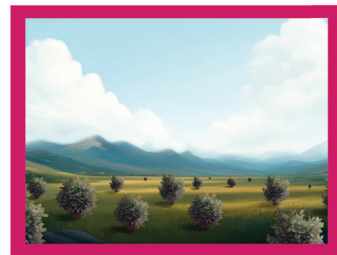
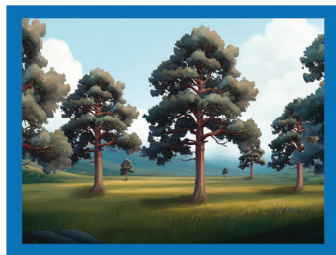
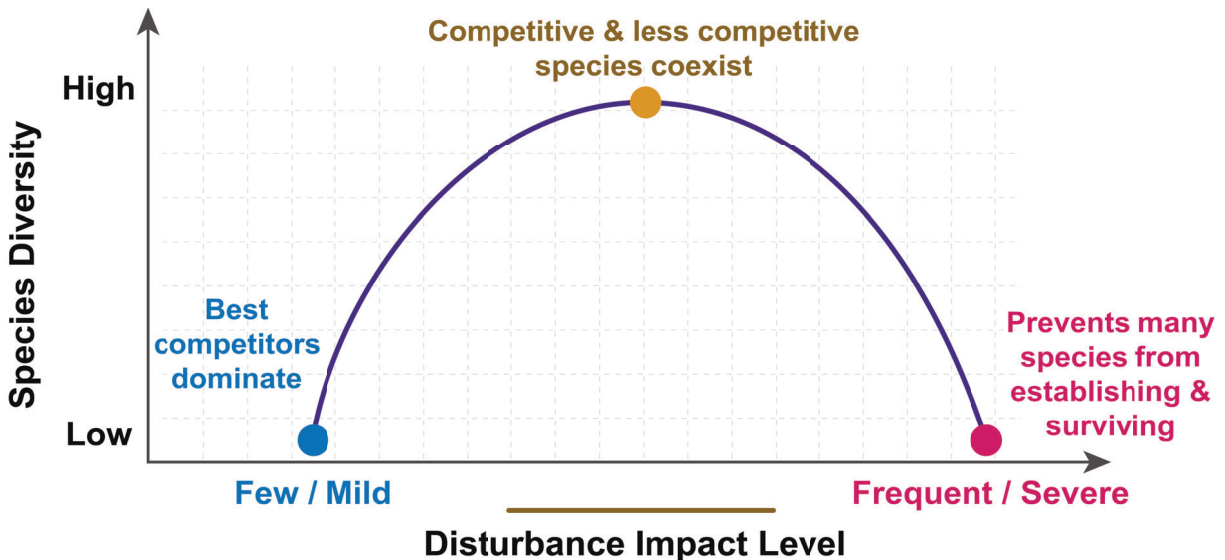


TOPIC: COMMUNITY DYNAMICS

Disturbances Make Communities Dynamic

- ◆ **Recall: Disturbance:** an event that significantly _____/disrupts a community.
 - Impact-level depends on the *type*, _____, & _____ of the disturbance.
- ◆ **Intermediate Disturbance Hypothesis:** *moderate* levels of disturbance foster the _____ species diversity.



PRACTICE

What is the reason that moderate levels of disturbance foster the highest diversity in a community?

- a) It opens up more habitat for less competitive species.
- b) It prevents r-selected organisms from continually thriving, as they would with frequent/severe disturbances.
- c) It prevents the best competitors from dominating, as they would with few/mild disturbances.
- d) All of the above.

PRACTICE

Which of the following should lead to an increase in a community's diversity?

- a) Fairly frequent, very severe disturbances.
- b) Very frequent, moderate disturbances.
- c) Fairly frequent, moderate disturbances.
- d) Very infrequent, minor disturbances.

TOPIC: COMMUNITY DYNAMICS

Ecological Succession

- ◆ **Ecological Succession:** *gradual* process by which a community's structure _____ over time.
 - Each existing community _____ its environment, allowing new species to thrive.
 - Occurs at all times in all communities, but disturbances _____ the process.
- ◆ **Climax Community:** the “_____”, most stable stage of ecological succession.



PRACTICE

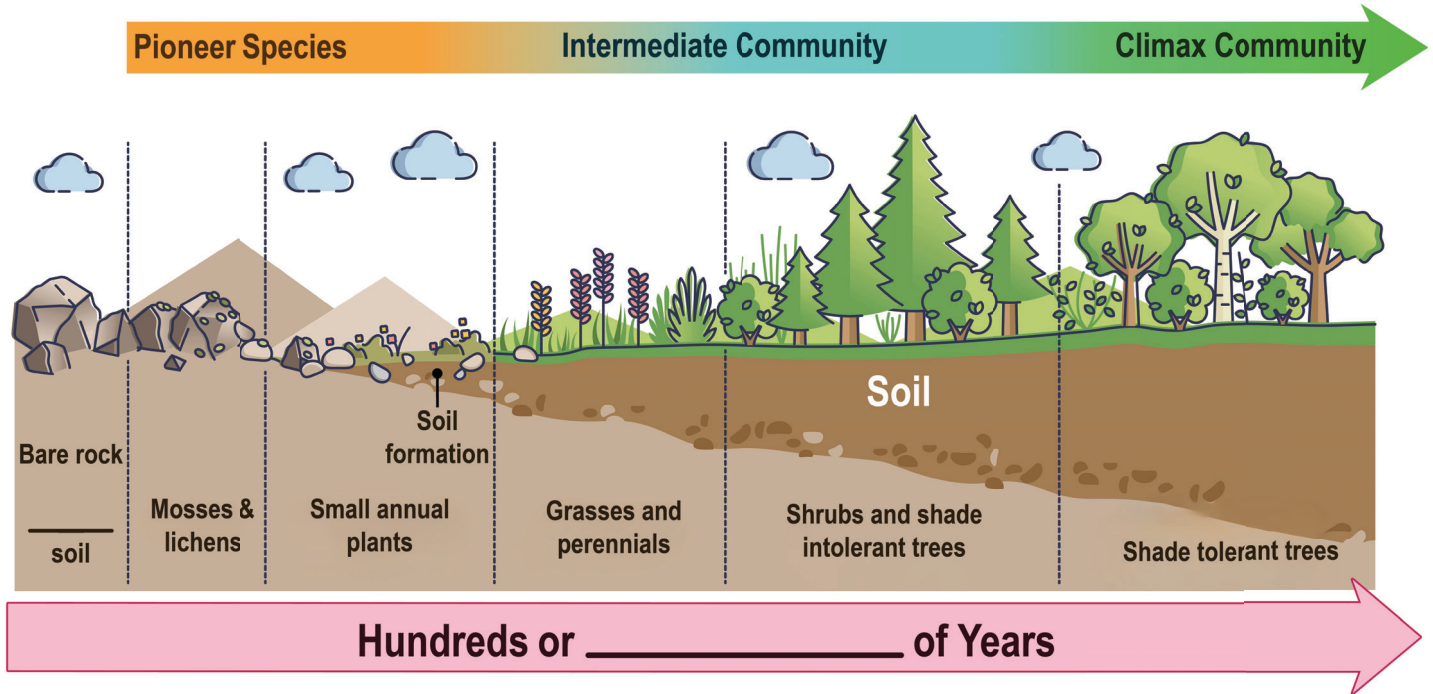
Which of the following statements most accurately describes ecological succession?

- a) The population of predators and prey increase & decrease in cycles.
- b) The species that make up the community gradually change over time as the environment changes.
- c) The diversity of a community increases over time.
- d) A stable, unchanging community that changes due to a severe disturbance.

TOPIC: COMMUNITY DYNAMICS

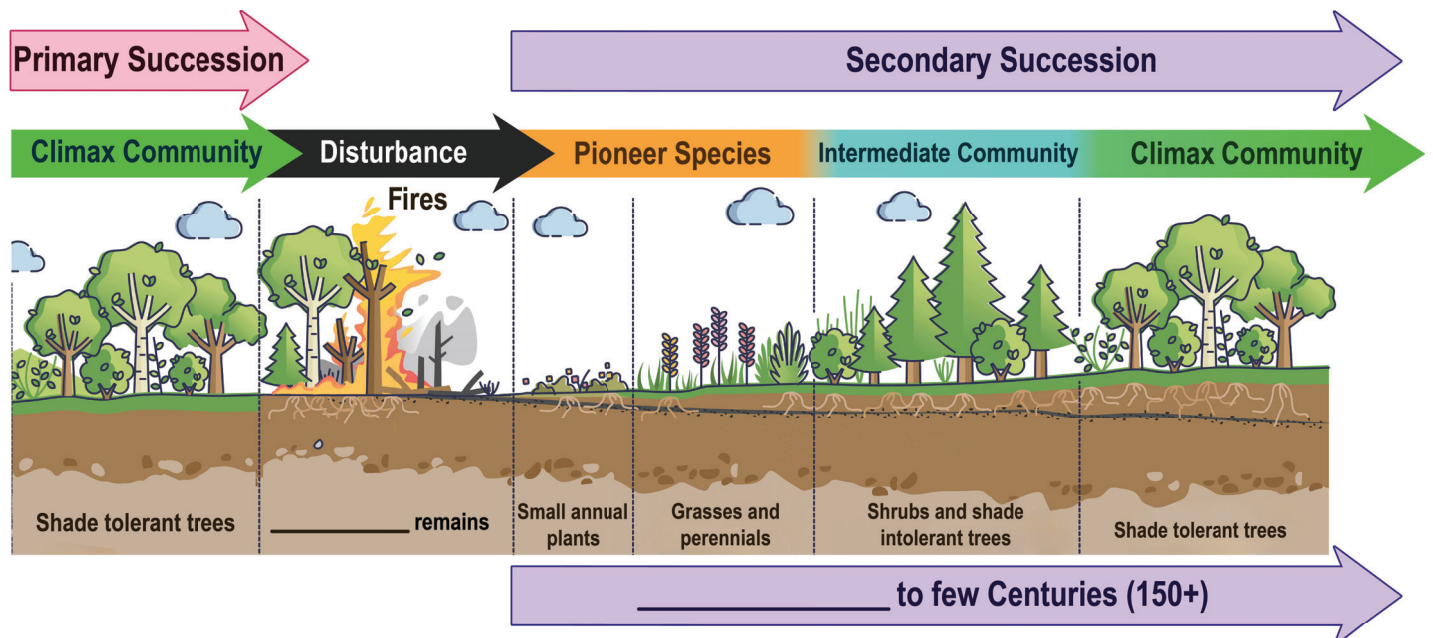
Primary Ecological Succession

- ◆ **Primary Succession:** when organisms colonize a currently uninhabited area with _____ soil.
- **Pioneer Species:** the _____ species to colonize during primary succession (help form soil).



Secondary Ecological Succession

- ◆ **Secondary Succession:** when a community _____ after a disturbance that leaves the soil _____.



TOPIC: COMMUNITY DYNAMICS

EXAMPLE

Identify whether each of the following scenarios are examples of primary succession (PS), secondary succession (SS), a climax community (CC), or none of the above (X):

- ◆ After a severe landslide washes away all the soil in a forest, new species colonize the area. _____
- ◆ An apex predator population in a river community declines due to a new disease. _____
- ◆ An ocean community has been stable for many years but still experiences occasional disturbances. _____
- ◆ A volcanic eruption underwater creates a new oceanic island, which takes years for plants to colonize. _____
- ◆ A big wildfire kills virtually an entire community, but the soil is left intact for new plant species to grow. _____

PRACTICE

Listed below are 4 stages of ecological succession in Glacier Bay, Alaska. However, they are in the wrong order.

Select the answer option that puts these events in the correct chronological order.

- I. The area is invaded by alder trees, which grow up to 9 meters tall.
 - II. Small flowers (*dryas*) begin to dominate the plant community.
 - III. Over hundreds of years, large trees such as spruce & hemlock become the dominant vegetation.
 - IV. Glacier ice melts, exposing bare rock with no living organisms. Mosses & liverworts colonize this area.
-

- | | |
|--------------------|--------------------|
| a) IV, I, III, II. | c) III, I, IV, II. |
| b) II, I, III, IV. | d) IV, II, I, III. |

TOPIC: COMMUNITY DYNAMICS

Effects of Early-Arriving Species on Late-Arriving Species

◆ In ecological succession, there are _____ ways that early-arriving species can affect late-arriving species:

- **Facilitation:** early-arriving species make conditions _____ favorable for certain later species.
- **Tolerance:** existing species do _____ effect the arrival of certain later species.
- **Inhibition:** presence of a certain species _____ establishment or regrowth of another.



PRACTICE

Match the following terms to each of the scenarios below:

- ◆ Facilitation ◆ Tolerance ◆ Inhibition

1. Large trees create large, shaded areas, making it difficult for photosynthetic organisms to thrive.
2. Presence of alder plants increases nitrogen content in soil, allowing willow & poplar seedlings to thrive.
3. The early growth of algae in a community has no significant impact on the future presence of birds.

-
- a) 1 – facilitation, 2 – tolerance, 3 – inhibition.
b) 1 – tolerance, 2 – facilitation, 3 – inhibition.
c) 1 – inhibition, 2 – tolerance, 3 – facilitation.
d) 1 – inhibition, 2 – facilitation, 3 – tolerance.