CORNELL NOTES
Directions: You must create a minimum of 5 questions in this column per page (average). Use these to study your notes and prepare for tests and quizzes. Notes will be stamped after each assigned sections (if completed) and turned in to your teacher at the end of the Unit for scoring.

UNIT 5: ECOLOGY
Chapter 14: Interactions in Ecosystems

I. Habitat and Niche (14.1)

A. A habitat differs from a niche

1. **habitat**- all of the _____ and _____ factors in the area where an organism lives. (*where a species lives*)

2. _____- composed of all the physical, chemical and biological factors that a species needs to survive, stay healthy, and reproduce. (*how it lives within the* _____)

a. _____- type of food species eats, how it competes for food, and where it fits in the food web.

b. **Abiotic conditions**- includes range of conditions such as air _____, amount of _____

c. _____- time of day species is active, where and when reproduces, etc.

B. Resource availability gives structure to a community.

1. **Competitive exclusion**- when two species are competing for same _____, one species will be better suited to the niche, and other species will be pushed into another niche or become _____.

3. **Competitive exclusion** can result in other outcomes

a. **niche partitioning**- dividing of niche by two competing _____ (e.g. top or tree, or bottom of tree)

b . **Evolutionary response**- divergent evolution resulting in selection of different successful _____.

c. **Ecological Equivalents**- species that occupy similar niches but live in different _____ regions.

II. Community Interactions (14.2)

A. _____ and _____ are two important ways in which organisms interact.

1. **Competition**- occurs when two organisms fight for the same limited _____.

a. **Interspecific competition**- competition between different _____

b. **Intraspecific competition** - competition between organisms of _____ species

2. **Predation**- process by which one organism _____ and _____ upon another organism.

B. **Symbiosis** is a close relationship between species (_____- close ecological relationship between two or more organisms of different species that live in direct contact with one another)

1. _____- both species benefit from one another

2. _____- one receives an ecological benefit from another, while the other neither benefits nor is harmed.

3. _____- similar to predation in that one organism benefits while the other is harmed

III. Population Density and Distribution (14.3)

A. **Population density** is the number of individuals that live in a defined _____

1. Measurement of the number of individuals living in a defined space.

2. Can calculate

B. **Geographic dispersion** of a population shows how individuals in a population are _____.

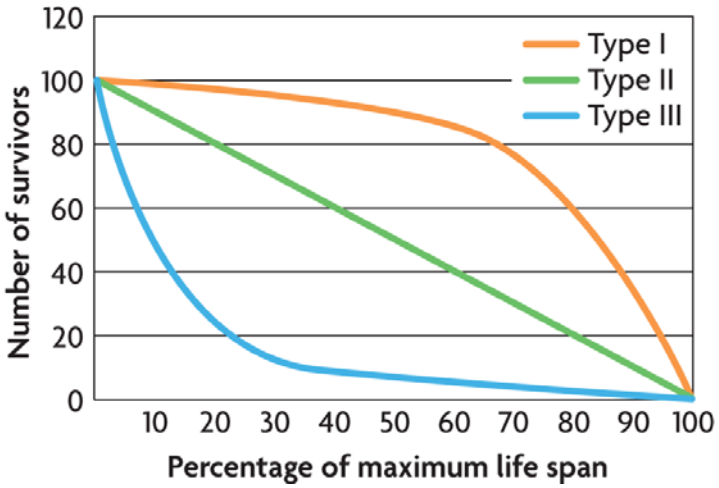
1. **Population dispersion**- way in which individuals of a population are _____ in an area or a volume.

2. Can be **clumped**, **uniform**, or **randomly** dispersed

C. Survivorship curves help to describe the _____ strategy of a species

1. **Survivorship curve**- generalized diagram showing the number of surviving members over _____ from a measured set of _____.

2. Gives information about life _____ of species



IV. Population Growth Patterns (14.4)

A. Changes in population's size are determined by immigration, births, emigration, and deaths.

1. Size of populations are usually _____

2. <u>Four factors</u> affect the size of a population

a. **immigration**- movement of individuals _____ a population from another population

b. **Births**- births _____ number of individuals in population

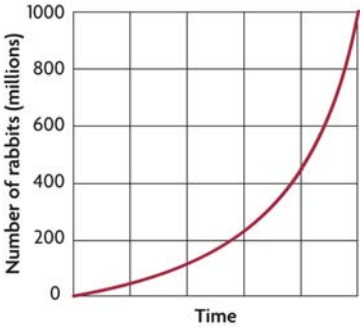
c. **Emigration**- movement of individuals _____ of a population and into another

d. **Deaths**- size of population _____ when individuals die.

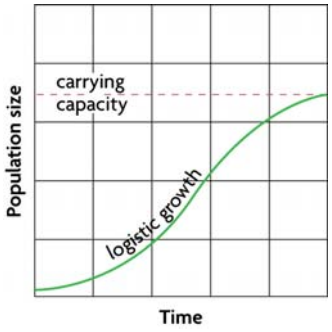
B. Population growth is based on available resources

1. population growth determined by amount of resources available.

2. <u>Two types</u> of population growth



a. _____ **growth**- occurs when population size _____ dramatically over period of time



b. _____ **growth**- begins with period of slow growth, followed by brief exponential growth before leveling off at a stable size.

1). _____ **capacity**- maximum number of individuals of a particular species that the environment can support

2). **Population crash**- dramatic _____ in size of population over a short time

C. Biological factors limit population growth

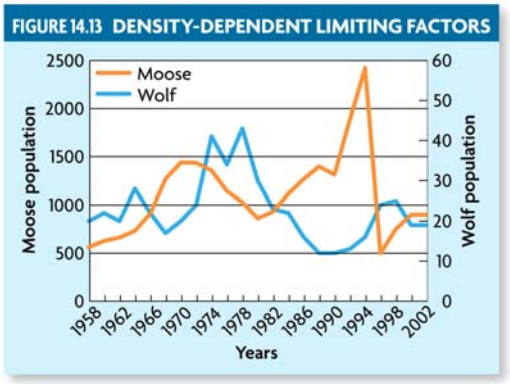
1. **Limiting factor**-factor that has the _____ affect on keeping down the _____ of a population

2. Two categories of limiting factors

a. _____**-dependent**- affected by number of individuals in a given area

1). **Competition**- compete for _____

2). **Predation**- population of predator can be limited by available _____



3). **Parasitism and disease**- spread quickly through _____ populations

b. **Density-independent limiting factors**- aspects of environment that limit population growth regardless of _____

1). **Unusual weather**-can affect entire food _____ or _____

2). **Natural disasters**- volcanoes. Tsunamis, tornados, hurricanes, etc.

3). **Human activities**- destruction of habitat, introduction of non-native species

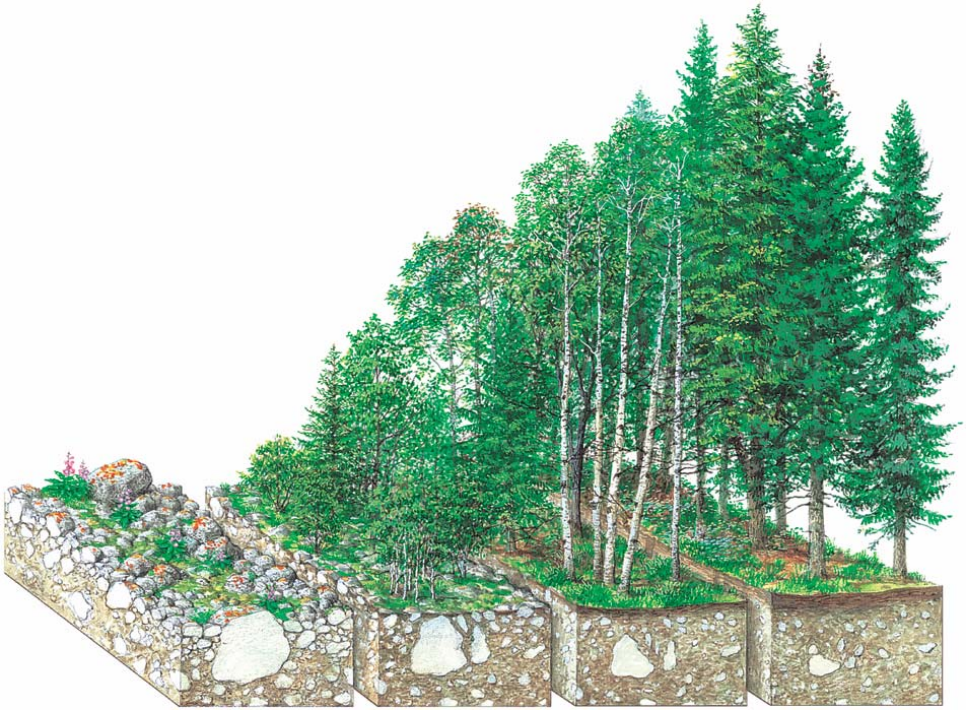
V. Ecological Succession (14.5)

A. Succession occurs following a disturbance in an ecosystem (_____- *sequence of biotic changes that regenerate a damaged community or create a community in a previously uninhabited area*)

1. _____ **succession**- development of ecosystem in areas that was previously uninhabited

a. _____ **species**- first organism to move into area like lichens and some mosses.

b. Series of steps: bare rock → pioneer species → small plants → small animals → larger animals and plants



2. _____ **succession**- reestablishment of a damaged ecosystem where _____ was left intact (after fire, hurricane, etc.)

a. Plants and animals that _____ start the process of regrowth.

b. _____ process- are always changing the face of an ecosystem