7.1 ADAPTATIONS, INTERDEPENDENCE AND COMPETITION

Abiotic factors

Non-living factors

Different plants and animals are adapted to different habitats. If habitat conditions change rapidly, organisms may be unable to adapt to the changes and die.

Light intensity, temperature, humidity, soil pH, wind, salinity, CO_2/O_2 levels etc.

Biotic and abiotic factors interact in an ecosystem

Biotic factors

Living factors

Predation – organisms which have lots of predators are more likely to be killed

Disease – reduces population size by killing organisms. In densely populated areas, disease can spread quickly so a large proportion of the population is killed.

Competition between species – not enough resources for all, results in death of weaker organisms

Food availability – a large amount of food means that organisms can breed more successfully. Food shortages lead to a high death rate which results in a slow or negative population growth.

Communities

Competition – there is competition for food, resources, mates and space. Competition promotes evolution and natural selection

Stable when population size remains constant. This happens when organisms and environmental factors are balanced

Removing species leads to imbalance

If one species is removed it can affect other species in the community

Interdependence – different species depend on each other e.g. for food, shelter, or to spread seeds

Adaptations

Extremophiles are adapted to live in extreme environments

Adaptations can be structural, behavioural or functional

Organisms adapt to new conditions through evolution and natural selection

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