

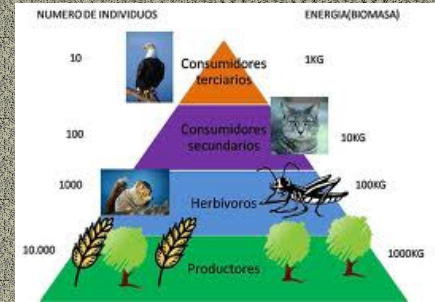
POPULATIONS

of organisms of one species living in an area
HW: Q 1-9 p 47, Q 1-8 p 55



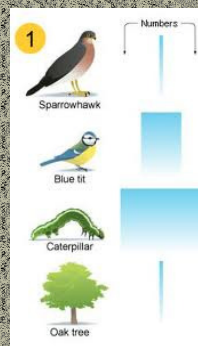
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Pyramid of Numbers & Biomass



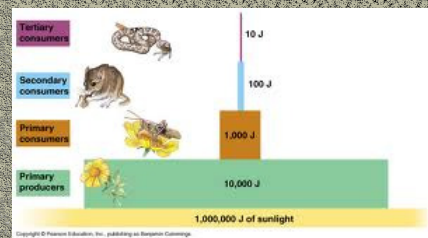
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Inverted Pyramid of Numbers



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Pyramids of Energy



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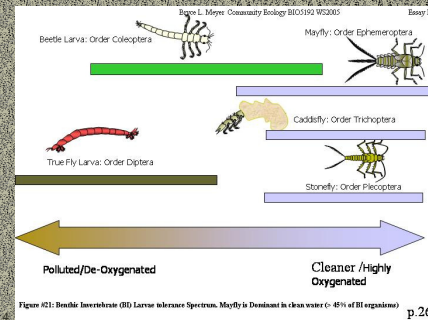
Limits on Populations

- The population of all species within an ecosystem is limited by various factors
 - Abiotic Factors
 - Biotic potential
 - Ecological factors

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Tolerance Ranges Abiotic Factors



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Canadian Climate Regions



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Biotic Potential: maximum # of offspring that a species could produce, if resources were unlimited.

Factors	Description
Birth Potential	Maximum # of offspring per birth
Capacity for Survival	# offspring that reach reproductive age
Procreation	# times that a species reproduces each year
Length of Reproductive Life	Age of sexual maturity and the # years they can reproduce

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Example 1.

- Whooping cranes lay two eggs per year, only one survives.
- What factor does this demonstrate?
- Birth Potential



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Example 2.

- The female sea turtle lays many eggs, but only a few of her offspring ever reach the sea and fewer still reach maturity.
- What factor is this referring to?
- Capacity for survival



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Example 3.

- Elk mate once a year, during the fall.
- What factor is described above?
- Procreation



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Example 4.

- African elephants reach sexual maturity at about 15 years, but may reproduce until they are 90.
- What factor is described above?
- Length of Reproductive Life



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- The environment provides factors that prevent populations from attaining their biotic potential!
 - **Density-Dependent Factors:** factors that increase in significance as a population grows
 - Eg. limited resources, space, food, water and air
 - **Density-Independent Factors:** factors that can limit a population regardless of its size
 - Eg. forest fires or other random occurrences

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Factors Affecting Populations

- 1. **Competition for Resources**
 - 1. Intraspecific Competition: same species
 - 2. Interspecific Competition: between species

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Other Factors Affecting Population Size

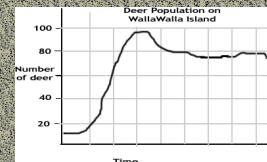
- Predation
- Disease
- Migration
 - Immigration-influx of organisms
 - Emigration-outflow of organisms
- Human Disturbance
 - Hunting
 - Pollution
 - Habitat Destruction

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Carrying Capacity

- Is the largest population of a species that an environment can support
- There are four factors that determine carrying capacity:



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