Chapter 5 How Ecosystems Work Section 3: How Ecosystems Change Preview

- Objectives
- Ecological Succession

Objectives

- List two examples of ecological succession.
- Explain how a pioneer species contributes to ecological succession.
- Explain what happens during old-field succession.
- Describe how lichens contribute to primary succession.

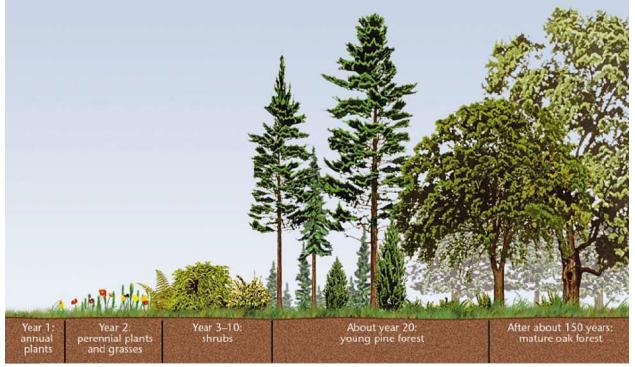
Ecological Succession

- Ecosystems are constantly changing.
- Ecological succession is a gradual process of change and replacement of the types of species in a community.
- Each new community that arises often makes it harder for the previous community to survive.
- Primary succession is a type of succession that occurs on a surface where no ecosystem existed before. It begins in an area that previously did not support life.
- Primary succession can occur on rocks, cliffs, or sand dunes.
- Secondary succession occurs on a surface where an ecosystem has previously existed. It is the process by which one community replaces another community that has been partially or totally destroyed.
- Secondary succession can occur in ecosystems that have been disturbed or disrupted by humans, animals, or by natural process such as storms, floods, earthquakes, or volcanic eruptions.
- A pioneer species is a species that colonizes an uninhabited area and that starts an ecological cycle in which many other species become established.
- Over time, a pioneer species will make the new area habitable for other species.
- A climax community is the final, stable community in equilibrium with the environment.

- Even though a climax community may change in small ways, this type of community may remain the same through time if it is not disturbed.
- Natural fires caused by lightning are a necessary part of secondary succession in some communities.

Ecological Succession cont.

- Minor forest fires remove accumulations of brush and deadwood that would otherwise contribute to major fires that burn out of control.
- Some animal species also depend on occasional fires because the feed on the vegetation that sprouts after a fire has cleared the land.
- Old-field succession is a type of secondary succession that occurs when farmland is abandoned.
- When a farmer stops cultivating a field, grasses and weeds quickly grow and cover the abandoned land.
- Over time, taller plants, such as perennial grasses, shrubs, and trees take over the area.



- Primary succession can occur
- on new islands created by volcanic eruptions
- in areas exposed when a glacier retreats
- any other surface that has not previously supported life

- Primary succession is much slower than secondary succession. This is because it begins where there is no soil.
- The first pioneer species to colonize bare rock will probably be bacteria and lichens, which can live without soil.
- The growth of lichens breaks down the rock, which with the action of water, begins to form soil.