Population Ecology

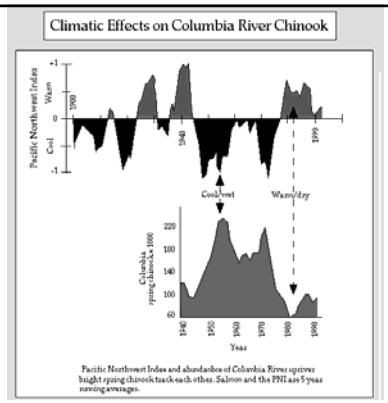
I. Introduction (Chap. 9)
- A. Examples: The scope of population ecology
- B. Definitions and properties

Terms: population, distribution, abundance, density, age structure, growth rate, demographics

II. Growth rates: intrinsic rates of increase (Ch. 11)
- A. Geometric growth
- B. Exponential growth
- C. Survivorship and fecundity curves

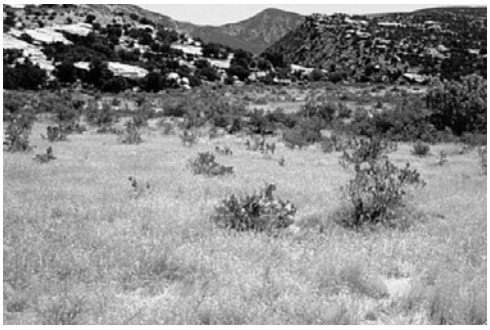
Definitions

Population: a group of individuals of the same species occupying a particular space at the same time.

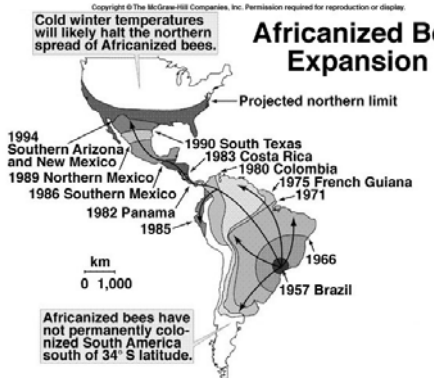


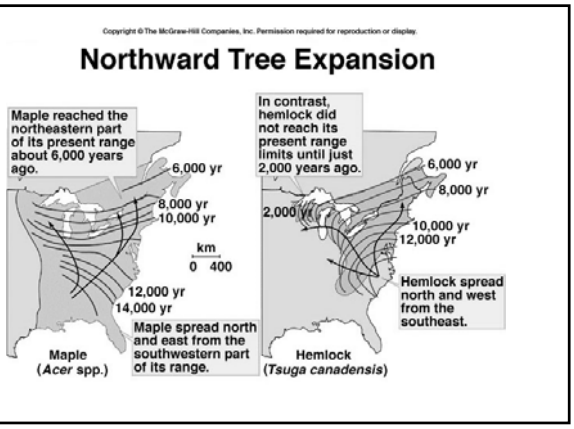
Taylor and Southard. 1997. http://www.ocs.orst.edu/reports/climate_fish.html

Cheatgrass (*Bromus tectorum*)

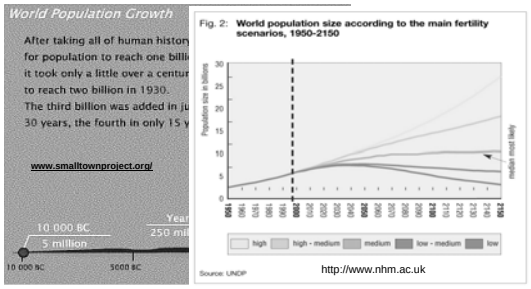


A. Whitham. 2003.
http://environmentalstudies.wlu.edu/Capstone%202003/Images/Capstone%202003%20Agricultural%20Invaders.htm



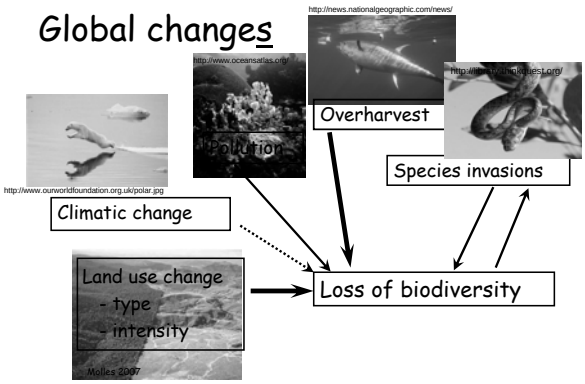


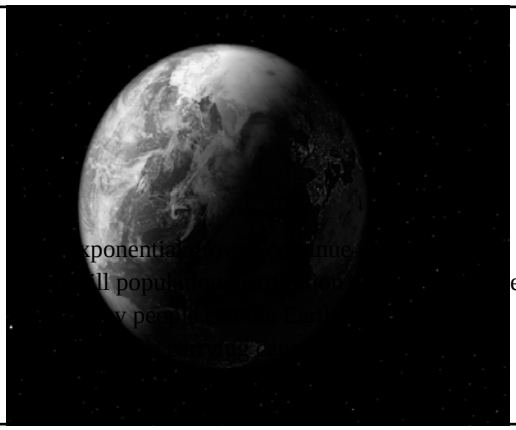
This is our world



U.S. 306,560,607
World 6,783,691,069
14:44 GMT (EST+5) Jun 01, 2009

Global changes





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Properties of a population:

Distribution - over what area is the population found. This includes:

Abundance – how many total individuals

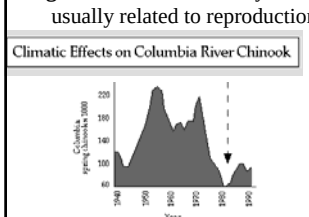
Density - how many individuals in the same area at the same time

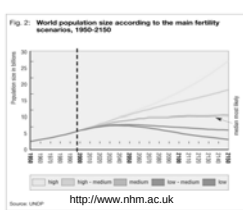
Population Growth

Growth rate: how many individuals are gained (birth and immigration) minus how many are lost (death and emigration).

- what is happening to the net population size.

Age structure: how many individuals in different age categories, usually related to reproduction





Taylor and Southard. 1997. http://www.ocs.orst.edu/reports/climate_fish.html

Other terms

Demographics covers the basic statistical information about a population: age structure, density, births, deaths, growth, and reproduction.

Chapter 9. Focus on the following questions:

1. What factors limit the distribution of a population of organisms?
2. What is the difference between a fundamental and a realized niche?
3. What do patterns of distribution (random vs. regular vs. clumped) tell us about the ecology of individuals in that population?
4. How does organism size influence population density (number of individuals in a given area)?
5. What are the seven different ways that organisms can be rare? How does this influence their susceptibility to extinction?