Essential Question

How does a community rebuild after a disturbance?

Disturbance and Succession

- Disturbance: an event that changes a community
- Succession: gradual change in species over time
- Primary: starts with no soil
- Secondary: starts with soil in place

Primary succession

(no soil at the start)

Begins on bare rock, new lava, or land left by a retreating glacier

Soil must form first, so it is usually slow

Secondary succession

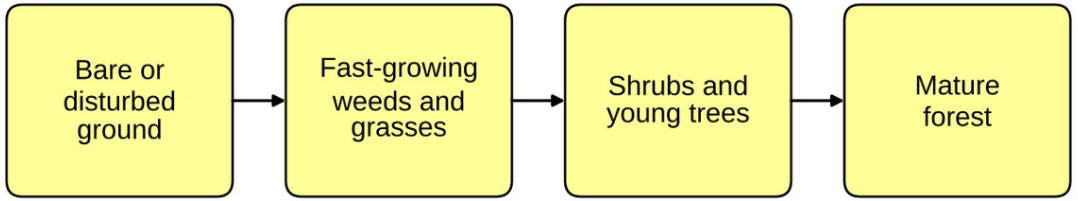
(soil remains)

Begins after a fire, storm, or abandoned farming

Seeds and roots are often already in the soil, so it is usually faster

Stages of Succession

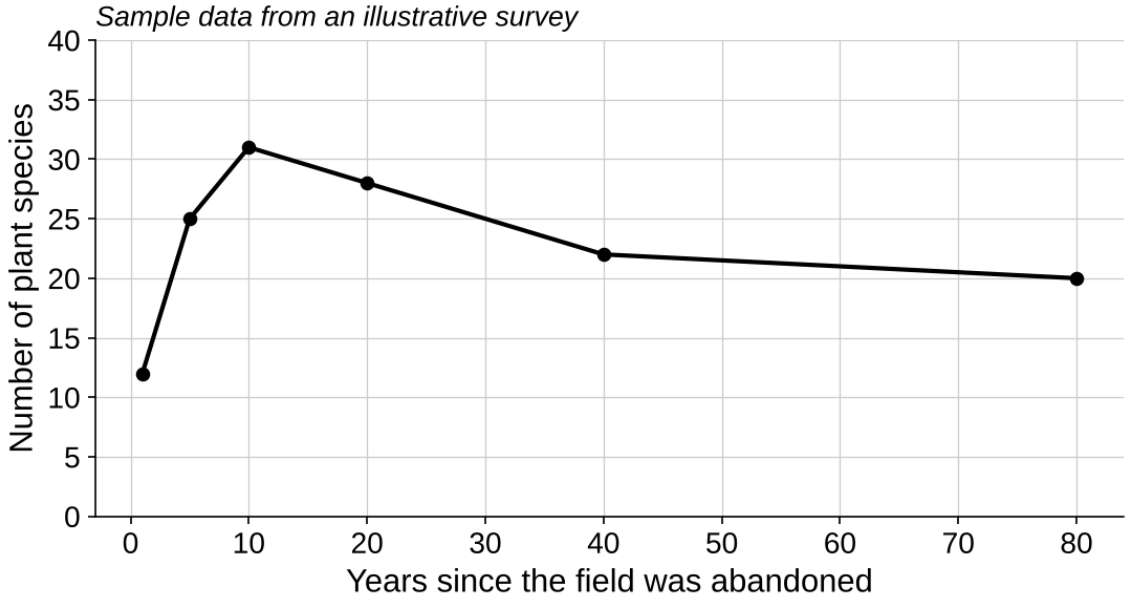
- Pioneer species arrive first
- Lichens and mosses on bare rock
- Fast-growing weeds and grasses in open soil
- Shrubs, then trees, as conditions change



Ecological Succession

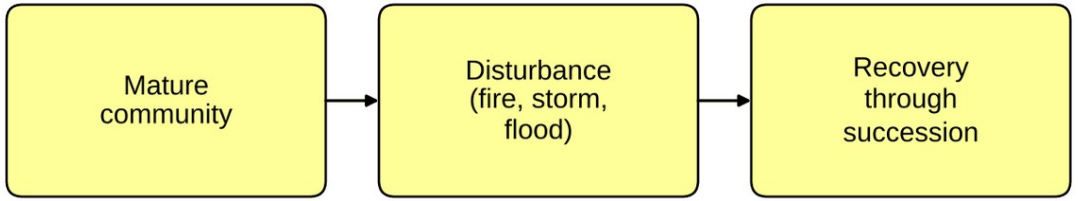
How Communities Change

- Species number often rises early
- It can fall later as trees shade the ground
- Light, soil, and moisture change
- Patterns differ between places



Is There a Final Community?

- Older view: succession ends in a climax community
- Many ecologists now stress ongoing change
- Disturbances recur in many ecosystems
- The result depends on climate, soil, and chance



Example: Primary or Secondary?

Use the two types of succession. Classify each as primary or secondary: (a) lichens colonize bare rock exposed as a glacier retreats, (b) weeds and grasses return to an abandoned farm field, (c) plants regrow in a forest after a wildfire leaves the soil in place, (d) a new volcanic island forms from cooled lava.

Primary succession

(no soil at the start)

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Secondary succession

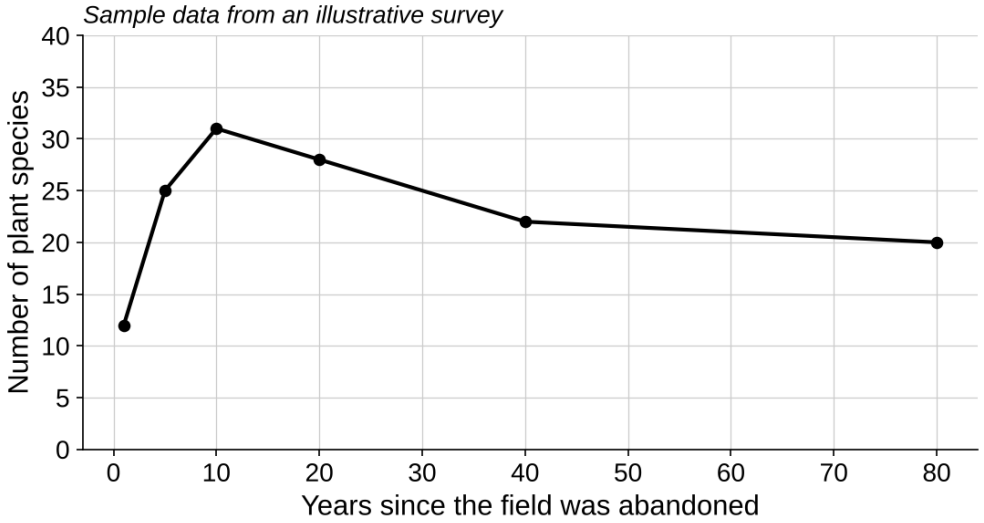
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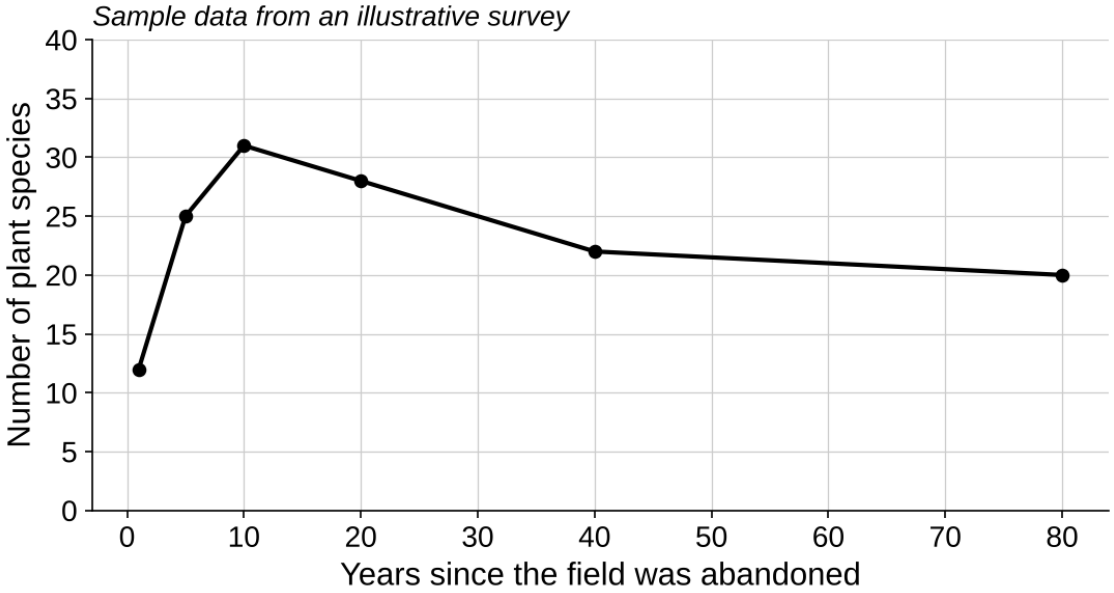
Example: Species in an Abandoned Field

Use the graph. Describe how the number of plant species changed over 80 years. Write a claim, evidence, and reasoning, and give one possible explanation for the change after the peak.



Example: How Fast Did the Number Rise?

The number of plant species rose from 12 at year 1 to 31 at year 10. Calculate the percent increase. Round to the nearest tenth of a percent.



Ecological Succession

Big Ideas

- A disturbance changes a community, and succession is the gradual change that follows
- Primary succession starts with no soil, secondary succession starts with soil in place
- Pioneer species arrive first and change conditions for later species
- The number of species can rise and then fall during succession
- Communities keep changing, and recovery depends on climate, soil, and chance