

# Ecology Notes #2

Sep 10-7:49 AM

**Biological Factors** - any environmental factor that affects biotic factor in a positive OR negative way. Examples:  
water, light, temperature, space, food, oxygen, carbon dioxide, fire, drought, flooding, invasive species, etc.

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**Invasive Species:**  
Any organism that is not "native" to the specific area it is found. Native meaning - it has always been part of that ecosystem. Some Invasive species are purposely brought into an area and we do not call them "invasive" because we want them here, and others are NOT wanted and we try to get rid of them = INVASIVE!

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INVASIVE - zebra mussels, goby, spiny water flea, purple loosestrife, common reed, asian carp, emerald ash borer, and others.  
  
Others we do not call invasive :)  
Chinook Salmon (king salmon) and Ringneck Pheasant

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**Growth Rate** - When an organism reproduces and the population increases overall.  
**Death Rate** - When organisms die and the population decreases overall.

Sep 10-8:10 AM

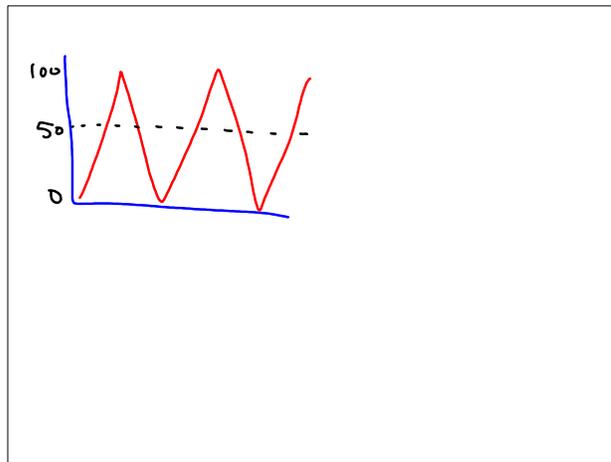
Ecosystems can support MORE organisms if they have a high number of PRODUCERS!  
Less producers will LIMIT how many organisms can live in an area. Less plants, less first level consumers, which means less second level consumers and less third level consumers, etc.

Sep 10-8:16 AM

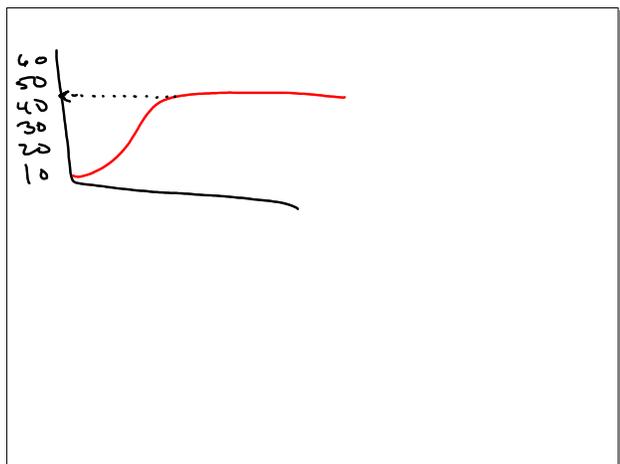
**Carrying Capacity** - the average number of organisms an area can support based on all limiting factors.

A population will LEVEL out showing its carrying capacity, or will spike up and down due to a predator-prey relationship (if this happens you look at the average between the high spikes and low spikes.)

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Sep 12-2:16 PM



Sep 12-2:17 PM

**Constant Growth:** When an organism's population grows at a specific pace over time.

**Constant Drop:** When an organism's population drops at a specific pace over time.

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**Water Cycle**

**Evaporation** - water goes from a liquid to water vapor (a gas) and rises into the air (from any body of water).

**Condensation** - water vapor rises into the air and cools back into a liquid slowly (stays suspended in the air as a cloud).

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**Precipitation** - when the liquid water in the cloud falls back to Earth (rain, snow, sleet, hail.)

**Transpiration** - When plants give off excess water as a gas (water vapor) and it rises in the atmosphere.

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**Run-Off** - when precipitation lands on a slope and the water moves downhill toward the water table.

**Ground water** - when precipitation land on flat land and it filters down through the soil and moves toward the water table. Some water is trapped under ground as well.

Sep 10-8:33 AM

**Photosynthesis** - "to put together with light"  
Plants put "food" (glucose) together by combining two compounds with light. The compounds are water (H<sub>2</sub>O) and carbon dioxide (CO<sub>2</sub>).

Plants take IN water and carbon dioxide and get "food". They let OUT oxygen as waste.

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CO<sub>2</sub> is taken OUT of the atmosphere by PLANTS!

CO<sub>2</sub> is put INTO (or returned) to the atmosphere by animals (breathing), burning fuels, decomposition of biotic factors.

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If amount of light available to a plant increases, the amount of CO<sub>2</sub> available to a plant increases, or a SAFE amount of water is always available to a plant then the rate of photosynthesis will INCREASE!

Sep 10-9:16 AM

A **natural cycle** is when an substance is used, cycled through living and/or non-living factors and eventually is available for use again.

Sep 24-7:15 AM

**NATURAL CYCLES**

1. Water Cycle
2. Carbon Dioxide (CO<sub>2</sub>) and Oxygen (O<sub>2</sub>)
3. Nitrogen

There are others as well, but these are what we expect you to know.

Sep 24-7:12 AM

**Carbon Dioxide/Oxygen Cycle** - the easiest way to look at this cycle is by looking at plants and animals. Plants USE carbon dioxide in photosynthesis and GIVE OFF oxygen as waste. Animals then USE that oxygen in respiration and GIVE OFF carbon dioxide as waste.

Sep 24-7:17 AM

**Nitrogen Cycle** - Nitrogen is used by plants as nutrients from the soil. Decomposers break down dead organisms and waste which puts nitrogen back in the soil. Living plants then use this nitrogen to grow. Some plants are "legumes" (like beans) and these put nitrogen into the soil while they are living and growing.

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Farmers need rich soil, so they spread fertilizer with nitrogen, spread manure which is broken down by decomposers, or they rotate beans with corn each year. (beans make soil rich in nitrogen and the next year the corn uses the nitrogen).

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**Adaptations/and Learned Behaviors**  
Understand how an organism might USE these genetic powers and learned behaviors to increase their chance of survival.

Sep 24-7:25 AM

Why do rabbits in polar regions have white fur?  
Why do plants have colorful flowers?  
Why do male birds have bright colors/why do some dance?  
Why do some organisms migrate?  
Why do some organisms pretend to be hurt and move away from its nest as a predator approaches?

Sep 10-9:18 AM