

Ecosystems and Communities

The bottom of the slide features a decorative graphic consisting of several overlapping, wavy lines in various shades of blue, creating a sense of movement and depth.

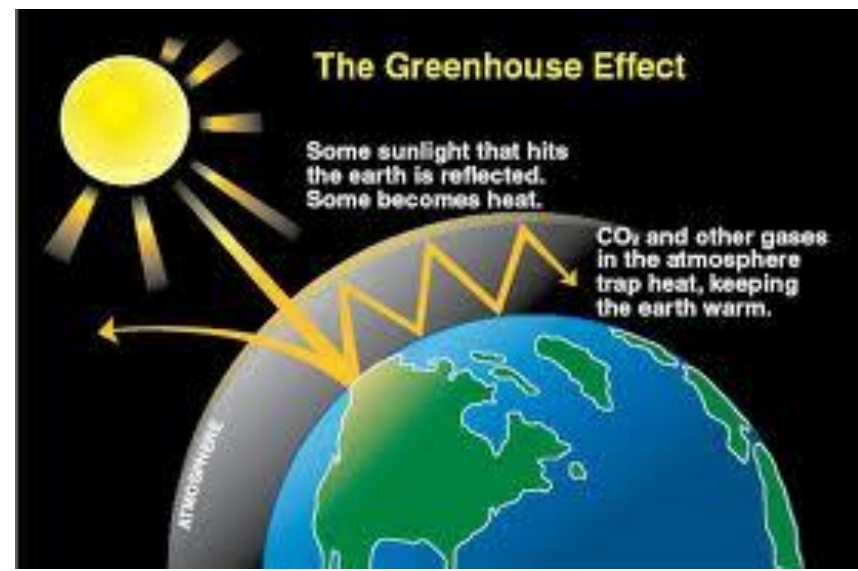
Climate and Weather

- * **Weather**: Day to Day condition of the Earth's atmosphere
- * **Climate**: Average year after year conditions in a n area
- * Sunlight drives both weather and climate
- * Wind, precipitations and sunlight amounts determine climate and weather



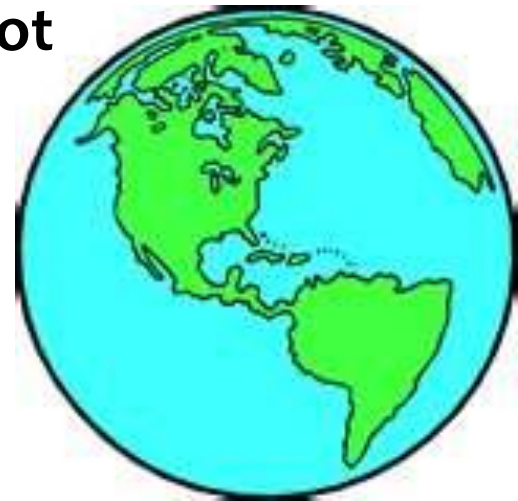
Greenhouse effect

- * Temperatures on earth must remain in a certain range for life to occur
- * Greenhouse effect: How heat is retained in the atmosphere
- * Carbon dioxide, water vapor, and methane gas trap heat from leaving, like the glass of a greenhouse



Climate zones and weather

- * Climate and weather are determined by latitude or location on earth
- * 3 zones: Polar, tropical and temperate:
- * Polar zone: very cold, less sunlight, less life
- * Tropical zone: most sunlight, high temps year round, located on or near the equator
- * Temperate zone: between tropics and polar zones, temps fluctuate from very cold to very hot



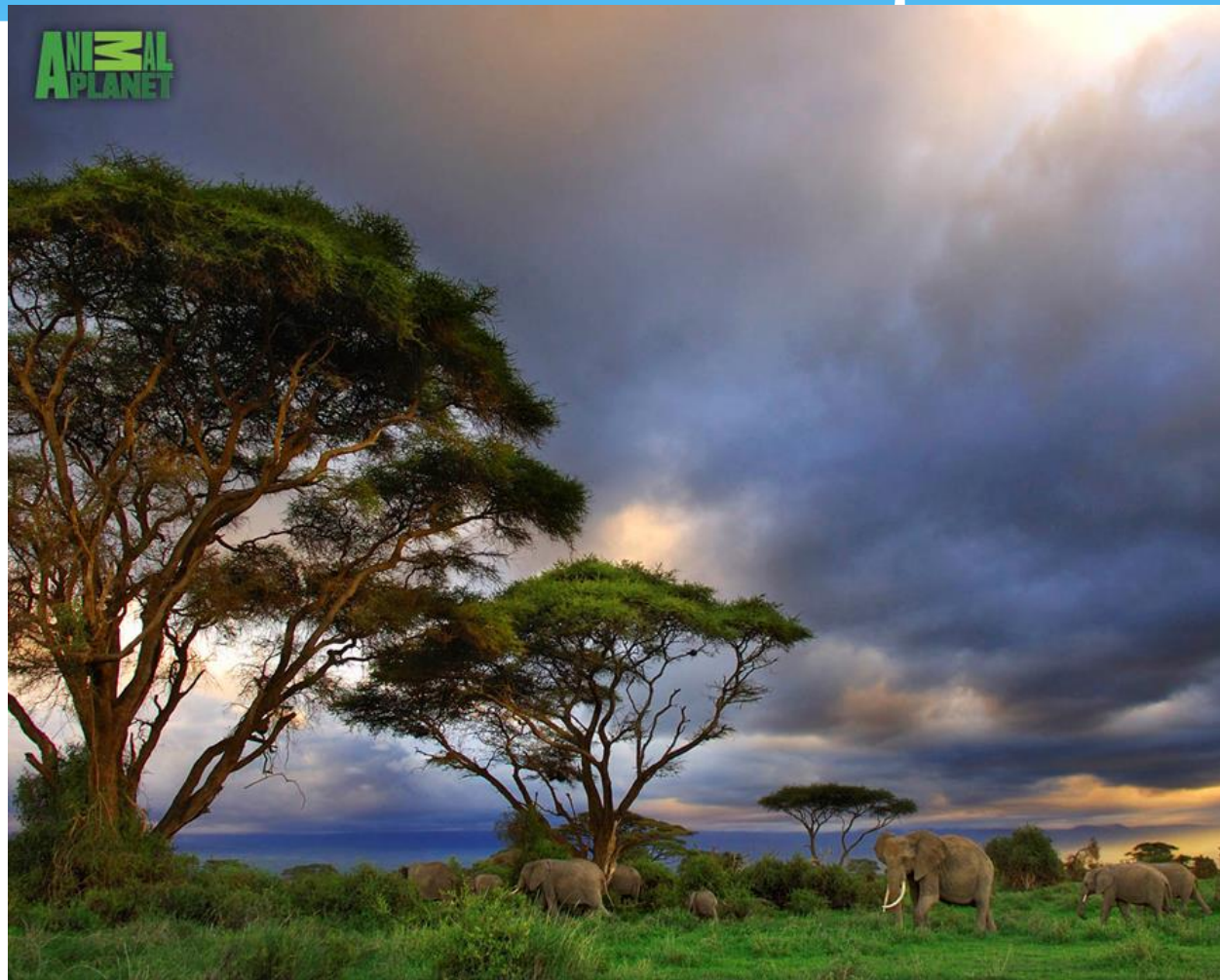
Biomes

- * **Biomes**-a large group of similar ecosystems with similar climate conditions and similar dominant communities
- * Tropical Rain Forest
- * Tropical Dry Forest
- * Savanna
- * Desert
- * Temperate Grassland
- * Boreal Forest (Taiga)
- * Tundra

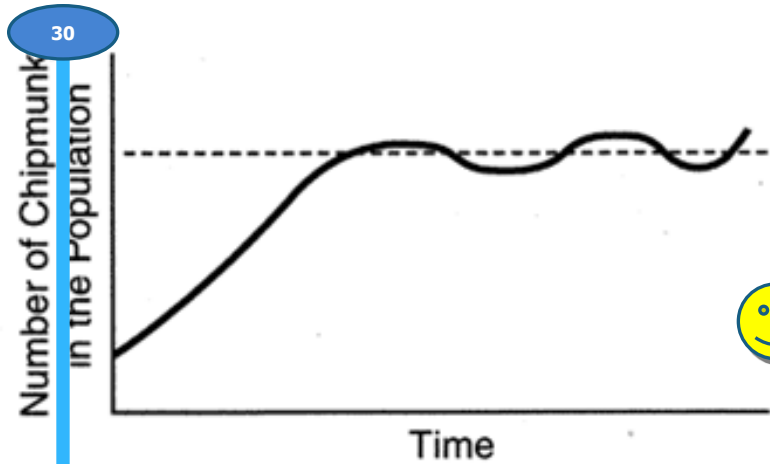
Biotic and Abiotic Factors

- * **Biotic factors: ALL living organisms that impact life (plants, insects, birds, etc.)**
- * **Abiotic Factors: ALL non-living factors affecting life (Weather, precipitation, rock, soil etc.)**
- * **Together biotic and abiotic factors produce a habitat: an area where organisms live**
- * **Niche: Specific range of conditions for organism**
- * **Competitive exclusion principle: no two species can occupy the same niche at the same time**

Give me 2 examples of abiotic and biotic factors in this picture!



A population of chipmunks migrated to an environment where they had little competition. Their population quickly increased but eventually stabilized as shown in the graph.



1. 1



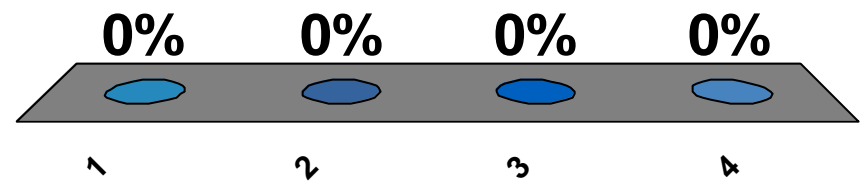
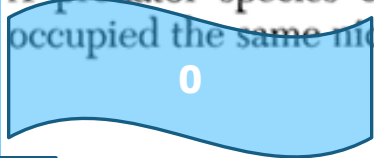
2. 2

3. 3

4. 4

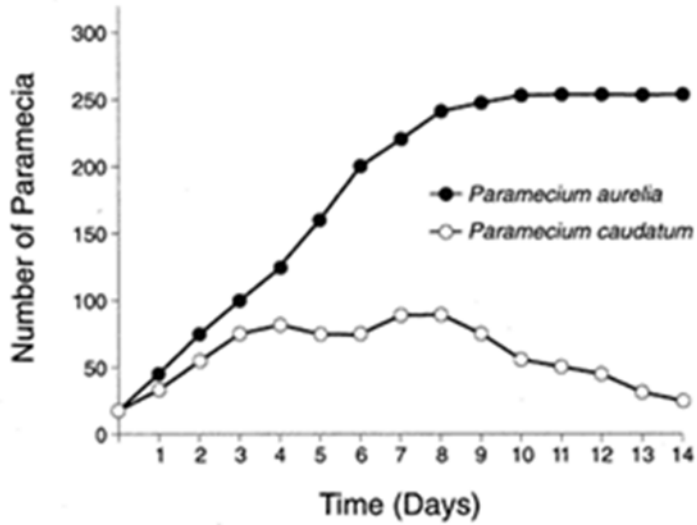
Which statement best explains why the population stabilized?

- (1) Interbreeding between members of the population increased the mutation rate.
- (2) The population size became limited due to factors such as availability of food.
- (3) An increase in the chipmunk population caused an increase in the producer population.
- (4) A predator species came to the area and occupied the same niche as the chipmunks.



1.

The graph below shows the growth of two populations of paramecia grown in the same culture dish for 14 days.



Which ecological concept is best represented by the graph?

- (1) recycling
- (2) equilibrium
- (3) competition
- (4) decomposition

1. 1

2. 2

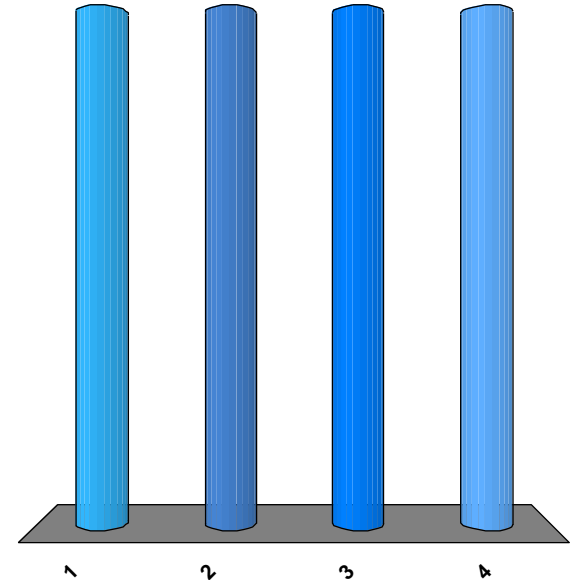
3. 3

4. 4



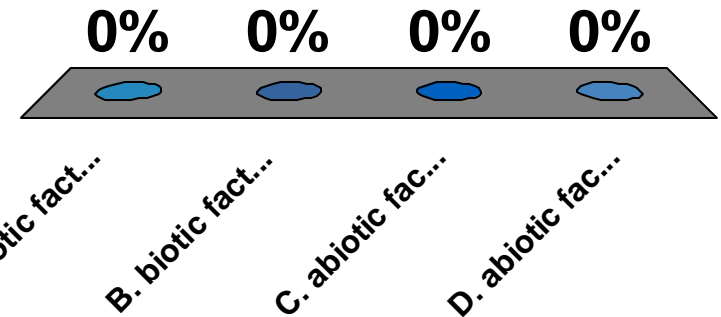
0

25% 25% 25% 25%



A researcher observing an ecosystem describes the amount of sunlight, precipitation, and type of soil present. Which factors is the researcher **most likely** describing?

- * A. biotic factors in a forest
- * B. biotic factors in a tundra
- * C. abiotic factors in a prairie
- * D. abiotic factors in an ocean



Symbiosis

- * Symbiosis- two species live in close association; at least one species benefits; it has coevolved over millions of years

Community Interactions

- * Symbiosis: two organisms that live together in an environment
- * 1) Predation- an organism that feeds on another organism
 - * a. one species is harmed, another is helped

- * 2) Parasitism – **an organism that lives in or on another organism and feeds on it**
 - * a. one species is harmed, another is helped
 - * b. do not kill their hosts --- want their hosts to live forever so they can continue to feed MWHHAHAHA!!!!



- * 3) Mutualism – two species where both benefit and depend on each other.

- * a. E. Coli and your intestines

- * i. E. Coli has a nice home; we have better digestion

- * b. both species benefit

- * i. Ants defend tree against herbivores--- tree provides ants with a home and food
- * Ants and aphids



- * 4) Commensalism – one species benefits and the other species is neither harmed nor helped

- * a. one species helped; other species indifferent

- * i. orchid grows high in a trees branches for better sunlight and water

- * ii. tree couldn't give a poop



- * 5) **Competition- a relationship that occurs when individuals are vying for the same natural, limited resource**

- * a. competition harms both sides of the relationship
- * b. can occur within a species
- * c. can occur between species
 - * i. overlap
 - * 1. that means both species are using the same resources

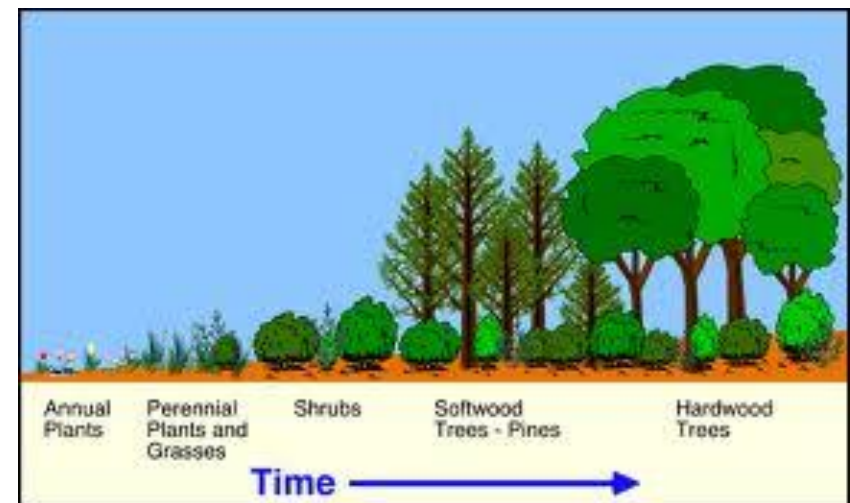


Symbiosis: Relationship where two species live together

- * Competition: occurs when organisms need the same resources such as food or space
- * Competitive exclusion principle: no two organisms can occupy the same niche at same time
- * Predation: One organism feeds on another organism
- * Mutualism: Both species benefit
- * Commensalism: One member benefits, other doesn't get affected
- * Parasitism: One member benefits, other is hurt

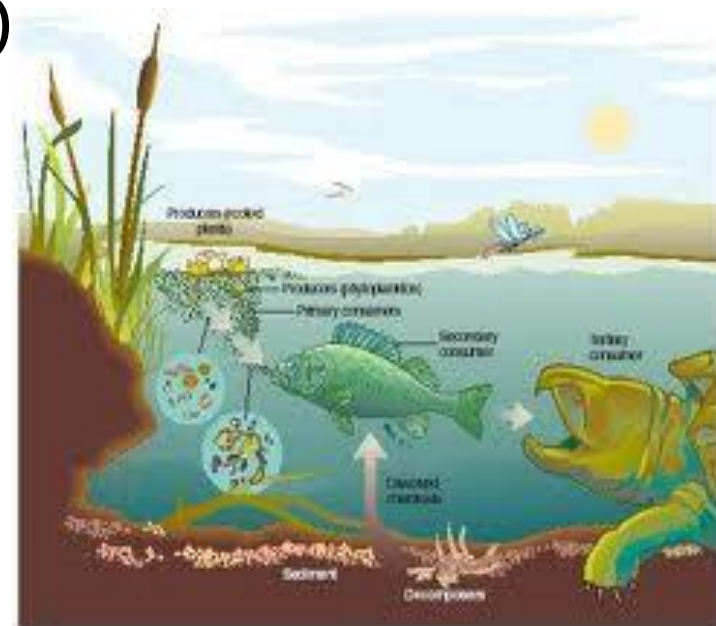
Ecological Succession

- * **Ecological succession**: Over time predictable changes occur in ecosystems
- * **Primary succession**: New ecosystems starting in areas with no soil
- * **Pioneer species**: The first organisms to populate an area
- * **Secondary Succession**: When ecosystems return to natural state after a fire or natural occurrence



Aquatic Ecosystems

- * Rely on “plankton” as base of food chain
- * **Freshwater:** Flowing ecosystems(rivers) or standing ecosystems (lakes, ponds, swamps)
- * **Estuaries:** where fresh and saltwater mix
- * **Wetland:** Area where water is present at least part of the year (swamps and marshes)



Marine ecosystems (saltwater)

- * Photic/Aphotic zone: light reaches only in the Photic zone
- * Intertidal zone: Area where the land and ocean meet, tides affect it
- * Coastal Ocean: From the beach out to the deep water areas of the ocean
- * Coral Reefs: warm, clear, and shallow waters areas, huge amounts of life

