

Jan 10 , 2012

Answers to Worksheet and pg 23 #5,6
Notes on Energy Transfer in Ecosystems

Warm-Up:

Until August of 2000 it was thought that the largest living organism was a fungus species *Armillaria ostoyae* that covered 1,500 acres found living in the state of Washington. Researchers were astonished to find the same fungus in Oregon estimated to cover over _____ acres and be at least 2,400 years old, possibly older.

2,200



Ecological Reach for the Top

Blackline Master 1.5 Refer to page 22

1. Ecology is the study of the interaction of living things with each other and with the non-living factors in their environment.
2. Biotic: living factors in the environment
Abiotic: non-living factors in the environment
3. Ecosystem: The area and the set of relationships between populations of species and the non-living factors of their environment.
4. Lake ecosystem: biotic: fish, algae, otter, snail abiotic: water, temperature, rocks, sand
5. Forest ecosystem: biotic: trees, lichen, moss, deer abiotic: rain, sunlight, soil, wind
6. Population, community, ecosystem and biome
7. The animals or plants of a specific species make up a population (ex: frogs in a pond) while various animals and plants in a pond make up a community.
8. Both the biotic and abiotic factors in a community make up an ecosystem. An ecosystem is the community of organisms plus its physical environment.

Understanding Concept Questions 5 and 6 Page 23

5. More species are found in ecotones that border two ecosystems because organisms from both ecosystems are found in the ecotone.
6. a) The population of species 1 of the paramecium in beaker A grows until it reaches a "steady state" or constant level. The population of species 2 of paramecia in beaker B takes a little longer to begin to increase, but once it does, the population reaches a higher number than species 1 before reaching a steady state.

b) An increase in the population of paramecium 1 corresponds to a decrease in the population of paramecium 2. This suggests that paramecium 1 has a negative effect on paramecium 2. They may compete for the same food source.

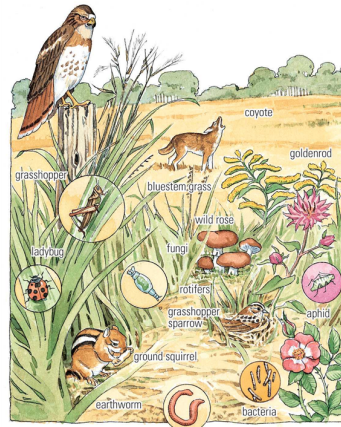
c) In beaker C, species 2 increases in number before species 1 begins to increase. Species 2 then decreases in number while species 1 continues to increase. Species 1 possibly feeds on species 2 or species 2 can't compete well for food sources.

Within ecosystems we can also classify them as being **Natural** or **Artificial**.

An **artificial ecosystem** is planned and maintained by humans i.e. a park, a zoo etc. We plant what we want there, we trim the trees and keep the area free of debris, we also can introduce the types of animals we want etc.



In a **natural ecosystem** organisms are free to interact with one another. i.e. lakes, rivers, deserts, forests, meadows etc. However a natural ecosystem does not mean it is untouched by humans. We are a natural part of any ecosystem.

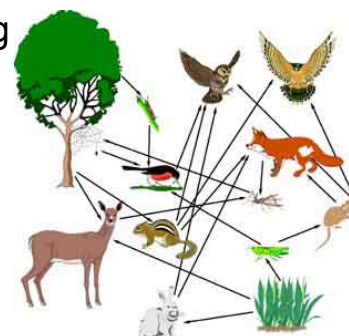


Within every ecosystem whether it is natural or artificial there are various **food chains** and **food webs**. The arrows point to the organism receiving the energy.

Food chain = a step by step sequence showing the energy transferred from one organism to another in an ecosystem. Starts with a producer and continues with a sequence of consumers.



Food web = also shows the feeding organisms, but gives greater detail



Food Chains/Food Webs Organization

In a food web and food chain organisms are classified based on trophic level (feeding level)



Trophic Level

Organism

First trophic level

Producers (plants)

Second trophic level

Primary consumers
(deer)

Third trophic level

Secondary Consumers
(wolf)

Attachments

Uranus student response(4).avi

student response no tilt.avi