

Activity:

Match the following words to their definition:

stratification

changing community structure across a landscape

zonation

changing community composition over time

climax community

changes in community structure with height

succession

a mature community that is self maintaining

Jun 27-10:12 a.m.

Crossword puzzles!



Feb 23-12:18 p.m.

Quiz!



Mar 8-11:49 a.m.

Epiphytes and Lianes

- Perching plants, or **epiphytes**, cling to the trunks of the canopy trees or grow in the leaf litter that accumulates between the branching limbs of large trees.
- Epiphytic species include many ferns and orchids; about half of the world's estimated 30 000 orchid species are epiphytic.
- **Lianes** are rooted in the ground, but clamber into the canopy where higher light levels enable them to develop extensive foliage.



Jun 26-9:18 p.m.

Without looking back in your book make a sketch and use the labels to complete the diagram

Ground Layer

Tree
Fern

Epiphyte
Shrub

Emergent →
Subcanopy ←

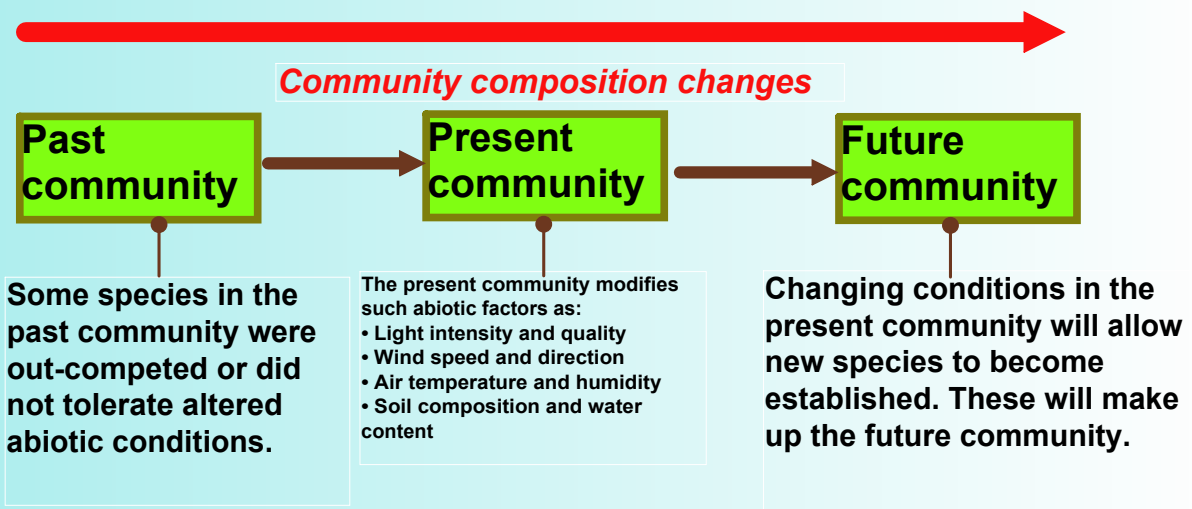
Canopy



Jun 26-9:18 p.m.

Ecological Succession

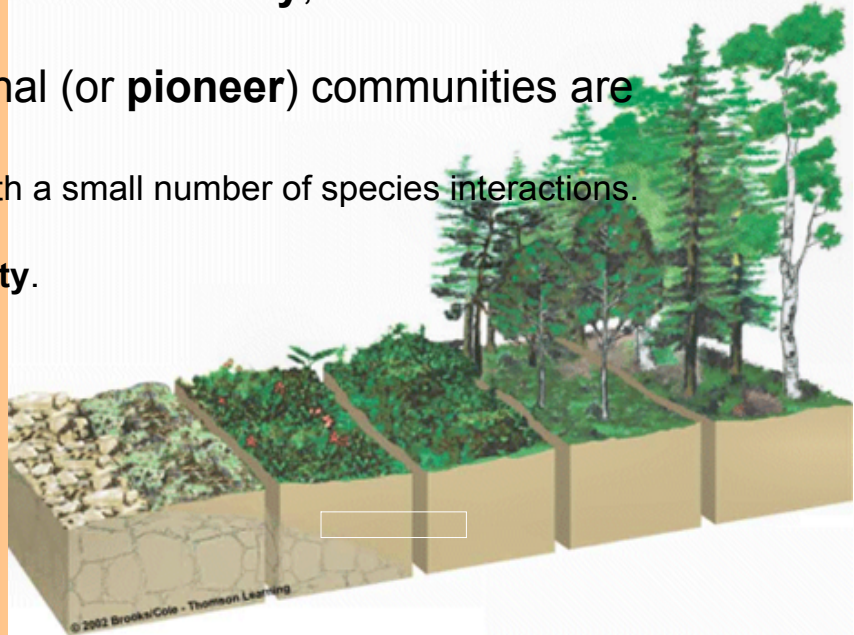
- **Ecological succession** is the process by which communities in a particular area change over time.
- Succession takes place as a result of complex interactions of **biotic** and **abiotic factors**.



Jun 26-9:18 p.m.

Early Successional Communities

- A succession proceeds in **several stages**, until the formation of a **climax community**, which is stable until further disturbance.
- Early successional (or **pioneer**) communities are characterized by:
 - Simple **structure**, with a small number of species interactions.
 - Broad **niches**.
 - Low **species diversity**.



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Primary Succession

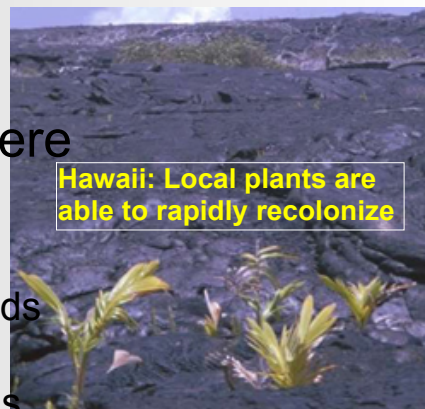
- **Primary succession** refers to colonization of a region where there is no pre-existing community.

Examples include:

- newly emerged coral atolls, volcanic islands
- newly formed glacial moraines
- islands where the previous community has been extinguished by a volcanic eruption

- A **classical sequence** of colonization begins with lichens, mosses, and liverworts, progresses to ferns, grasses, shrubs, and culminates in a climax community of mature forest.

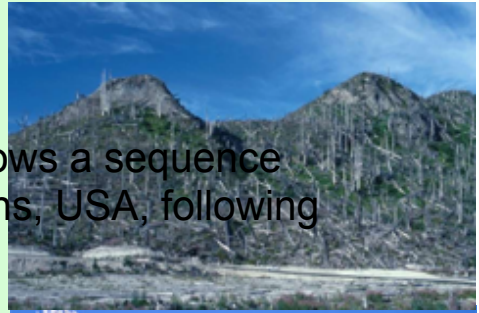
- In reality, this scenario is rare.



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Mount St Helens

- Primary succession more typically follows a sequence similar to the revegetation of Mt St Helens, USA, following its eruption on May 18, 1980.
- The vegetation in some of the blast areas began recovering quickly, with fireweed growing through the ash within weeks of the eruption.
- Animals such as pocket gophers, mice, frogs, and insects were hibernating below ground and survived the blast. Their activities played an important role in spreading seed and mixing soil and ash.



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Secondary Succession

- **Secondary succession** occurs where an existing community has been cleared by a disturbance that does not involve complete soil loss.
- Such disturbance events include **cyclone damage, forest fires** and **hillside slips**.
- Because there is still soil present, the ecosystem recovery tends to be more rapid than primary succession, although the time scale depends on the species involved and on **climatic** and **edaphic** (soil) **factors**.



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Deflected Successions

- Humans may deflect the natural course of succession, e.g. through controlled burning, mowing, or grazing livestock. The resulting climax community will differ from the natural (pre-existing) community.
- A relatively stable plant community arising from a deflected (or arrested) succession is called a plagioclimax.
- Grassland and heathland in lowland Britain are plagioclimaxes.



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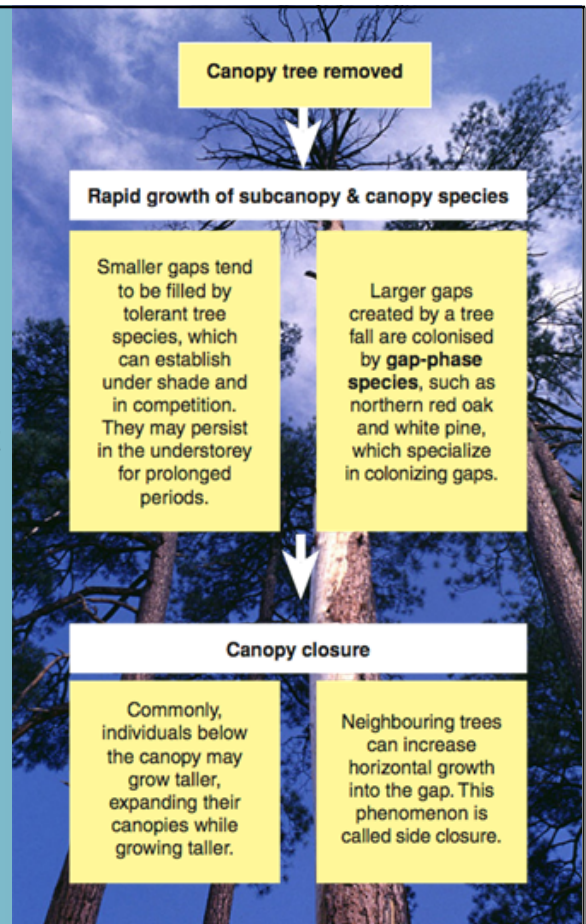
Gap Regeneration

- The reduced sunlight beneath large canopy trees impedes the growth of the saplings below. When a large tree falls, a crucial hole opens in the canopy, allowing sunlight to reach the saplings below.
- The forest regeneration following the loss of a predominant canopy tree is called gap regeneration.
- Gap regeneration is an example of secondary succession.

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Gap Regeneration Cycle

- Gap regeneration is an important process in established forests in temperate and tropical regions.
- Gaps are the sites of greatest understorey regeneration and species recruitment.
- The creation of a gap allows more light to penetrate the canopy and alters other factors that affect regeneration, exposing mineral soils and altering nutrient and moisture regimes.



Jun 26-9:18 p.m.

Activity:

Video on Niches - key notes please!

Gause's Competitive Exclusion Principle

- states that organisms occupying exactly the same niche cannot coexist because they will compete for the same resources.

How do organisms with a similar habitat and feeding requirement can minimise niche overlap,

How do they differentiate their niches to avoid competition?

Jun 26-9:25 p.m.

Activity:

Read page 10 in Pathfinder 12. Explain the difference between habitat, species and ecological niche

Tolerance and limiting factors - key points

Think about:

How do organisms with a similar habitat and feeding requirement can minimise niche overlap,

How do they differentiate their niches to avoid competition?

Jun 27-10:35 a.m.

Climax Communities

• In contrast to early successional communities, climax communities typically show:

- Complex structure, with a large number of species interactions.
- Narrow niches.
- High species diversity.



large number of species interaction

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