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.