

Unit 2 Populations and Communities

Populations (12.1)

- I. Biosphere and Ecological Systems
 - A. Earth's **biosphere** is the parts of Earth and surrounding atmosphere where there is life.
 1. Includes all continents and islands
 2. Includes oceans, lakes, streams and polar ice caps
 - B. Earth's system is made of smaller systems-atmosphere, hydrosphere, geosphere and biosphere
- II. Population
 - A. A **community** is all the populations of different species that live together in the same area at the same time
 - B. A **population** is all the organisms of the same species that live in the same area at the same time
 - C. Populations and communities can be made of any combination of plants, animals and other organisms
 - D. A **species** is a group of organisms that have similar traits and are able to produce fertile offspring.
- III. **Competition** is the demand for resources such as food, water and shelter, in short supply in a community.
- IV. Population Sizes
 - A. **Limiting factors** are anything that restricts the size of a population
 1. **Biotic factors** are living parts of an ecosystem (plants and animals). Disease can also be a biotic factor.
 2. **Abiotic factors** are nonliving parts of an ecosystem like soil, air, water, sunlight and temperature. These often determine which plants and animals can live in an area. Natural disasters are abiotic factors.
 - B. **Population density** is the size of a population compared to the amount of space available.
 1. Population is estimated using a sample count
 2. Not every organism is actually counted
 - C. **Biotic potential** is the potential growth of a population if it could grow in perfect conditions with no limiting factors.
 1. No population on Earth reaches biotic potential because no ecosystem has unlimited resources
 - D. **Carrying capacity** is the largest number of individuals of one species that an environment can support.
 1. Populations grow until they reach carrying capacity of an environment
 2. Limiting factors affect carrying capacity
 3. Carrying capacity is not constant-increase or decrease with available resources
 - E. **Overpopulation** is when the population becomes larger than the carrying capacity of its ecosystem