Stationary Phase;

- Birth Rate= Death Rate
- Competition for certain resource limits population growth (Limiting factor- Food, space, light, water etc.)
- Population reached maximum size which is carrying capacity for the particular environment in which population occurs which is limit for number of each species

Death Phase;

- Numbers drop where death rate is greater than birth rate
- May occur when all food in a nutrient solution has been used up, toxic waste products accumulated or disease

Succession

Process in which communities of plant and animal species are replaced in a particular are over time by a series of different (and usually more complex) communities.

- Colonisation begins with the pioneer species
- Process of colonisation continues through a number of stages called seres
- Finally, the climax xommunity is reached

Primary Succession;

- Introduction of plants and animals into areas not previously colonised e.g. bare rock, sand dunes

Pioneer communities;

- Bare rock, sand dunes- harsh abiotic conditions (no soil) few plants can grow
- First plants to colonise are pioneers e.g. lichen, algae, marram grass
- Often have adaptations to withstand the abiotic conditions e.g. resistance to drought, temperature, low nutrients

Effect of Pioneer Species;

- Plants die and provide humus in the developing soil
- Breakdown of plant material releases nitrogen compounds and nutrients into the soil
- Humus also retains water
- Abiotic conditions have changed: rock is weathered and primitive soil formed (become less harchs and more favourable)

Result?

- Other plants can now grow e.g. mosses and ferns which add further organic material and water to develop soil
- Seeds of large colonising plants can germinate e.g. ggrasses and shrubs
- Eventually, trees take root to form mature woodland
- Final stage of the succession is reached- climax community

Overall

- Until climax is reached, plants changed abiotic conditions in favour of competitors e.g. when trees take root, sun loving shrubs disappear
- Plant community becomes increasingly complex and stable

Endangered Species;

Human activities affect the ecosystems- overfishing, urban development, hunting, industrial processes, deforestation. Globally rate of loss of species may be 50x more. Extinction rates are now 1000- 10,000 times more than past at 1 species per million.

Endangered Species;

A lot of the species which have become extinct in the past have done so due to geographical, climatic and biological changes.
Decline in numbers of many animals;
-Loss of habitat
-Over hunting by humans
-Competition from introduced species
-Deforestation
-Pollution
-Drainage of wetlands
Many species may be an important human asset- potential source of food, useful chemicals, disease-resistant genes. Therefore there is a need for species conservation.

Conservation;

- Conservation of species ensures the conservation of existing gene pools
- Ethical reasons- conserve potentially useful genes for future generations of humans as well as survival of species itself
- Conservation is maintenance of the biosphere and the enhancement of biodiversity

Some of trees and shrubs in the rainforest have medicinal properties- incalculable loss. Following steps taken to reduce loss in gene pools and prevent extinction of endangered animals;
-Stocks of seeds of traditional varieties kept in a seed bank, establishment of sperm banks, founding of rare breeds to maintain old, less commercial varieties, protection and breeding of rare animals in specialist zoos, reintroduction programmes, global organisations continuing campaigns to promote public awareness, international co- operation, governing councils (produce publications, proposes scheme of management for each major ecosystem type, establishes nature reserves)

Education and legislation have played a crucial role in conservation. Legislation has been introduced to protect endangered species and to prevent over grazing, over fishing, hunting, collection of birds eggs, picking and collection of wild flowers.

Agricultural Exploitation;

Increasing amount of food required to feed increasing pop. Conflicts can exist between production and conservation.

- Larger fields many hedgerows removed- destruction of habitats to make farms more efficient
- Monoculture- reduced biodiversity.
- Increase in inorganic fertilisers – unforeseen biological effects- Eutrofication