Module 11: Ecology
Topic 4 Content: Primary vs. Secondary Succession Notes

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Succession is the development a biological community over time. There are two different types of succession: primary succession and secondary succession. Click on each section to learn more about the types of succession.

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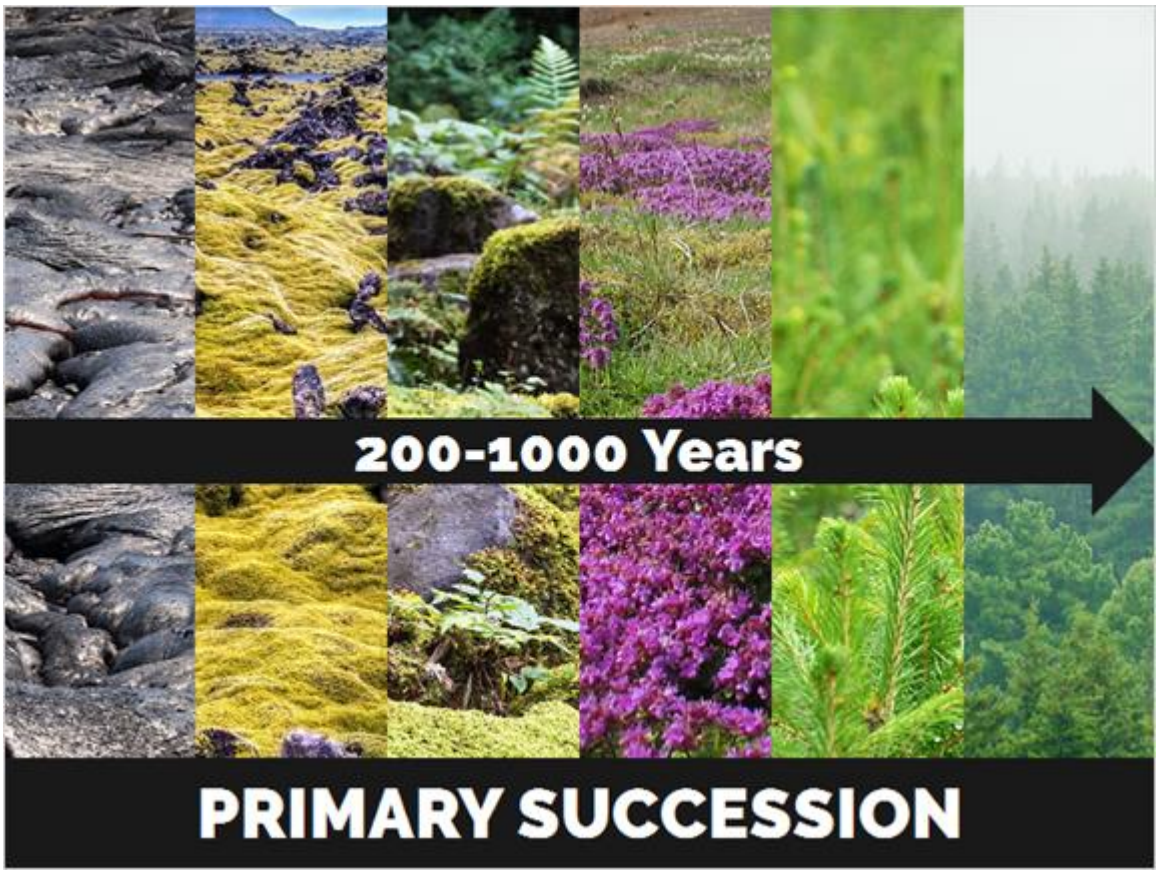

Primary succession occurs when an ecosystem begins in an area previously uninhabited by life, like a lava flow site or the space where a glacier once was. Primary succession can take place over hundreds of years.

In primary succession, the initial area is composed of bare rock. This rock is broken down over time through years of weathering. The pioneer species, or those that appear first in succession, are mosses and lichens.

As the rocks continue to break down, and the mosses and lichens build up organic material, grasses, herbs, and ferns appear.

As the complexity of plant life continues to expand in the area, bushes and flowering plants provide shelter for birds and other small animals who join the community. The increase in biodiversity adds an increased amount of organic matter.

After this, smaller trees, like small spruces, arrive. It may take several hundred more years, but eventually a hemlock-spruce hardwood forest forms.

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An ecosystem undergoes secondary succession when the area experiences a disturbance, like a fire, flood, or large-scale storm. Secondary succession occurs over a much smaller time scale than primary succession, lasting from fifty to two hundred years.

With secondary selection, the area begins with soil and nutrients from the previously healthy ecosystem. In the first few years, grasses and small weeds begin to grow.

Shortly after, shrubbery and evergreen seedlings appear. This development may last around twenty years. Seedlings turn to larger evergreen trees.

As the older pines die out, they are gradually replaced by hardwood species, like oaks and hickories.