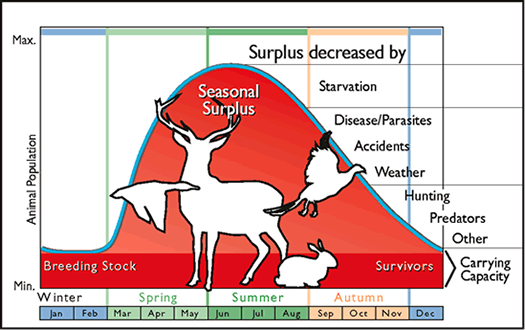
2.10

Limits on Populations



Read the opening paragraph. Page 77

Biotic Potential – places limits on the ability to reproduce. Based on the following four factors:

1. Birth potential - number able to have
2. Capacity for survival – number to live and grow up
3. Procreation – number of times that a species can reproduce each year.
4. Length of reproductive life – the age of sexual maturity and the number of years the individual can reproduce.

Limiting Factors

Abiotic and biotic factors such as food water, territory and the presence of pollutants place restraints on populations of species.

Factors that cause a population to increase:

Abiotic Biotic

1. favorable Light sufficient food

2. favorable temperatures low number of predators

3. favorable chemical environments few diseases

4. ability to compete

5.

Factors that cause a population to reduce :

Abiotic Biotic

1. too much or little light insufficient food

2. too cold or warm many predators

3. bad chemical environment strong disease

4. inability to compete

5.

Carrying Capacity

Carrying capacity is the maximum number of individuals of a species that can be supported indefinitely by an ecosystem.

Stability in population size occurs when ecosystems are in equilibrium.

This is determined by the availability of resources.

What occurs to populations that exceed capacity?

Answer is on page 78 last paragraph.

Limits of Tolerance

1. Law of minimum - the nutrient in least supply is the one that limits growth / weakest link…
2. Law of tolerance – an oraganism can survive within certain limits, above or below it dies.

Density Dependant and Independent factors

Independent factors affect population size regardless of the total numbers. Provide examples on your own:

1. flood

2. fire

3. spraying with pesticides

4. change in climate or temperature

5. destruction of habitat

6. drought

Dependent factors affect the population size because of the total numbers.

1. food shortages

2. competition for mates

3. disease

4. exotic species creating competition

5. increased predation

6. competition for water and other resources

Video from <http://www.learner.org/channel/courses/envsci/index.html>

Read pages 77-80

Understanding concepts

Page 80 questions 1, 3, 4, 5