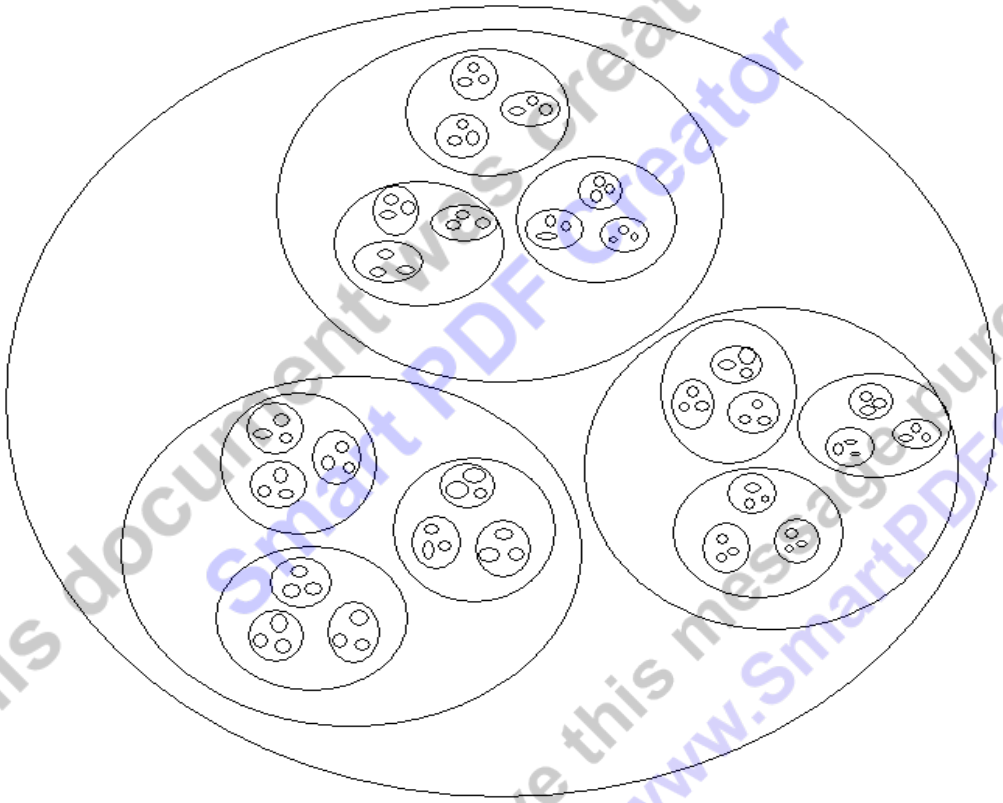
THE WEBBED ECOLOFE

Name:

(DO NOT LOSE)

Everything is connected to each other.



1 Individual
2 Population
3 Community
4 Biome
5 Biosphere

Individual: Organism with unique DNA and cells

Population: Groups of similar individuals who tend to mate with each other in a limited geographic area.

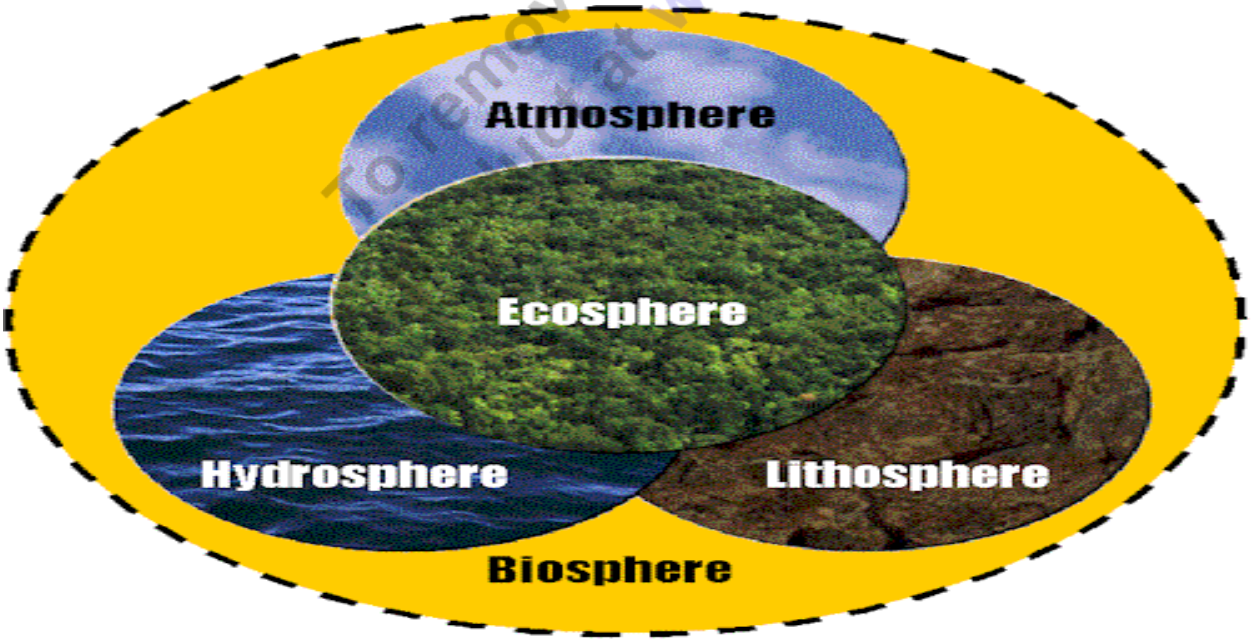
Ecosystem: The relationships of populations with each other and their environment.
Community: The relationships between groups of populations.

Biome: A regional ecosystem characterized by distinct types of vegetation, animals. Determined by temperature and rainfall.

Biosphere: The part of the earth and its atmosphere in which living organisms exist.

Biosphere consists of…

- Ecosphere – The surface of the earth and all the ecosystems.
- Lithosphere: Below the surface, in the crust and mantle.
- Hydrosphere: All waters not in atmosphere and lithosphere.
- Atmosphere: The area of gases that surround the planet.



Habitat: A place an organism lives.
The needs of an organism are…

- Air.
- Water.
- Food.
- Shelter.
- Space.

Ecological Niche: The place or function of a given organism within its ecosystem.

Competition: The interaction between organisms or species, in which the fitness of one is lowered by the presence of another.

Four types of competition

- Interspecific competition: Over resources between different species.
- Intraspecific competition: The same species compete for resources.
- Interference competition: fighting / disrupting.
- Exploitative: Sharing resources.

- Competitive exclusion: One wins one dies.

- Competitive Exclusion Theory: All organisms exist in competition for available resources. Those that create a competitive advantage will flourish at the expense of the less competitive. No two organisms can have the same niche. One lives, the other dies.

Most animal interactions

- Competing for the same food supply.

- Eating (predation).
- Avoid being eaten (avoiding predation).

Food Web: A complex network of many interconnected food chains and feeding interactions.

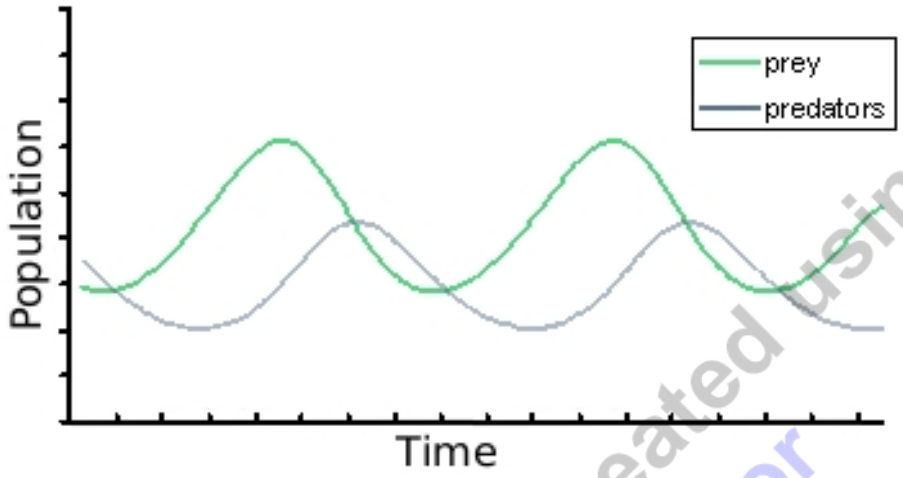
Predator: An organism that lives by preying on other organisms.

Prey: An animal hunted for food.

Habitat: The area or environment where an organism or ecological community normally lives.

Gregarious: Tending to form a group with others of the same species.

Typical Predator and Prey population graph.



Camouflage: An adaptation that allows the animal to blend in with its environment to avoid being detected.

Area of Mini Focus: Population sampling.

Abundance: Measurement of the amount of a species. Can be % cover, density, biomass, frequency.

Relative abundance: The amount of each species. Must sum to 1 or 100%.

Diversity: The variety, or number of kinds of species.

- Counting the number of different species.

Back to Animal Interactions

Mimicry: The resemblance of an animal species to another species or to natural objects.

Batesian mimicry: Looking like another species that is dangerous or may taste bad. There is a mimic, and the model.

Mullerian mimicry: Several unrelated species share warning colors that warn predators that these colors are dangerous or toxic.

Symbiosis: A long term relationship between two or more different species.

Three types of symbiosis

- Parasitism: One organism benefits while the other is harmed.
- Mutualism: Both organisms benefit.
  - Types of mutualisms
    - Trophic mutualism – Both help feed each other. Usually nutrient related.
      - Cleaning symbiosis – One species gets food and shelter, the other has parasites removed.
      - Defensive mutualisms: One species protects the other and gets some benefits for its help.
      - Dispersive mutualisms: One species receives food in exchange for moving the pollen or seeds of its partner.
- Commensalism: One organism benefits and the other doesn't benefit, or suffer harm.

New Area of Focus: Plant and Animal Interactions. Still a part of symbiosis.

Coevolution - When two or more species influence each other's evolution.

Animals Strategies to eat plants

- Animals have special teeth and mouth parts to eat plants.
- They use microbe farms (leaf cutter ants)

- Four chambered stomachs (many herbivores) Uses bacteria to break down plant matter.

Plant defense mechanisms

- Grow in a place difficult to be eaten.
- Repair quickly and let them eat non-essential parts of you.
- Mechanical Defenses - Thorns and serrated edges, and sap.
- Chemical Defenses such as toxins: Plants become poisonous (nicotine, mustard, caffeine).
- Be extremely hard to digest.
- You have protective insects, birds, or mammals that attack predators.
    - You feed your friends a bit (mutualism).

New Area of Focus: Exotic Species

Exotic species – A species that have been introduced to an ecosystem that are not endemic to the area. (non-native)

Endemic: Has lived in the area for a considerable amount of time. (native)

Human activities (globalization) have greatly increased the spread of exotic species.

Negative impacts of invasive exotic species.

- Increased predation.
- Increased competition.
- Spread disease.
- Habitat destruction.
- Cause the extinction of a native species.

- Damage the economy.
- Damage to human health.

Biological control: The purposeful introduction of natural enemies by scientists and environment managers as a means to weaken and suppress invasive exotic species.

Drawing of Eurasian Milfoil.

KEEP THESE NOTES FOR THE ECOLOFE Part I, II,
DO NOT LOSE THEM!