



Tuesday, April 3, 2018

Pick up: none

Today you will:

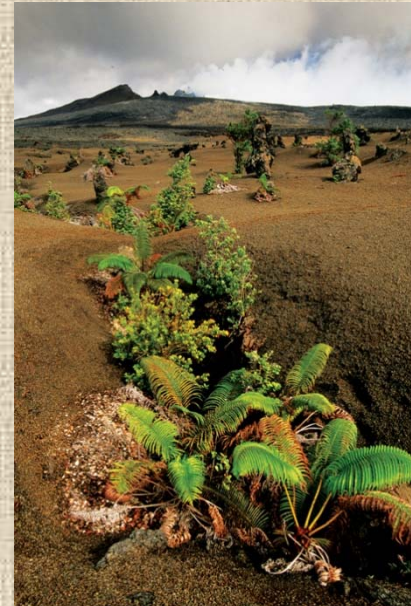
- Notes on how populations change & why
- Notes on succession

Homework/Planner:

Be sure to have completed Packet pgs 1-8 & WB ch.
14.5-due Monday, 4/16

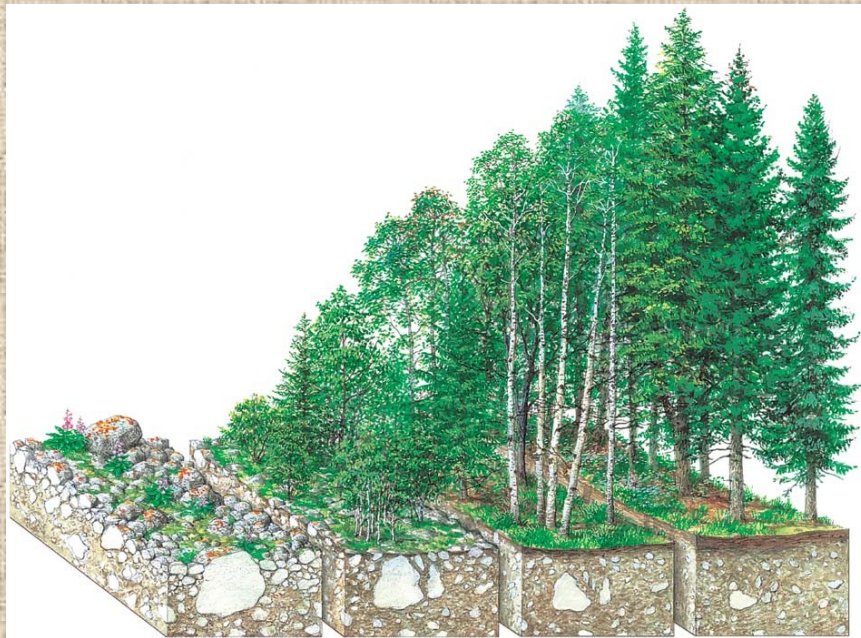
Succession occurs following a disturbance in an ecosystem.

- Succession regenerates or creates a community after a disturbance.
 - a sequence of biotic changes
 - damaged communities are regenerated
 - new communities arise in previously uninhabited areas

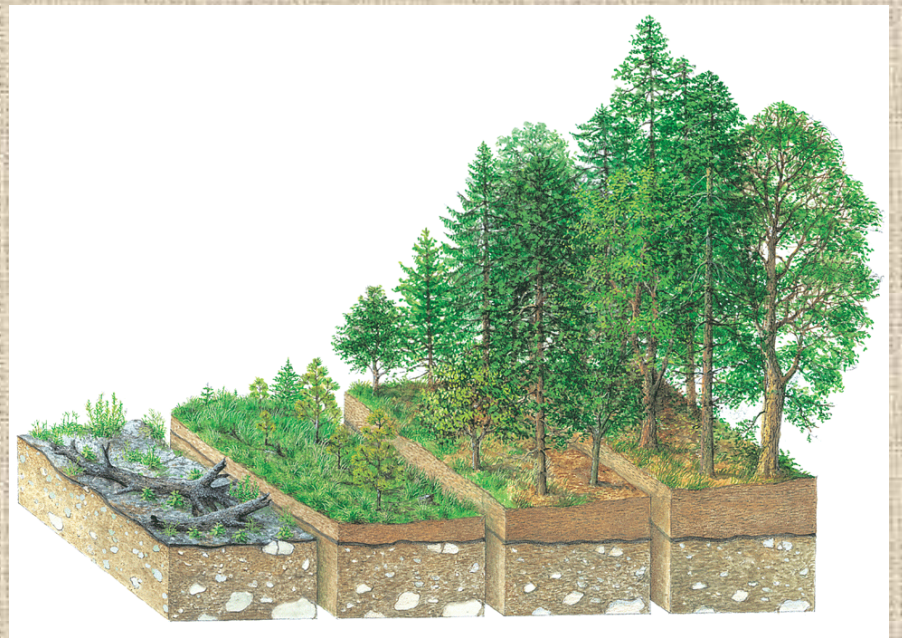


- There are two types of succession.

- primary succession —
started by pioneer species, no soil, no existing life



- secondary succession —
started by remaining species after a disturbance



History: Surtsey, Iceland: The Newest Place on Earth....

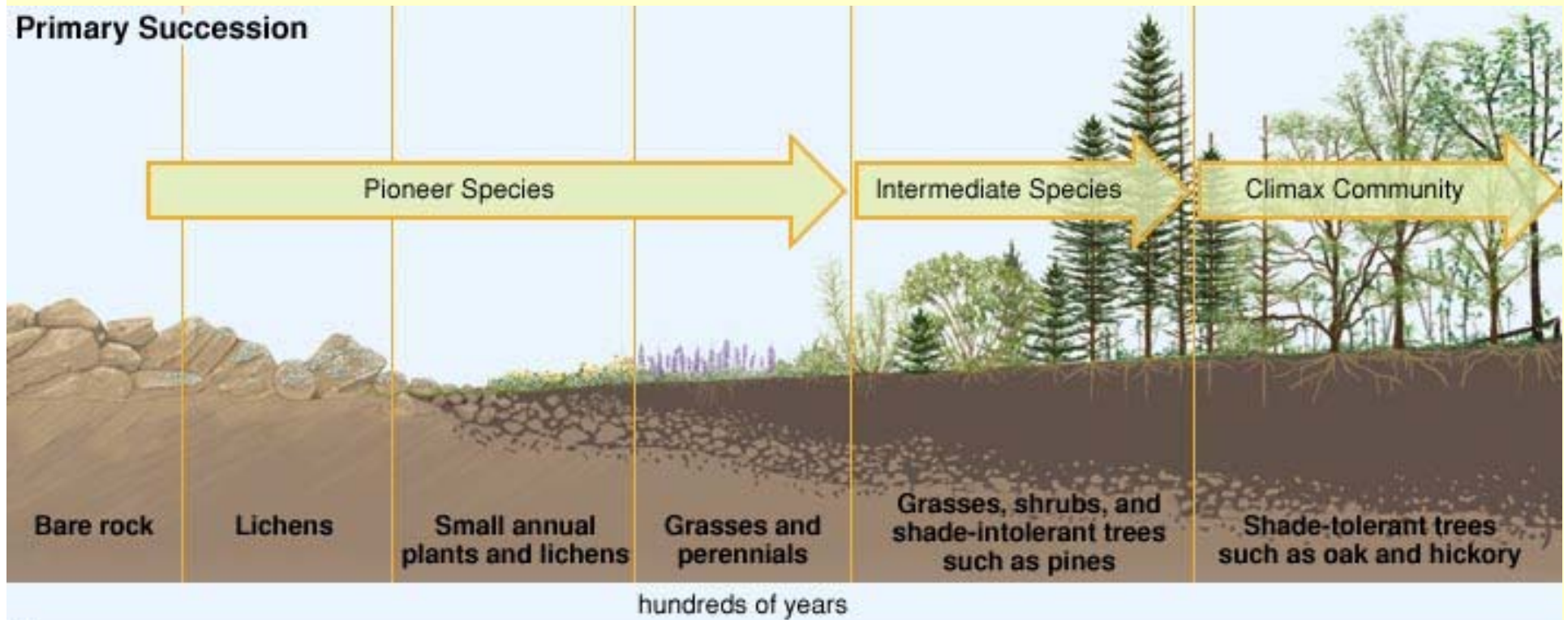
Succession in real life

- Named after Surtur, the fire possessing giant of Norse mythology who would set fire to the earth at the Last Judgment.
- First seen as an underwater eruption by fisherman in 1963.
- The lava flowed for 3 ½ years
- 1st organism was a fly.
- 1st bird to lay eggs was a goose in 2002



Look at

Primary Succession



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PIONEER SPECIES: first org, unstable

CLIMAX COMMUNITY: stable



Organisms are driven away or killed by some type of **disturbance**, like a forest fire, leaving behind only the **soil**.



Pioneer species, like grasses and weeds, begin to grow from the soil. Roots and seeds left over may also begin to grow again.



Some pioneer species die and are replaced or outcompeted by other species like shrubs and small trees.

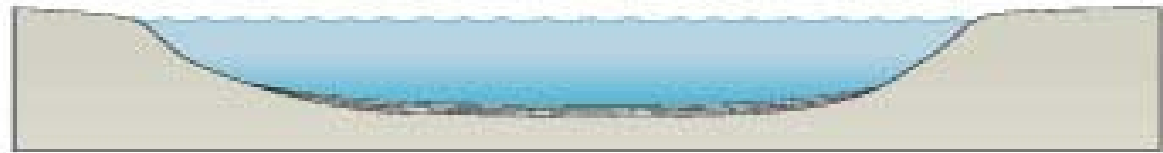


Small and Large trees begin to grow, and the community reaches an **equilibrium** or balance. This results in a **climax community**.

Secondary Succession: The *reestablishment* of community following disturbance.

Deep freshwater no rooted plants because of lack of light in deep water

Community only microorganisms and phyto plankton



Sediments get carried into the pond allowing rooted submerged and floating to start to grow



Sediments continue to build up.

reeds and grasses develop around pond margin trapping more sediment



A marsh community builds up around the pond margins

Reeds take over more of the pond as more silt build up



As the soils around the edge dry from water logged to damp, tree species such as willow and alder become established

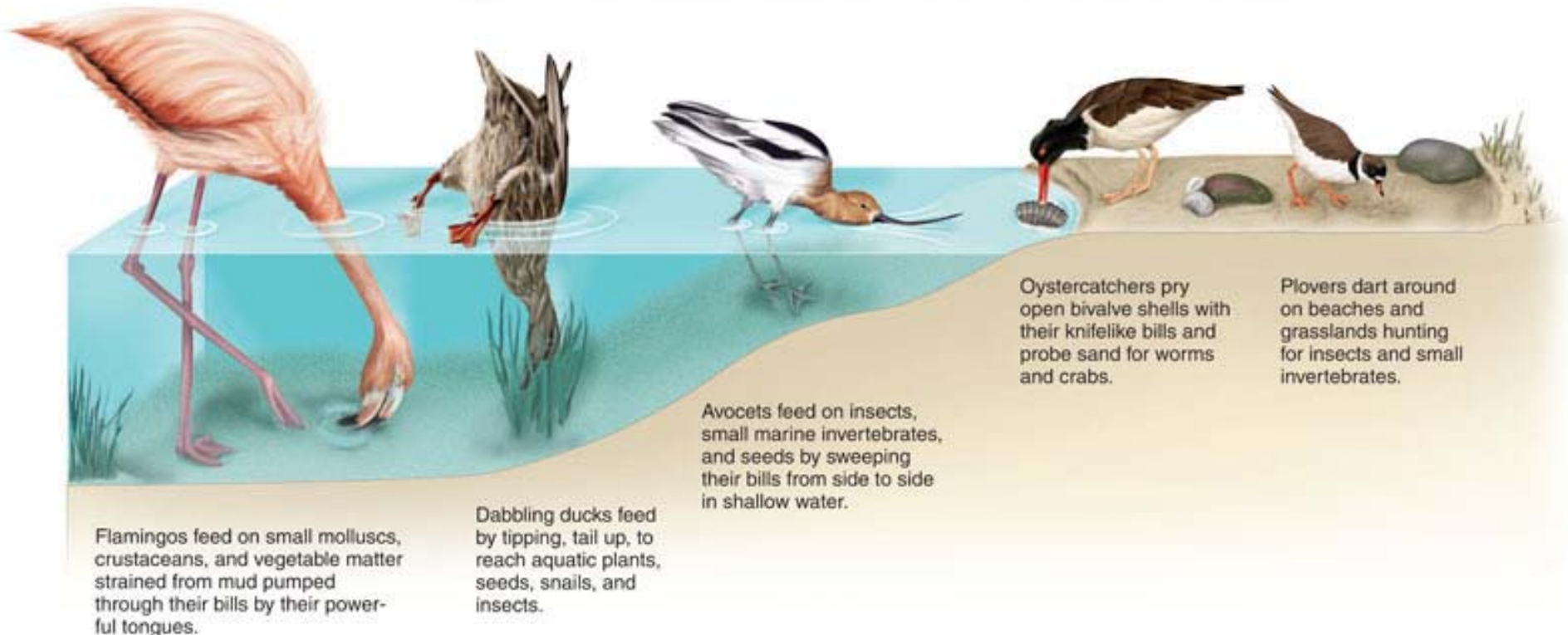


Stages of Ecological Succession

- Read Ch. 14.5 and complete questions in WB
- Succession Video Clip
- <https://www.youtube.com/watch?v=uqEUzgVAF6g>

What is this picture depicting? (Check out your vocabulary to help)

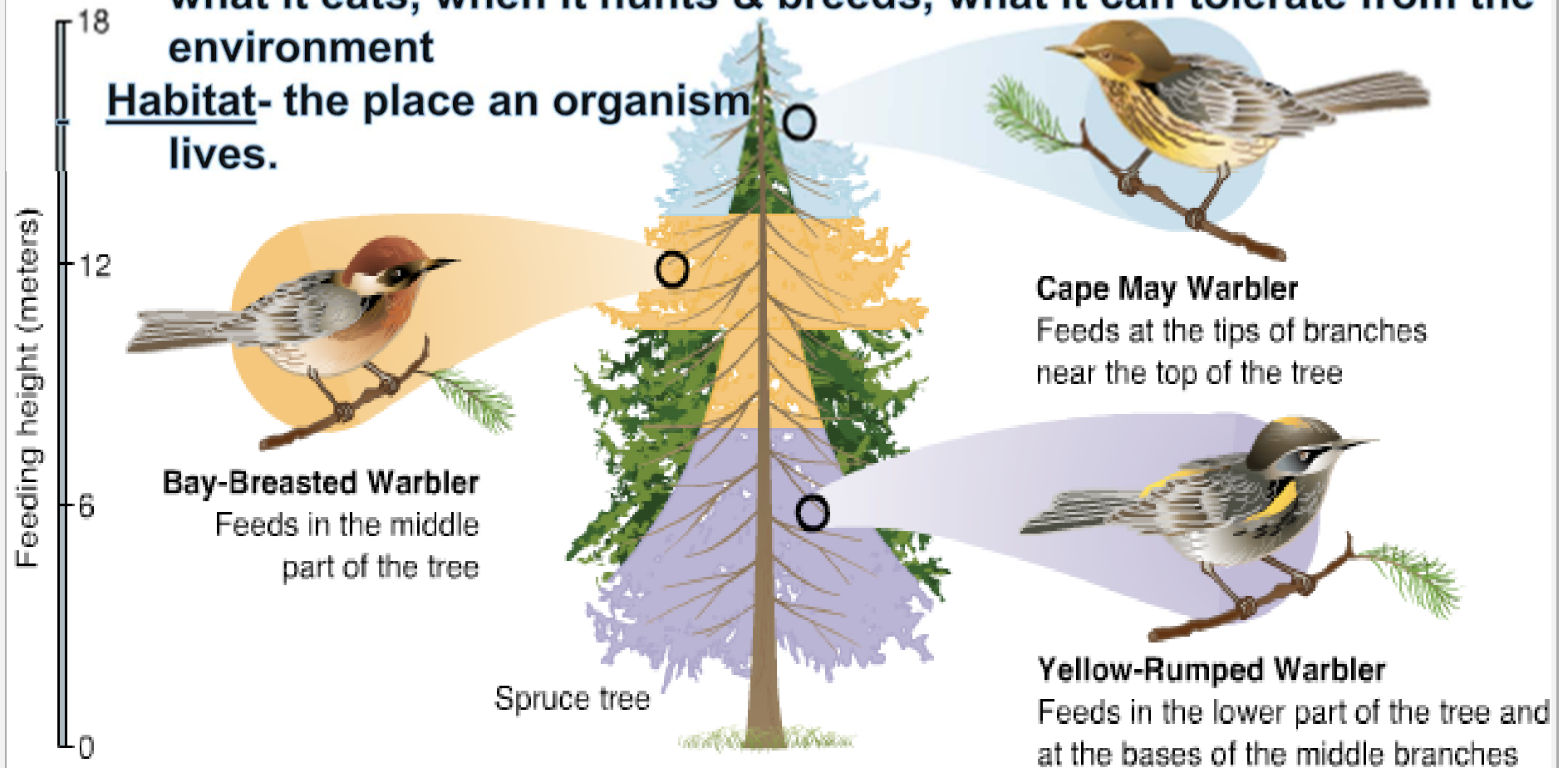
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Niche- its role or job w/in the ecosystem, HOW it lives

what it eats, when it hunts & breeds, what it can tolerate from the environment

Habitat- the place an organism lives.



Warbler Niches Each of these warbler species has a different niche in its spruce tree habitat. By feeding in different areas of the tree, the birds avoid competing with one another for food. **Inferring** What would happen if two of the warbler species attempted to occupy the same niche?

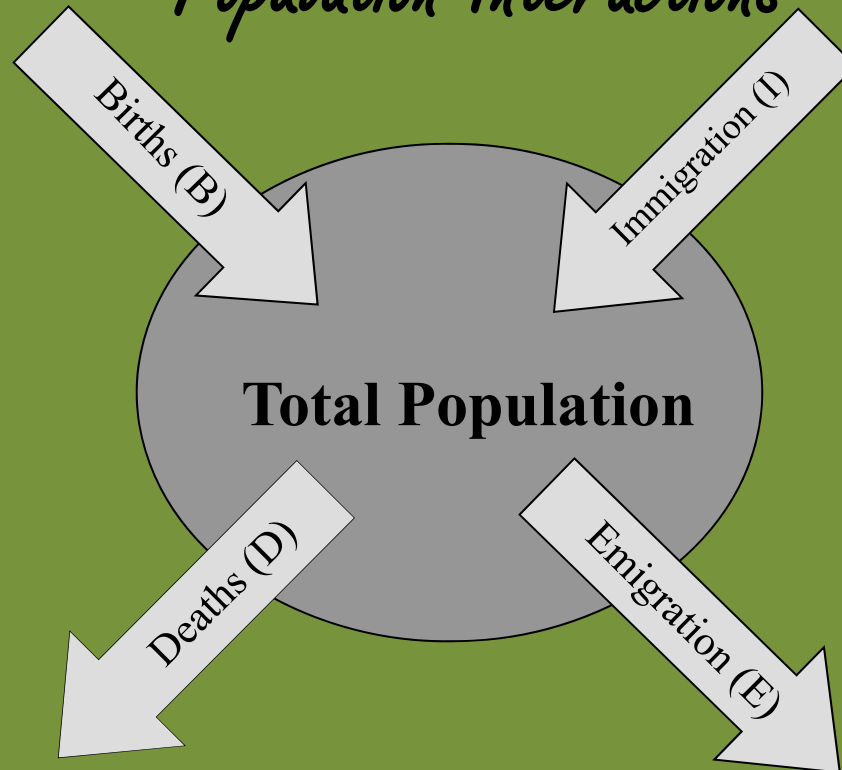
Indigo Snake



Copy in notes

Interpret the Graphic

Population Interactions



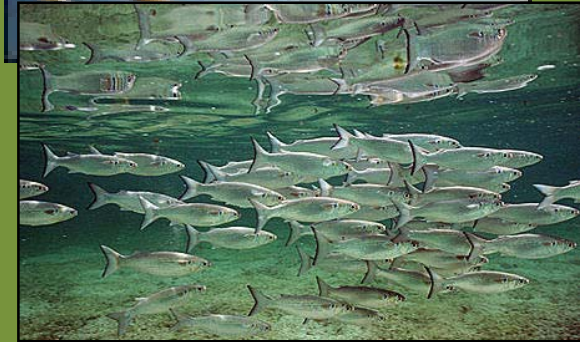
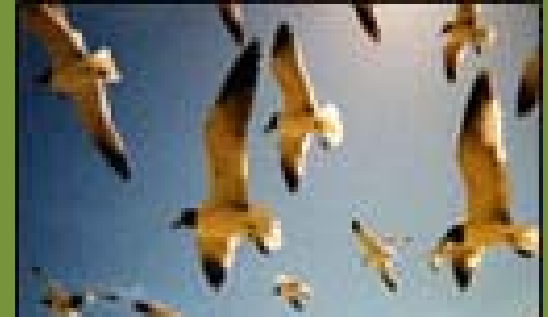
1. What is the term used for populations moving into an area?
2. What is the term used for population leaving an area?
3. Name 2 factors that cause an increase in the pop. size?
4. Name 2 factors that cause a decrease in pop. size?

A Population is...

- Members of the same species living in the same area/*geographic region*)

#4 Pop Density = measurement of the # of ind. living in a defined space.

A. Things that can cause a change: weather, predators, prey, normal fluctuations, MAN!



- Population density: the number of individuals in a population found in a particular area or volume.
 - **Density Dependent** limiting factors- A population's density can affect how rapidly it can grow or decline.
 - e.g. biotic factors like disease
 - **Density Independent** limiting factors- Some population control factors are not affected by population density.
 - e.g. abiotic factors like weather, natural disasters, human interference

#5 Factors that affect pop. size

1. Immigration = IN
2. Births
3. Emigration = EXIT
4. Deaths

#6 Graphing changes in pop size

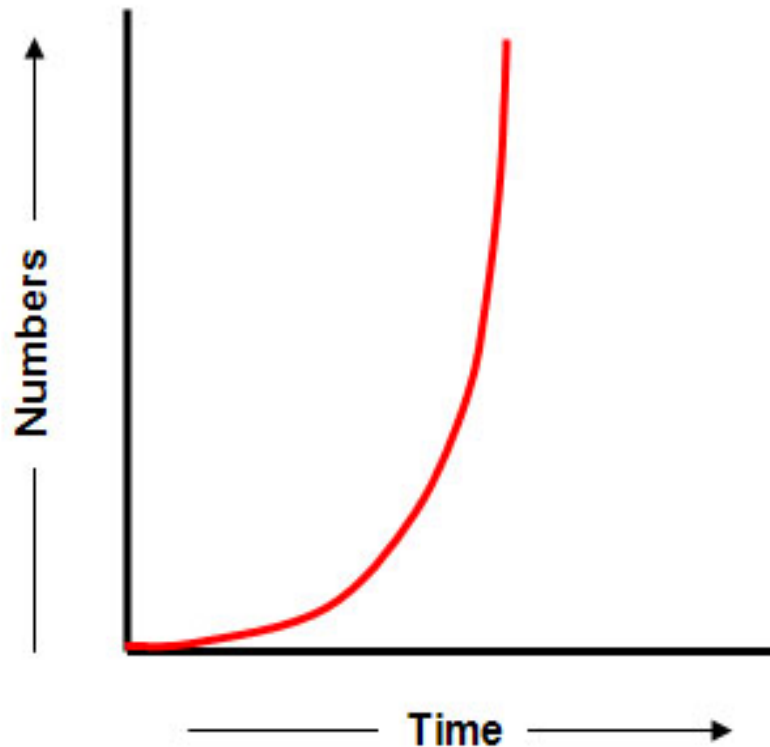
- A. Steady then dramatic increase =
Exponential curve
- B. Slow – exponential – leveling off (more realistic curve) =
Logistic curve

Ecologists Study What Happens to Populations; Two Common Modes of Population Growth

Exponential curve

(J-curve)

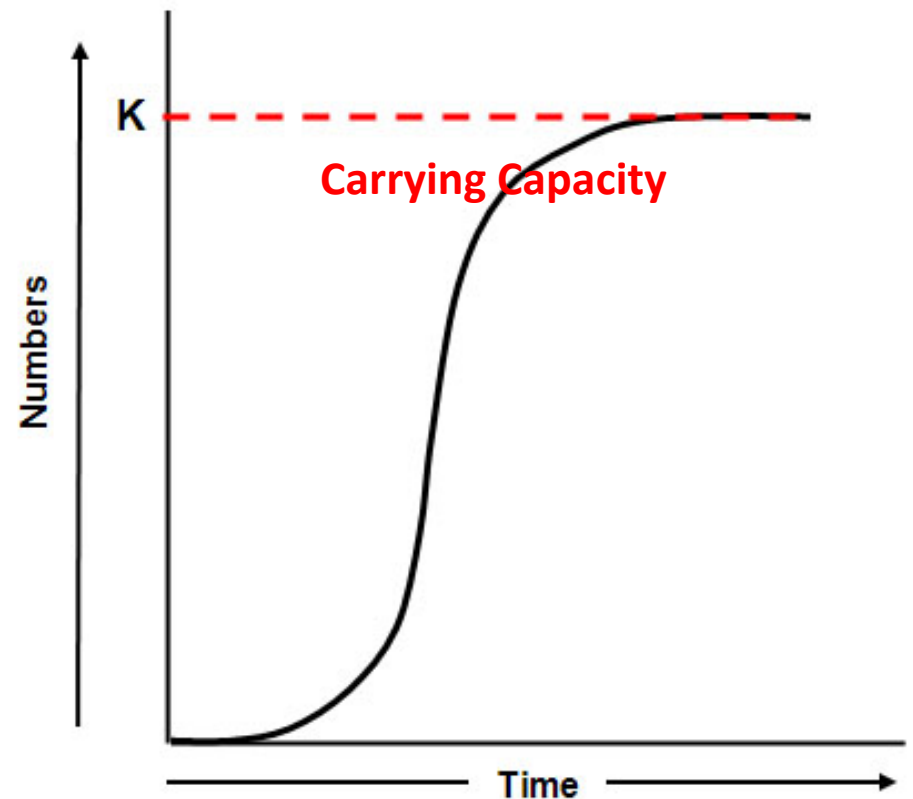
UNRESTRICTED growth



Logistic curve

(S-curve)

RESTRICTED growth



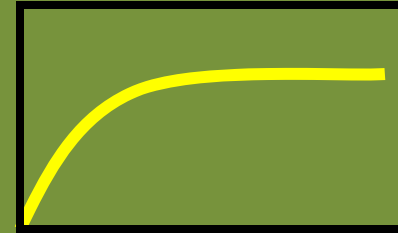
#7 Carrying Capacity is...

• *Total # of organisms the environment can normally & comfortably support*

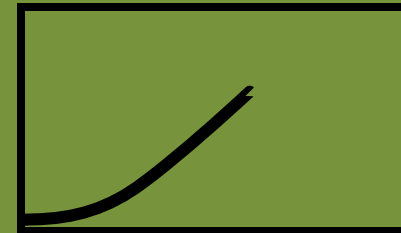
- 1. Example: A 20 gallon aquarium can support 20 fish**
- 2. Example: a Petrie dish can support 4 million bacteria cells**
- 3. Example: Old NSBHS built to support 800 students (hence the portables, crowded hallways AND this new school!)**
- 4. Example: The world can only support so many people....**

What happens to the growth rate when a population is....

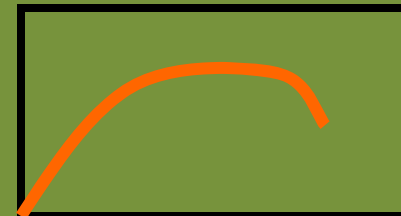
• *At carrying capacity =*

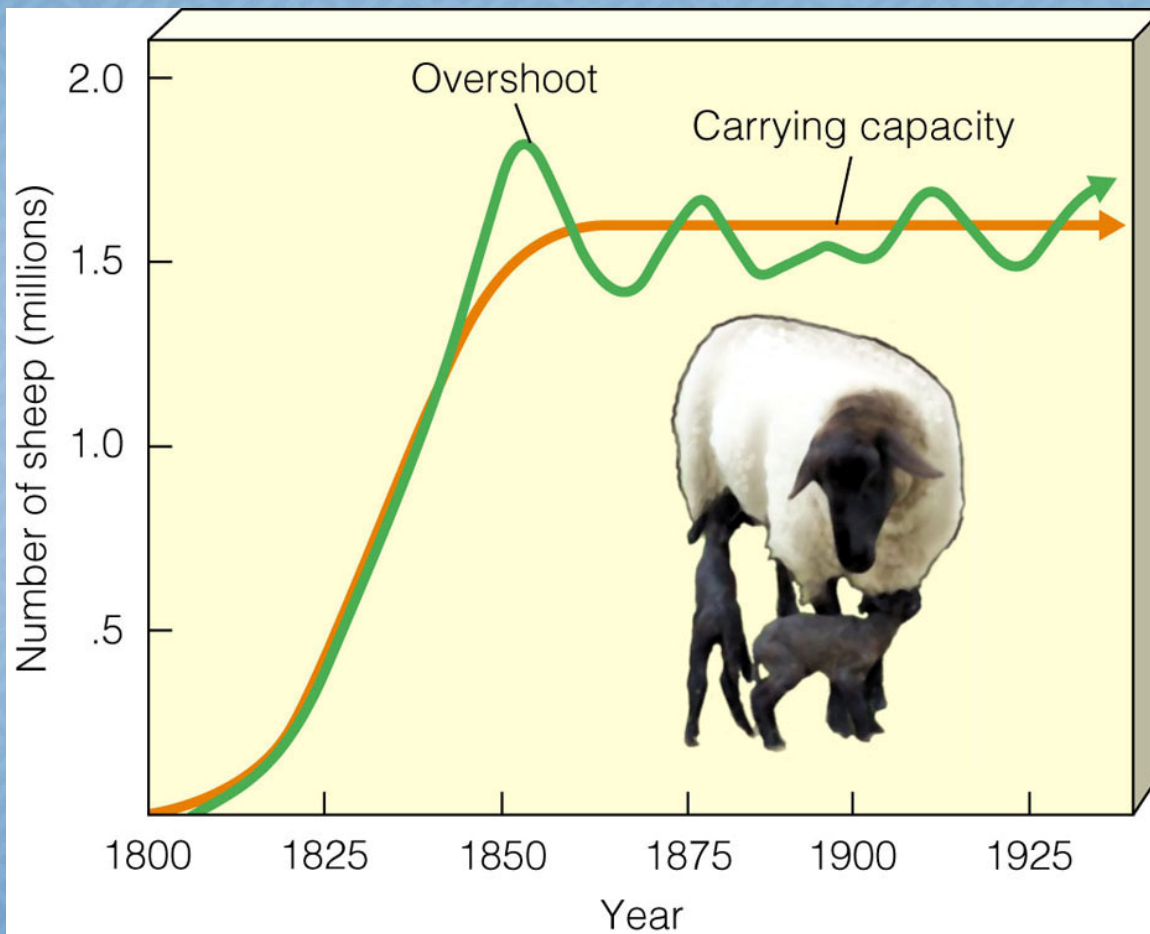


• *Below carrying capacity =*



• *Above carrying capacity =*





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As a population levels off, it often fluctuates slightly above and below the carrying capacity.

How Wolves Changed Yellowstone & Sea Otter Video Clip

- https://www.youtube.com/embed/ysa5OBhXz-Q?feature=player_embedded
- http://www.pewtrusts.org/en/multimedia/video/2015/sea-otters-vs-urchins-in-canadas-kelp-forests?img&utm_campaign=2015-04-22%20Latest&utm_medium=email&utm_source=Eloqua