

Section 7.1 – Populations and Ecosystems

Succession is the term given to describe the changes that take place within an ecosystem

Barren land such as bare rock can be formed by the eruption of a volcano or a glacier retreating.

The first stage of succession is the colonisation of a pioneer species.

Pioneer species tend to have adaptations such as:

- a tolerance to extreme conditions
- The ability to fix nitrogen from the air
- Ability to photosynthesis light.
- Can easily disperse seeds across vast distances
- Rapid germination of seeds

At each stage of succession a certain type of species can be identified which will change the environment making it less hostile.

A climax community consists of animals and plants which have established equilibrium. There are few if any new species replacing those which have already been established.

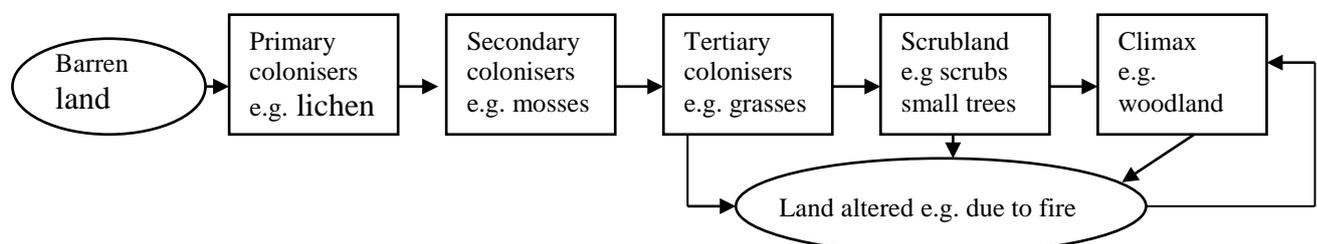
Pioneer species **change the abiotic** environment by dying and releasing nutrients such as nitrates for production of amino acids and proteins for the organisms that follow. Mosses are typically the next stage of succession, followed by ferns.

The growth of mosses and grass provides habitats for insects and animals

Within a climax community there is often a dominant animal and plants species.

During succession there are a number of common features such as:

- **Environment becomes less hostile** – soil forms, nutrients are more plentiful, plants provide shelter from wind
- Greater number of habitats
- **Biodiversity increases** – Habitats become occupied by species. This is shown in the early stages of succession. At mid succession biodiversity is at its peak. In a climax community however, the dominant species can outcompete many other species and so biodiversity decreases.
- More complex food webs due to high species diversity and therefore increased biomass - this also takes place at mid succession.



Section 7.2 – Conservation of habitats

What is conservation?

Conservation is the act of managing the earth's resources in such a way to make maximum use of them in the future.

The main reasons for conservation are:

Ethical – Other species should be allowed to coexist. Respect for living things is preferable to disregard for them.

Economic – Living organisms possess a giant gene pool with a capacity to produce millions of substances

Cultural and aesthetic – They add variety to every day life

Conserving habitats by managing succession

Climax communities reach their current state by undergoing a series of successive changes.

Some of the organisms at previous stages are no longer present in the climax community

They may have been out-competed by other species, or their habitat is no longer available.

Grazing by sheep can prevent a climax community forming since the seedlings of trees can not germinate

If the factor that is preventing succession taking place is removed, then succession will continue until it reaches its climax community