

**Succession**- Central concept in ecology

Definition

**Legacy Distributions**

Current species could be adapting to changing conditions that aren't readily apparent.

Current condition of a soil does not necessarily reflect the current ecosystem

**Three major categories of change**

- 1.
- 2.
- 3.

**Disturbance is a constant in most ecosystems**

*Vary in severity*

*Vary in size and frequency*

*Disturbance/succession are two sides of the same coin*

**Primary succession****Secondary succession**

“Climax Community”

Species distributions within ecosystems

## **Generalized Successional Pattern**

### **Mechanisms of Succession**

#### **Two major types of forces**

*Allogenic-geologic/climatic forces change the environment which causes a biotic shift. e.g.*

*Autogenic-modify environment to make it less favorable to self  
Processes*

- a.
- b.
- c.

#### **Autogenic forces**

*Colonization—invasion and survival  
rate depends on:*

Pioneer species—different strategies for primary and secondary succession

*Modification of physical characteristics—many species modify the site to make it  
less favorable to themselves. E.g.*

*Displacement of species  
Interactions between plant species*

- a. Facilitation
- b. Tolerance

- c. Competition/inhibition
  - i. Competition
  - ii. Inhibit seed dispersal/establishment
  - iii. Alteration of soil organic chemistry

- 1. Allelopathic chemicals

## **Legacies**

## **Guilds**

Species within a given community form guilds based on common interests in mycorrhizal fungi and perhaps other beneficial soil organisms

Early colonizers in secondary succession facilitate colonization by members of same guild and inhibit colonization by members of other guilds. May also include animals that are dependent on the mycorrhizal fungi for food, e.g. voles, flying squirrels, northern spotted owl.

### **Succession workshop (30 minutes total)**

Form groups of three students.

There is currently a big pile of glacial till soil that was excavated for the Seminar II building foundation over near the Child Care Center. One possible fate of this soil is to spread it out over the field to form a layer about 2 feet thick. Your work is to designate a successional plant sequence for this soil that ultimately results in a forest. List the plants you would use and what they would contribute to the ecosystem. Pay close attention to the cycling of nutrients in the cycle and note how these would change.