

Ecosystems Review

Part A - True or False

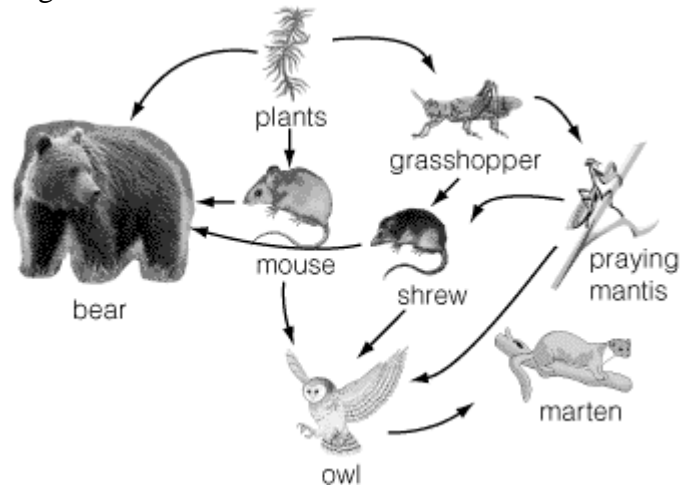
1. _____ Disease is an example of a density-dependent factor in population growth.
2. _____ In East Africa, replacing antelopes and zebras with cattle has a significant impact on the grassland soils.
3. _____ Blue-green algae fixes Nitrogen from the atmosphere in an aquatic environment.
4. _____ The only reactants required for photosynthesis are carbon dioxide and water.
5. _____ Over-fertilization with chemical fertilizers would have a direct effect on the carbon cycle.

Part B – Multiple Choice

1. Grasses have extensive root systems. What conditions do the root systems help grasses survive?
 - A) Winds
 - B) Drought
 - C) Fires
 - D) all of the above

2. Which phrase best describes populations of most species?
 - A) relatively constant over time
 - B) gradually decrease over time
 - C) gradually increase over time
 - D) vary depending upon environmental conditions

3. Consider the following food web:



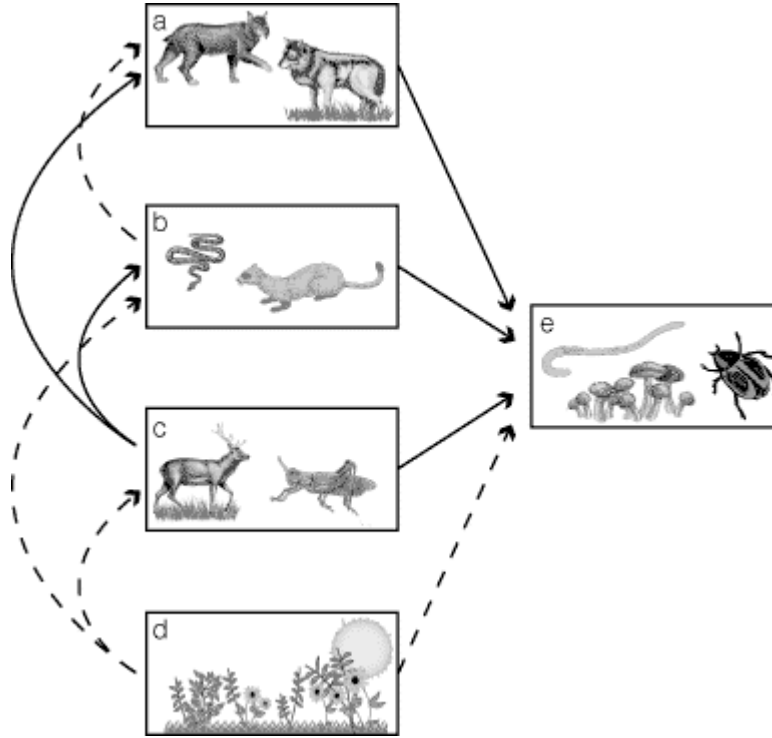
Predict what will happen to the owl population in this food web if the shrew population suddenly declines.

- A) The owl population will disappear.
- B) The owl population will increase.
- C) The owl population will prey more on marten.
- D) The owl population will prey more on mice.

4. What results from the work of bacteria and fungi?

- A) energy returns to the air
- B) chemicals from dead organisms are re-used
- C) heat in the system decreases
- D) supply of elements decreases

5. Consider the following food web:



If organisms such as those in box (d) were not present, what would happen to the organisms in box (c)?

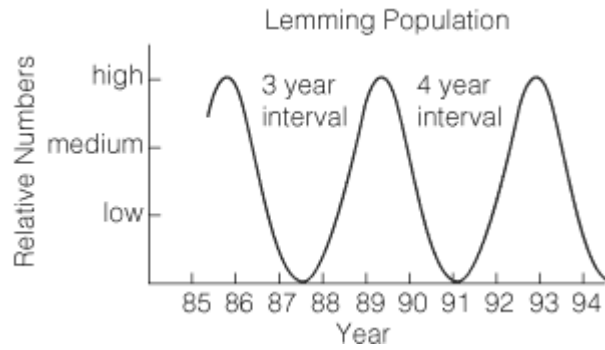
- A) Their numbers would decline rapidly.
 - B) Their numbers would remain unchanged.
 - C) Their numbers would increase rapidly.
 - D) Their numbers would fluctuate.
6. The ultimate source of energy in MOST ecosystems is the
- A) plants.
 - B) sun.
 - C) wind.
 - D) cosmic forces.
7. Part of every ecosystem includes the living or _____ factors.
- A) biotic
 - B) abiotic
 - C) detritus
 - D) transgenic

8. As the population reaches the carrying capacity, which of the following is predicted to happen?
- A) Population density will increase exponentially.
 - B) Population density will decrease exponentially.
 - C) Population growth rate will increase.
 - D) Population growth rate will level off.
9. Which of the following is a density-dependent factor for population growth?
- A) fire
 - B) earthquake
 - C) drought
 - D) food supply
10. Which of the following is considered to be a density-independent factor for population growth?
- A) waste accumulation
 - B) food supply
 - C) flood
 - D) mating opportunities
11. All individuals of the same species within a given area comprise a
- A) population.
 - B) abiotic factor.
 - C) community.
 - D) ecosystem.
12. The role an organism plays within its community is its
- A) habitat.
 - B) niche.
 - C) symbiosis.
 - D) carrying capacity.

13. Which trophic level would a herbivore occupy?
- A) first trophic level
 - B) second trophic level
 - C) third trophic level
 - D) fourth trophic level
14. Populations tend to increase in numbers until their environment can no longer support their demands. The maximum number of individuals that can be supported in an environment is known as the
- A) logistic growth.
 - B) carrying capacity.
 - C) sustainable development.
 - D) biodiversity index.
15. In a pyramid of biomass for a terrestrial biome, which level would represent the greatest overall biomass?
- A) producers
 - B) primary consumers
 - C) top carnivores
 - D) decomposers
16. In the carbon cycle, animals and plants return carbon to the atmosphere by
- A) fermentation.
 - B) photosynthesis.
 - C) respiration.
 - D) combustion.

Part C – Long Answer

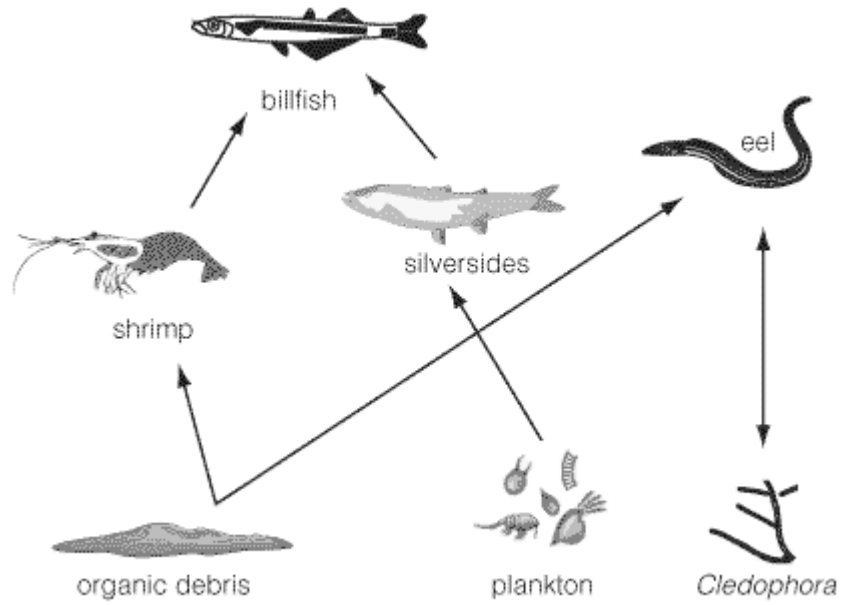
1. In this graph, the lemming population goes through a series of ups and downs.



Suggest a reason to explain this pattern.

2. Draw and label a food chain that can occur in nature (do not include humans, young organisms, or dead organisms).

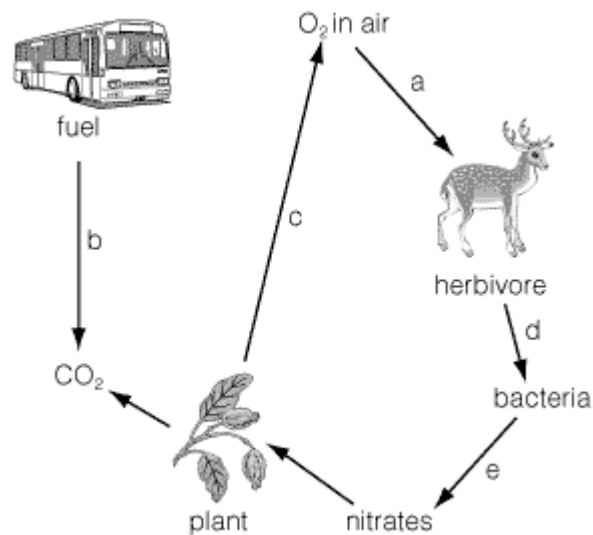
3. Consider the following food web.



Why would DDT concentration in the eel be lower than in fish of similar size?

4. List four factors that determine carrying capacity.

5. The following diagram is a representation of the carbon cycle. Using the words from the list, label each process (a, b, c, d, e) in the cycle.



Word List: Ecological Processes: decomposition, combustion, cellular respiration, photosynthesis, wastes/death