

Key words for topic

Habitat	Ecological / environmental area inhabited by particular species.
Population	Group of organisms of same species in area.
Community	Eco. unit composed of different populations.
Niche	Role of an organism in an ecosystem (competition occurs when 2 organisms share a niche).

All affected by biotic + abiotic factors.

Biomass transfer

Efficiency at producer level	Photosynthesis ≠ 100% of sunlight.
Efficiency at consumer level	Not all energy consumed (not all eaten or digested, metabolic heat...).
	Net production = gross prod. - respiratory losses
	Ecological efficiency = (energy or biomass available after transfer / energy or biomass available before transfer) x 100

Decomposition

Detritivores	Feed on detritus (dead organic material).
Saprotrophs	Secrete enzymes in dead material to digest it.

Recycling nitrogen

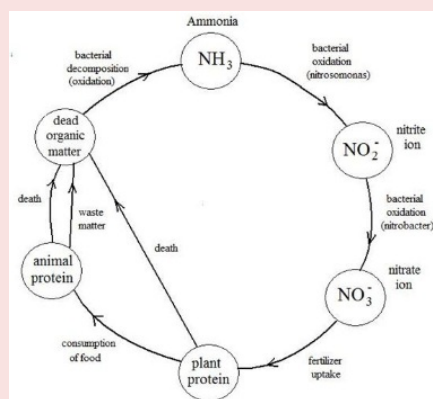
Nitrogen necessary for bio molecules, e.g. nucleic acids, amino acids...
Nitrogen fixation - Nitrogen cannot be used 'raw', so needs to be bonded with other molecules (by *Rhizobium* and *Azotobacter*).

Nitrification - Ammonium compounds converted into nitrogen-containing compounds.
 Requires oxygen.
 Carried out by *Nitrosomonas* and *Nitrobacter*.

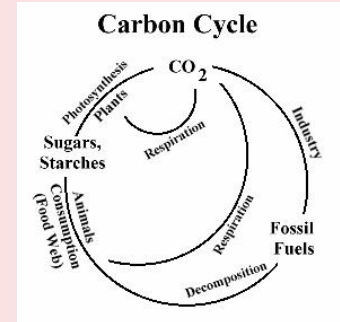
Denitrification - No oxygen --> denitrifying bacteria convert nitrates into N gas.

Ammonification - Nitrogen into ammonium compounds.

Nitrogen cycle



Carbon cycle



Succession key terms

Succession Type of living organisms changes over time (in plants, from annual plants to hardwood trees). Communities become increasingly complex, biodiversity increases.

Primary succession - Plants colonise barren land for the first time.

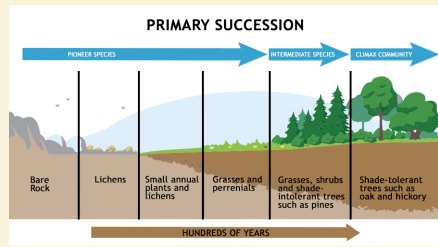
Secondary succession - Soil already present, plants grow for first time.

Seral stages / seres Step in succession.

Deflected succession Succession halted before climax community. If caused by human activity, then = plagioclimax.



Plant succession



Plant succession

Pioneer community Seeds, spores carried by wind, excrement...
Produce many seeds, germinates quickly, fix N₂ from atmosphere.

Intermediate community Erosion and decomp. of pioneer species form humus.
Can support new species (secondary colonisers).
Tertiary colonisers - When conditions improve. Live with little water.

Climax community Stable, little change over time.

Distribution v. Abundance

Distribution Where organisms are found in an ecosystem.
Line or belt transect normally used.

Abundance Number of individuals of a species found in an area.
Animals - Capture-recapture.
Plants - Individuals per area.

Simpson's index of diversity

$$D = 1 - \sum(n/N)^2$$

D = diversity index
N = total number of organisms in ecosystem
n = number of individuals in each species

Value between 0-1. Higher value = higher biodiversity.