mutualism – mutually beneficial relationship between two organisms

Mutualism Example: Tick birds aiding African ungulates (hoofed animals)
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 – one organism obtaining nourishment from a host, which the parasite usually weakens or kills in the process.

  - Example: Mistletoe is a parasite of forest trees that are widespread in North America and Europe.

Photo source: [http://sco.wikipedia.org/wiki/Messeldeu](http://sco.wikipedia.org/wiki/Messeldeu)
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